

COMMERCE, JUSTICE, SCIENCE, AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 2019

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

NONDEPARTMENTAL WITNESSES

[CLERK'S NOTE.—The subcommittee was unable to hold hearings on nondepartmental witnesses. The statements and letters of those submitting written testimony are as follows:]

PREPARED STATEMENT OF THE AMERICAN ALLIANCE OF MUSEUMS

Chairman Moran, Ranking Member Shaheen, and Members of the subcommittee, thank you for allowing me to submit this testimony. My name is Laura Lott and I serve as President and CEO of the American Alliance of Museums (AAM). We urge the subcommittee to restore fiscal year 2019 funding for the Advancing Informal STEM Learning (AISL) program at the National Science Foundation (NSF) to at least \$65 million; provide funding for the NSF Directorates for Biological Sciences; Education and Human Resources; Geosciences; and Social, Behavioral and Economic Sciences to support museum research and collections, which are key to STEM education; and continue to fund informal STEM education programs at the National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA).

We also urge the subcommittee to clearly direct NSF to return the focus of AISL in support of public engagement in science. This would reverse the trend of focusing AISL funding on formal (university-led) research at the expense of effective educational and public engagement programming conducted through museums.

Representing more than 35,000 individual museum professionals and volunteers, institutions-including aquariums, art museums, botanic gardens, children's museums, cultural museums, historic sites, history museums, maritime museums, military museums, natural history museums, planetariums, presidential libraries, science and technology centers, and zoos-and corporate partners serving the museum field, the Alliance stands for the broad scope of the museum community.

Museums are essential in their communities for many reasons:

—*Museums are economic engines and job creators.* According to *Museums as Economic Engines: A National Report*, U.S. museums support more than 726,000 jobs and contribute \$50 billion to the U.S. economy per year. The economic activity of museums generates more than \$12 billion in tax revenue, one-third of it going to State and local governments. For example, the total financial impact that museums have on the economy in the State of Kansas is \$311 million, including supporting 6,133 jobs. For New Hampshire it is a \$265 million impact supporting 3,574 jobs. This impact is not limited to cities: more than 25 percent of museums are in rural areas.

—*Museums are key education providers.* Museums spend more than \$2 billion yearly on education activities; the typical museum devotes 75 percent of its education budget to K–12 students, and museums receive approximately 55 million visits each year from students in school groups. Children who visited a museum during kindergarten had higher achievement scores in reading, math and science in third grade than children who did not, including children most at risk for delays in achievement. Also, students who attended a half-day field trip to

an art museum experienced an increase in critical thinking skills, historical empathy and tolerance. For students from rural or high-poverty regions, the increase was even more significant. Museums help teach the State and local curriculum in subjects ranging from art and science to history, civics, and government. Museums have long served as a vital resource to homeschool learners. For the approximately 1.8 million students who are homeschooled—a population that has increased by 60 percent in the past decade—museums are quite literally the classroom. It is not surprising that in a 2017 public opinion survey, 97 percent of respondents agreed that museums were educational assets in their communities. The results were statistically identical regardless of political persuasion or community size.

The National Science Foundation is an independent Federal agency responsible for about two-thirds of all Federal funding for biological, geological and anthropological research at America's universities, science centers and other museums. NSF is also charged with promoting the vitality of the Nation's STEM research and education enterprises.

The mission of NSF's Directorate for Education and Human Resources (EHR) is to achieve excellence in U.S. STEM education at all levels and in all settings (both formal and informal) in order to support the development of both a well-prepared workforce and a well-informed citizenry. EHR's Advancing Informal STEM Learning program invests in research and development of innovative and field-advancing, out-of-school STEM learning, and emerging STEM learning environments.

The NSF Directorates for Biological Sciences, Education and Human Resources, Geosciences, and Social, Behavioral & Economic Sciences have all supported museums in the areas of field and collections-based research, collections improvements and digitization, database development, and educational programming.

The National Science Foundation's Advancing Informal STEM Learning (AISL) program seeks to advance new approaches to and evidence-based understanding of the design and development of STEM learning opportunities for the public in informal environments; provide multiple pathways for broadening access to and engagement in STEM learning experiences; advance innovative research on and assessment of STEM learning in informal environments; and engage the public of all ages in learning STEM in informal environments.

In 2017, AISL provided at least \$13.7 million to a diverse array of museums from across the country as project leads or participants, including Sitka Sound Science Center, Sitka, Alaska; Amazeum, Bentonville, Arkansas; Aquarium of the Pacific, Long Beach, California; California Academy of Sciences, San Francisco, California; Exploratorium, San Francisco, California; Natural History Museum of Los Angeles County, Los Angeles, California; Tech Museum of Innovation, San Jose, California; Phillip and Patricia Frost Museum of Science, Miami, Florida; Adler Planetarium, Chicago, Illinois; New England Aquarium, Boston, Massachusetts; Science Museum of Minnesota, Saint Paul, Minnesota; New York Hall of Science, New York, New York; Center for Science and Industry (COSI), Columbus, Ohio; Oregon Museum of Science and Industry, Portland, Oregon; Franklin Institute Science Museum, Philadelphia, Pennsylvania; Independence Seaport Museum, Philadelphia, Pennsylvania; and the Pacific Science Center, Seattle, Washington.

Specifically, we urge the Subcommittee to provide NSF:

- \$902 million for the Directorate for Education and Human Resources (EHR);
- \$65 million for Advanced Informal STEM Learning (AISL); and
- \$51.9 million for Science, Technology, Engineering, and Mathematics + Computing Partnerships (STEM+C)

Millions of Americans of all ages and backgrounds learn about STEM each year by visiting museums, science centers, public gardens, zoos, and aquariums. Museum exhibitions and educational programs and resources are built on a firm foundation of research, and museum researchers make major original contributions to the understanding of important issues such as changes in climate, environments, biodiversity, and human culture. Informal STEM education programs at other Federal agencies are also critical to helping museums attract, inspire, and educate the current and future STEM workforce.

NASA's Competitive Program for Science Museums, Planetariums, and NASA Visitor Centers (CP4SMPVC) is authorized by law and has helped the agency meet numerous goals identified in its strategic plan—including advancing the Nation's STEM education and workforce pipeline. NASA has transitioned many of these activities into a new competitive grant program for museums, the Teams Engaging Affiliated Museums and Informal Institutions (TEAM II) program.

We urge the subcommittee to increase the top line funding for NASA Office of Education from \$100 million to \$115 million and include the following language in

its bill, which is directly from the 2005 NASA Reauthorization Act: “\$15,000,000 shall be available to enable the Administrator to award grants and enter into cooperative agreements with museums and planetariums to enable them to enhance programs related to space exploration, aeronautics, space science, earth science, or microgravity.”

A number of vital NOAA programs—including the Competitive Education Grant Program and Bay Watershed Environmental Training (B-WET)—currently help zoos, aquariums, science centers, and other museums to bring real world examples of science to students nationwide. Within the budget for NOAA, we ask the Subcommittee to maintain the total budget for the Office of Education at \$28 million.

What was true almost a decade ago, when the National Research Council of the National Academies released a report entitled Learning Science in Informal Environments: People, Places and Pursuits, is true today. Findings included:

- “Do people learn science in non-school settings? This is a critical question for policy makers, practitioners and researchers alike—and the answer is yes.”
- “Designed spaces—including museums, science centers, zoos, aquariums and environmental centers—can support science learning. Rich with real-world phenomena, these are places where people can pursue and develop science interests, engage in science inquiry, and reflect on their experiences through sense-making conversations.”
- “Informal environments can have a significant impact on science learning outcomes for individuals from non-dominant groups who are historically underrepresented in science.”

Please consider this request in the context of the essential role that museums play in our Nation, as well as their immense economic and educational impact. In closing, I highlight 2017 national public opinion polling that shows that 95 percent of voters would approve of lawmakers who acted to support museums and 96 percent want Federal funding for museums to be maintained or increased. People love museums.

I want to acknowledge the difficult choices that the subcommittee faces. I hope that my testimony has made it clear why these priorities are of critical importance to the Nation and will provide a worthwhile return on investment to the American taxpayer. Thank you again for the opportunity to submit this testimony.

[This statement was submitted by Laura L. Lott, President and CEO.]

PREPARED STATEMENT OF THE AMERICAN BAR ASSOCIATION

Request: Chairman Moran, Ranking Member Shaheen, and subcommittee Members, I am Hilarie Bass, President of the American Bar Association (ABA) and Co-President of Greenberg Traurig law firm. I submit this statement today on behalf of approximately 400,000 members of the ABA. The ABA has long been committed to the realization of “Equal Justice Under Law” in our country, establishing our Standing Committee on Legal Aid and Indigent Defendants in 1920. U.S. Supreme Court Justice Lewis F. Powell, while serving as ABA President in 1964, understood the need to provide legal services, later culminating in President Nixon’s signing the LSC Act into law in 1974. The ABA recommends restoring Legal Services Corporation (LSC) funding, which has been cut sharply since fiscal year 2010, to at least the inflation-adjusted fiscal year 2010 level of \$482 million. LSC appropriations have not yet even returned to the fiscal year 2010 unadjusted level of \$420 million, let alone kept up with inflation.

Content: This testimony addresses the need for and the beneficiaries of LSC funds, as well as some of the latest challenges. Following that, the testimony discusses the proper role of the Federal Government in achieving equal justice under law and in helping to secure Federal rights. Next, I address the downturn in funding over the past decade and the resultant rank of the United States in the global assessment of access to justice. Finally, I review the Legal Service Corporation’s efficacy, LSC’s utility to Congress’ constituent services, and support for LSC.

New Justice Gap Study: We acknowledge, based on the 2017 Justice Gap Report, that a more laudable trajectory for achieving the pledge of justice for all would be accomplished with the Legal Services Corporation’s requested budget of \$564.8 million.

In June of 2017, the University of Chicago’s NORC provided data analysis regarding the unmet civil legal needs of low-income Americans. The survey of more than 2,000 adults living in low-income households (at or below 125 percent of the Federal Poverty Level) updated two previous reports. According to the Report, “Eighty-six

percent of the civil legal problems faced by low-income Americans in a given year receive inadequate or no legal help.”

Specifically, LSC Board Chair John G. Levi points out: “Low-income seniors, for example, received inadequate or no professional help for 87 percent of their civil legal problems. For low-income rural residents, the number was 86 percent, while for low-income veterans or other military personnel, the number was 88 percent.”

Disasters: On April 5, 2018, Colorado State University, whose Meteorologist Phil Klotzbach and other experts are viewed as the Nation’s top seasonal hurricane forecasters, released its hurricane predictions for 2018’s June-through-November hurricane season. It predicts 14 named tropical storms, of which 7 will become hurricanes—above the average of 12 and 6.

By comparison, for 2017, Colorado State forecasters predicted formation of 11 tropical storms, 4 of which would become hurricanes. In reality, 17 tropical storms formed and 10 became hurricanes.

Last year the committee commendably included \$15 million in supplemental funding for LSC to provide services to victims of fire and hurricane disasters. We hope the committee will keep a close eye on 2018 disasters and if circumstances require will provide supplemental funds for LSC disaster services again this year.

Disasters have a severe and disproportionate impact on the poor, resulting in a sharp increase in the need for legal help. As LSC points out: “In the immediate wake of a disaster or crisis, disaster-related legal issues follow a common pattern. Survivors often need help obtaining copies of important documents such as birth certificates, driver’s licenses, and Social Security cards to apply for or restore benefits and supports. The need for adequate housing is generally a major issue for survivors of most disasters. In addition, low-income and other vulnerable people who need housing after an emergency are more susceptible to scams and price gouging. With families experiencing even more stressors than before, there is also an increase in the need for more legal information on core areas of practice for legal aid, such as public benefits, domestic violence prevention, consumer law, and fraud prevention.”

In response to these disaster concerns, the Legal Services Corporation has formed a Disaster Task Force comprising LSC grantees, business leaders from LSC’s Leaders’ Council, emergency management experts, and other stakeholders to improve disaster relief coordination, comprehensiveness, and effectiveness nationwide.

Opioids: Legal services for custody, guardianship, and adoptions have become paramount in light of the opioid epidemic. The need for kinship care—or a family member caring for a child of a relative—is a significant result of the crisis.

In Harrison County, West Virginia, an advocate reports that she primarily sees grandparents raising grandchildren, who are often informally placed in their care due to neglect by the addicted parents. “Grandparents aren’t really aware of the kinds of benefits that can come from establishing formal legal custody in court,” Courtney Crowder told the Exponent Telegram. “Medical treatment and school enrollment are two barriers that come with not having legal custody of a child. As well, grandparents can receive benefits through the Department of Health and Human Resources. That can be really helpful for grandparents, especially those who are living on a fixed income and probably didn’t plan on raising three extra kids,” Crowder said.

In response to these opioid concerns, the Legal Services Corporation has formed an Opioid Task Force, co-chaired by LSC Board Members Victor Maddox and Robert Grey, and comprising LSC grantees, leaders from LSC’s Leaders’ Council, healthcare experts, and other social services providers and stakeholders to educate government leaders and the public about the legal issues raised by the opioid crisis in areas such as healthcare, family law, domestic violence, child and elder abuse, and housing. The task force will, among other things, highlight the critical role legal aid programs play in helping low-income people address these issues.

With the opioid crisis placing heavy new burdens on legal aid, a commensurate increase in funding for LSC grantees should be appropriated.

The Federal Role in Equal Justice: The Federal Government has a definite role in promoting equal justice and justice for all.

Legal aid clients secure their rights through Federal, State, and local law—not exclusively State and local law. Thus, funding for equal justice under Federal law is a Federal duty. The Federal role in promoting equal civil justice is funding the Legal Services Corporation.

Unfunded Mandate: Elimination or even reduction of Federal funding for equal justice would necessarily foist unfunded mandates on States, Tribes, and localities. Day in and day out, Legal Services Corporation-funded attorneys work with these Federal laws to secure the Federal rights of individuals unable to secure their rights for themselves.

Nonetheless, the fiscal year 2019 White House Budget proposes to eliminate Federal funding for LSC. In addition, the fiscal year 2018 House Budget Committee-passed budget report stated: “It is the duty of State and local governments to provide legal services to those individuals unable to provide it for themselves.” That statement assumes that to ensure equal justice under law, governmental assistance to ensure legal representation is needed, yet it would saddle only States, Tribes, and localities with the burden.

The Federal Government legislates—conferring rights and imposing duties—in all areas important to the lives of our citizens. Justice for all certainly requires access to legal representation in these myriad areas of Federal law. For example, don’t destitute veterans deserve equal justice? Funding for equal justice under Federal law cannot be shouldered by State and local governments as an unfunded mandate. The Federal Government should contribute its fair share. That can only be accomplished through funding the Legal Services Corporation.

Funding for LSC is 15 Percent Down Since 2010: I want to thank this subcommittee for the recent partial restoration of funding for LSC. That money will permit LSC to serve more needy clients. Nevertheless, the fiscal year 2018 LSC appropriation of \$410,000,000 is still 15 percent lower than it was in fiscal year 2010 (the fiscal year 2010 appropriation would be \$482 million in fiscal year 2018 dollars). At the same time, the number of people qualifying for assistance is about 25 percent higher than in 2007. Compare also the fiscal year 2017 funding to LSC’s average appropriation of \$719,730,870 (in fiscal year 2018-adjusted dollars) during the 1980s. LSC funding needs restoration in these good economic times when unemployment is low, the stock market is high, and the 302A total spending level is commensurately high pursuant to the Bipartisan Budget Act of 2018.

IOLTA Revenues Down: Furthermore, robust funding for the LSC is desperately needed because other funding sources have diminished over the last decade. Over 10 years, from peak returns in 2007 to the most recent 2016 data, low interest rates and principal balances have caused a decrease by about 77 percent in Interest on Lawyers’ Trust Accounts (IOLTA) funds that go to legal aid offices.

Ranking: As discussed above, 86 percent of all eligible people seeking legal aid services are turned away or receive inadequate legal services due to lack of resources—an impediment seriously hamstringing justice in our legal system. That’s why the 2017–18 World Justice Project, which Justice Gorsuch cited in his confirmation hearings, ranked the United States 26th of 102 countries in its Rule of Law Index for civil justice access, behind the Czech Republic, St. Lucia, and the United Arab Emirates. Funding bolsters accessibility. LSC is the Nation’s largest civil legal aid provider: nearly 900 LSC-funded legal aid offices serve every congressional district in the United States.

Cost-Benefit: The American Bar Association collects dozens of statewide studies of the cost-benefit impact of legal aid. All studies show a big positive impact: http://www.americanbar.org/groups/legal_aid_indigent_defendants/initiatives/resource_center_for_access_to_justice/atj_commission_self-assessment_materials1/studies.html.

For example, Community Services Analysis LLC published a 2015 report regarding the return on investment of civil legal aid services in the State of Alabama. The report reveals that, “For every \$1 invested in Alabama Legal Aid during the year, the citizens of Alabama receive \$8.84 of immediate and long-term financial benefits.”

Constituent Service: Legal Aid offices in every corner of the country regularly assist constituents referred by congressional offices and their district staff. Civil legal aid is a constituent service performed in every State and congressional district in the country, complementary to and often at the request of your own constituent services staff. Key beneficiaries of legal aid services include: 1. Veterans; 2. Older Americans; 3. Rural Americans; 4. Domestic violence survivors; 5. Women, constituting 70 percent of clients; and 6. Natural-disaster victims.

U.S. Supreme Court Support: The late Supreme Court Justice Antonin Scalia stated, at the 40th anniversary of the Legal Services Corporation: “I’m here principally . . . to represent the support of the Supreme Court and I’m sure all of my colleagues for the LSC . . . The American ideal is not for some justice; it is, as the Pledge of Allegiance says, ‘Liberty and justice for all’ or as the Supreme Court pediment has it, ‘Equal Justice.’ I’ve always thought that’s somewhat redundant. Can there be justice if it is not equal? Can there be a just society when some do not have justice? Equality, equal treatment is perhaps the most fundamental element of justice. So, this organization pursues the most fundamental of American ideals, and it pursues equal justice in those areas of life most important to the lives of our citizens.” [Emphasis added.]

U.S. Supreme Court Justice Neil Gorsuch, a former legal clinic volunteer, embraced access to justice for all in his confirmation hearing: “It’s a fact that too few people can get lawyers to help them with their problem . . . I do think access to justice in large part means access to a lawyer. Lawyers make a difference. I believe that firmly.” In his 2016 law journal article “Access to Affordable Justice,” Justice Gorsuch wrote: “Legal services in this country are so expensive that the United States ranks near the bottom of developed nations when it comes to access to counsel in civil cases.”

Polling: Eighty-two percent of those surveyed believe it is important to ensure everyone has access to civil legal help or representation, according to polling by Voices for Civil Justice (<https://voicesforciviljustice.org/wp-content/uploads/Lake-Tarrance-Expanding-civil-legal-aid-2013.pptx3.pdf>).

Conclusion: As the economy revives, LSC funding should also revive. Down 15 percent from 2010 (in fiscal year 2018 dollars) and with 25 percent more people qualified for legal aid, LSC seriously needs funding restored at least to the fiscal year 2010 level. Given LSC’s excellent benefit/cost ratio and with 82 percent supporting access to civil legal help, we encourage you, to heed constituents’ views.

PREPARED STATEMENT OF THE AMERICAN EDUCATIONAL RESEARCH ASSOCIATION

Chairman Moran, Ranking Member Sheehan, and Members of the subcommittee; thank you for the opportunity to submit written testimony on behalf of the American Educational Research Association (AERA). I want to begin by recognizing the longstanding support for the National Science Foundation and thank you and your staff for your strong commitment to maintaining agency flexibility to fund cutting edge science. AERA recommends that the National Science Foundation (NSF) receive \$8.45 billion in fiscal year 2019. This recommendation is consistent with that of the Coalition for National Science Funding (CNSF), in which we are a long-term active member. Furthermore, this request aligns with the dear colleague letters led by Representatives McKinley and Butterfield and by Senator Markey. AERA also recommends funding the Census Bureau at \$4.735 billion in fiscal year 2019, consistent with the recommendation of The Census Project.

AERA is the major national scientific association of 25,000 faculty, researchers, graduate students, and other distinguished professionals dedicated to advancing knowledge about education, encouraging scholarly inquiry related to education, and promoting the use of research to serve public good. Many of our members are engaged in science, technology, engineering, and mathematics (STEM) education research. Our members work in a range of settings from universities and other academic institutions to research institutes, Federal and State agencies, school systems, testing companies, and nonprofit organizations engaged in conducting research in all areas of education and learning from early childhood through the workforce. Given the expertise of the AERA membership, my testimony will focus on the importance of the Education and Human Resources (EHR) and the Social, Behavioral and Economic (SBE) Sciences Directorates. Many of our members depend on an accurate Census count and data available from the American Community Survey to do their work.

The EHR and SBE Directorates are central to the mission of the National Science Foundation (NSF) to advance fundamental knowledge and scientific breakthroughs and to ensure significant continuing advances across science, engineering, and education. Research and science supported by these directorates are intertwined with science and research of the other Directorates (for example, Computer and Information Science and Engineering). Furthermore, the EHR and SBE directorates are vital not just to producing essential knowledge and innovative methodologies but also to preparing our students and citizens to use new technologies and harness knowledge to enhance productivity, safety, security, and social economic well-being.

As indicated in the agency’s budget request, “Ninety-three percent of appropriated funds directly support research and science, technology, engineering, and mathematics (STEM) education, seventy-eight percent of it at our Nation’s colleges and universities.”

EDUCATION AND HUMAN RESOURCES DIRECTORATE

The EHR Directorate at NSF is responsible for providing the research foundation necessary to achieve excellence in U.S. STEM education. EHR accomplishes this goal by supporting the development of a scientifically-literate citizenry as well as a STEM-skilled workforce. As stated in the NSF Strategic Plan 2018–2022: “NSF’s investments in basic research on how peoples learn, in the traditional period stretching from pre-kindergarten to college as well as continually throughout life,

will be crucial to the advances in U.S. education needed to ensure that the Nation thrives in a rapidly evolving 21st century world.”

The EHR Directorate supports STEM education and education research from early childhood learning to doctoral work and beyond and promotes evidence-based innovations in teaching practices, instructional tools, and programs that advance STEM education and prepare the next generation of STEM professionals. EHR funded researchers are asking key questions, for example, about how to spark students’ interest in math and science and keep them engaged, or about why so many students lose interest and confidence and about what can be done to keep them engaged. Understanding these and many other questions will help the United States build a well-educated and technology-literate workforce necessary for a prosperous economic future.

SOCIAL, BEHAVIORAL AND ECONOMIC SCIENCES DIRECTORATE

In addition to the significant investments in education sciences provided by EHR, AERA values the important role the SBE Directorate in funding important education research, including the essential statistical information provided by the National Center for Science and Engineering Statistics (NCSES).

The SBE Directorate supports research to better understand people and reveals basic aspects of human behavior in the context of education and learning. SBE funded research has the potential to advance fundamental knowledge in the social, behavioral, and economic sciences that provide critical research to promote the Nation’s economy, security, and global leadership. Understanding social organizations and how social, economic, and cultural forces influence the lives of students is key to improving teaching and learning and advancing STEM education.

The budget for SBE is not even 4 percent of the NSF budget, yet it provides approximately 68 percent of the Federal funding for basic research in the social, behavioral, and economic sciences at academic institutions.

NATIONAL CENTER FOR SCIENCE AND ENGINEERING STATISTICS (NCSES)

In addition, AERA has a strong interest in the National Center for Science and Engineering Statistics (NCSES) within SBE. NCSES provides invaluable statistical information about science and engineering in the U.S. and around the world. NCSES collects and analyzes data on the progress of STEM education and the research and development, providing valuable information on the trajectories of STEM graduates both in STEM and non-STEM careers. Adequate funding in fiscal year 2019 for NCSES would support critical activities to develop new data techniques building on administrative data and enhance data tools, techniques, and visualizations to facilitate access to statistical resources.

As you know, the public strongly supports a Federal investment in science. According to a report issued by the American Academy of Arts & Sciences, 71 percent of U.S. adults say that government investments in basic scientific research pays off in the long run. When asked about priorities for scientific research, 56 percent of respondents consider improving education and how our children learn to be an urgent priority. (*Perceptions of Science in America 2018*)

On behalf of AERA, I thank both the Chairman and the Ranking Member for your ongoing recognition of the importance of providing NSF with the flexibility to determine directorate funding levels within the Research and Related Activities Account. AERA shares the opinion of Director Córdova, that this flexibility enables NSF to best “build a portfolio of the most exciting research across all fields.”

In addition to my attention in this testimony to the National Science Foundation, I also wish to emphasize the importance of adequate support for the Census Bureau. AERA recommends funding the Census Bureau at \$4.735 billion in fiscal year 2019. Even with the much-needed resources provided in the final fiscal year 2018 appropriations bill to plan for the 2020 Census, funding for the Bureau remains below the levels required to appropriately prepare for the decennial census, leading to the cancellation of test sites in 2017 and 2018. Adequate support for the Census Bureau will enable the necessary technology, methodologies, and staff for the rollout of the decennial census. The recommended funding support will also allow the Census Bureau to continue to conduct the American Community Survey and the Current Population Survey.

Thank you for the opportunity to submit written testimony in support of \$8.45 billion for the National Science Foundation and sharing our particular interest in the Education and Human Resources Directorate and the Directorate for Social, Behavioral, and Economic Sciences in fiscal year 2019. AERA would welcome the opportunity to work with you and your subcommittee to best further the crucial advances of the National Science Foundation. Please do not hesitate to contact me if

AERA can provide additional information regarding this budget proposal or the significant science made possible through NSF support.

[This statement was submitted by Felice J. Levine, Executive Director.]

PREPARED STATEMENT OF THE AMERICAN GEOPHYSICAL UNION

The American Geophysical Union (AGU), a non-profit, non-partisan scientific society, appreciates the opportunity to submit testimony regarding the fiscal year 2019 budget request for the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA), and the National Science Foundation (NSF). The AGU, on behalf of its 60,000 Earth and space scientist members, respectfully requests that the 115th Congress appropriate:

- \$21.7 billion overall for NASA, including \$6.5 billion for the Science Mission Directorate;
- \$6.2 billion overall for NOAA; and
- \$8.45 billion overall for NSF.

NATIONAL AERONAUTICS & SPACE ADMINISTRATION

AGU requests that Congress appropriate \$21.7 billion for NASA in fiscal year 2019—a 5 percent increase above the amount provided by the fiscal year 2018 Omnibus. This increase will ensure that NASA is able to continue its work and preserve U.S. leadership in Earth and space science and exploration. Additionally, AGU requests that Congress appropriate \$6.5 billion for NASA’s Science Mission Directorate, including robust and equitable funding for NASA’s Earth Science, Planetary Science, and Heliophysics Missions. A request of 5 percent allows NASA to grow above the rate of inflation and make critical progress towards achieving the scientific goals outlined in the Decadal Surveys produced by the National Research Council.

Earth Science and Planetary Science Divisions

Over a third of the U.S. economy is influenced by climate, weather, and natural hazards, demonstrating the strong economic need to study the Earth. Missions within NASA’s Earth Science Division allow us to more accurately predict floods and droughts, respond to earthquakes, and optimize military and commercial operations—all information that decision makers need to better protect the American public. Greater knowledge and forecasting skills are urgent when we consider the effort, time, and costs of protecting infrastructure and public health from natural and manmade hazards. Additionally, robust funding for Earth science ensures the reliability of our current fleet of Earth observing satellites and lays the groundwork for implementation of the 2017 Earth Science Decadal Survey, including the recommendation to competitively select future missions that address Designated and Earth System Explorer target observables. Competitively selected missions will help to constrain costs and resources, while simultaneously helping to leverage the talents of a broad array of scientists and universities.

Scientists still do not understand approximately 90 percent of the universe—even in our own “neighborhood”—the solar system, but NASA’s Planetary Science Division is helping to expand our understanding. Its awe-inspiring missions and discoveries also inspire future generations of scientists and STEM professionals to choose science as a career. With appropriate funding, NASA is on schedule to launch the next Mars rover and launch a Europa mission in the 2020s, furthering our understanding of the conditions needed to sustain life.

Earth and planetary sciences are complementary and integrally related to one another. From picking the perfect day to launch a satellite to ensuring that our understanding of other planets is accurate, our knowledge of Earth informs our understanding of other worlds in the solar system. In turn, our exploration of other worlds advances our knowledge of Earth’s evolution and processes.

Heliophysics Science Division

Studying the sun and its interactions with Earth is crucial to increasing our knowledge of the dynamic solar processes that impact all life on our planet. NASA’s Heliophysics Division advances our understanding of the threat of space weather, as directed by the 2016 National Space Weather Action Plan. The Division carries out activities related to basic research into solar radiation and forecasting and studies ways to mitigate the effects of big space weather events, which have can damage our space- and ground-based national security assets, aviation systems, power grid, and electric rail systems. Robust funding for NASA’s Heliophysics division will also accelerate the pace of small and mid-size missions, which can often accomplish sci-

entific goals for a fraction of the cost of a flagship mission. Finally, adequate funding will enable the further implementation of Science Definition Study Teams to define the next areas of science investigation, as recommended in the last Solar and Space Physics Decadal Survey.

NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION

AGU requests that Congress appropriate \$6.2 billion for NOAA in fiscal year 2019, a 6 percent increase over the fiscal year 2018 appropriated level for NOAA. Investing in NOAA not only keeps our country resilient in the face of natural hazards that affect the environment and public health, but also provides superior economic and national security services by enabling businesses and government to better manage risk.

The forecasts, infrastructure, and research provided by NOAA save lives in time-sensitive emergencies. In 2016, there were 442 deaths in the U.S. resulting from severe weather and natural hazards, with about half of the deaths caused by flooding and severe storms. Strong support for NOAA will allow the agency to continue creating detailed flooding forecasts and developing monitoring systems for the millions of Americans who do not currently have them; maintain the NEXRAD radar system used for 85 percent of all tornado and severe storm warnings; and continue the satellite rescue program that has saved 42,000 lives by locating aviators, mariners, and land-based users in distress. In addition, continued and predictable support for both geostationary and polar orbiting satellites such as the GOES-R series and JPSS will ensure that we are equipped to collect data that is high quality and reliable. Finally, the continuation of uninterrupted data through programs such as the Polar Follow On, which serves as the next phase for the JPSS satellites, plays a critical role in keeping American families safe by ensuring that forecasters and decision makers have the best available data to assess risk.

NOAA is also essential to our Nation's economic stability. From coast to coast, one third of U.S. GDP is affected by weather and the environment. In 2017 alone, the U.S. saw 16 major weather and climate disaster events that resulted in \$309.4 billion in damages—a new U.S. annual record. NOAA services are critical in ensuring that the losses from natural disasters and environmental factors are as small as possible. For example, losses from weather-related aviation delays alone are estimated at more than \$1 billion per year, and NOAA drought forecasts are worth up to \$8 billion per year to the farming, transportation, tourism, and energy sectors. From large corporations to small businesses, the decision-based forecasts provided by NOAA save vital time, money, and resources.

NOAA also plays a unique and vital role in supporting homeland security and national defense. The Pentagon reports that 153 naval installations are at significant risk from climatic stresses and expects climate change worldwide to cause more extreme weather, food scarcity, and mass migration, which leads to instability. The Pentagon classifies climate change as threat multiplier, and in order to combat these issues, we need the best science available. Without robust funding, we risk losing the data needed to make informed and proactive decisions, and our national security will be left in a dangerously vulnerable position.

NATIONAL SCIENCE FOUNDATION

AGU requests that Congress appropriate \$8.45 billion for NSF in fiscal year 2019. This reflects a 9 percent increase over the fiscal year 2018 appropriated level for NSF.

U.S. investment in research and development has been slowing. Significantly, the most recent OCED report projects that China will surpass the United States in total R&D funding from all sources in 2019. Although the United States continues to be the biggest investor in R&D, our R&D intensity, or percent of GDP invested in R&D, has been steadily decreasing over the last decade. Congress has the ability to reverse this trend and re-invest in our Nation's scientific enterprise, especially in the areas of basic research and STEM education at NSF.

NSF accounts for only 4 percent of Federal R&D spending but supports nearly 60 percent of the nonmedical basic research at our colleges and universities. Moreover, NSF is the only Federal agency that supports research and education across all STEM fields at all educational levels. 95 percent of NSF's projects are funded using grants or cooperative agreements, of which three-fourths go to academic institutions. Research and education programs supported by NSF help increase and develop the knowledge base needed to push the frontiers of science, mathematics, and engineering disciplines, contribute to the development of the future science and technology workforce, underpin new fields of inquiry, and promote interdisciplinary research and education. Additionally, these grants support economic opportunities for labs,

lab techs, and other employees needed to pursue scientific endeavors and make substantial contributions to local economies.

Geosciences Directorate

The NSF Geoscience Directorate (GEO) awards research grants in the Earth, atmospheric, ocean, and polar sciences. GEO research leads to a better understanding of critical national needs such as the availability of water, mineral resources and energy reserves, and advances our knowledge of how to provide food to the world and mitigate the effects of natural hazards. AGU asks the subcommittee to strongly support these programs.

Robust funding for GEO will also support investments in the scientific infrastructure, including its operation and maintenance, increasingly needed for cutting edge basic and applied research. Among the major infrastructure that NSF supports are U.S. Arctic and Antarctic Facilities, through which the U.S. has maintained a 60-year uninterrupted Antarctic presence; the Academic Research Fleet, which includes 58 academic institutions and national laboratories working cohesively to further our understanding of our coasts and oceans; and EarthScope Operation, which includes almost 4,000 instruments analyzing the North American continent and operates in the continuous 48 States and Alaska. AGU strongly supports robust and steady funding for the operation and maintenance of NSF facilities.

The geoscience workforce is aging and retiring at a fast rate. The American Geosciences Institute estimates that, by 2024, there will be 90,000 open geoscience jobs and insufficient American geoscientists to fill those positions. Congress can help to prevent this deficit, stimulate economic growth in the energy, natural resources, and information technology sectors, and improve natural resource literacy by supporting the full integration of Earth science information into mainstream science education at the K–12 and higher education levels. Additionally, robust funding will allow NSF to continue providing life-changing programs for scientists, such as the Graduate Research Fellowships Program (GRFP), which allows students to become STEM professionals; Research Experiences for Undergraduates (REU), which provide undergraduates with hands-on field experiences that can inspire them to pursue STEM careers; and Inclusion Across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (INCLUDES), which aims to ensure all students interested in STEM fields have the opportunity to pursue their goals and that America is not leaving talented but underserved students behind.

[This statement was submitted by Brittany Webster, Senior Specialist, & Carissa Bunge, Senior Specialist.]

PREPARED STATEMENT OF THE AMERICAN GEOSCIENCES INSTITUTE

Thank you for this opportunity to provide the perspective of the American Geosciences Institute (AGI) on fiscal year 2019 appropriations for geoscience programs within the subcommittee's jurisdiction.

AGI applauds Congress for successfully negotiating and passing the Bipartisan Budget Act of 2018 and the Consolidated Appropriations Act, 2018. We are grateful to the Members of Congress and congressional staff who crafted this significant legislation. The fiscal year 2018 appropriations bill creates a robust baseline for future budgets, and AGI supports sustained funding increases for science agencies.

AGI supports critical earth science research conducted 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). Cutting-edge research on the Earth system—its resources and complex geologic, marine, atmospheric, and hydrologic processes that sustain life and the economy—has fueled economic growth, mitigated loss of life and property, and improved our quality of life. All of these agencies carry out vital, mission-focused geoscience research and education, and participate in inter-agency collaborations with the U.S. Geological Survey (USGS), the Department of Energy, and other Federal, State, Tribal, and local agencies on topics ranging from emergency planning and response to anticipating water availability. The Earth system is highly complex and interconnected—geoscience information supported and developed by these agencies is vital for decisionmaking at all levels of government and by the private sector. In addition, AGI supports the vital educational programs of these agencies that build the geoscience workforce and public trust in the geosciences to foster creative solutions for the Nation.

AGI respectfully requests at least \$8.45 billion funding for NSF, including robust support of the Geosciences Directorate. AGI supports \$6.2 billion for NOAA, \$1.3 bil-

lion for NIST, \$2 billion for NASA Earth Science programs, \$5.6 million for OSTP, and continued statistical data collection at the Department of Commerce.

AGI appreciates the difficult choices that Congress faces in developing the fiscal year 2019 budget. Investing in our Nation's future workforce, in our scientific and Earth monitoring infrastructure, and in research and development that feeds innovation will reinforce the United States' role as the global leader. We respectfully request that this subcommittee maintains its commitment to a strong future for the Nation by funding critical scientific research, infrastructure, data collection, and educational programs at the agencies under your jurisdiction.

AGI is a nonprofit federation of 52 scientific and professional societies representing more than 260,000 geoscientists across the Nation who work in industry, academia, and government. Founded in 1948 under a directive of the National Academy of Sciences, AGI provides information services to geoscientists, serves as a voice of 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, resilience to natural hazards, and the health of the environment.

NATIONAL SCIENCE FOUNDATION

Research across all areas of science and engineering contributes knowledge and understanding about many societal issues ranging from homeland security to cyberinfrastructure, and it produces revolutionary and often unforeseen breakthroughs. Basic research provides information that is used to improve people's quality of life: it is the foundation for a dynamic and innovative economy, and it strengthens the security of the Nation. NSF not only provides core funding and essential infrastructure for basic research: it also supports the education and training of the next generation coming into our Nation's workforce.

AGI believes that investment in NSF programs, where funding is allocated based on scientific merit and competitive peer review, will pay important dividends in maintaining U.S. dominance in science and technology far into the future. AGI applauds Congress for increasing NSF's budget for fiscal year 2018. AGI supports funding of \$8.45 billion for NSF in fiscal year 2019.

NSF Geosciences Directorate: The Geosciences Directorate (GEO) is the principal source of Federal support for academic geoscientists and their students who seek to improve understanding of the Earth and the processes that sustain and support life and human well-being. The GEO Directorate provides about 64 percent of Federal funding for basic geoscience research at academic institutions and supports indispensable research infrastructure and instrumentation. Geoscience researchers study natural hazards, including earthquakes, tornadoes, hurricanes, drought, solar storms, and all aspects of the air, water, ice, and rocks that define our environment and provide the raw materials for economic prosperity.

GEO research supports the entire geoscience community, which includes petroleum geologists, geotechnical engineers, ocean and atmospheric scientists, hydrogeologists, economic geologists, soil scientists, natural hazards specialists, and other experts whose work interacts with the Earth system. Most geoscientists work in the private sector, at State and Federal agencies, or as consultants. The GEO Directorate helps universities build a skilled workforce to meet the economic, safety, and environmental needs of the Nation. Research funded by GEO is contributing to the U.S. energy boom, to our understanding of the land-ocean interface, and to fundamental understanding of Earth processes that impact health and safety.

NSF's Office of Polar Programs (OPP) funds basic research in the Arctic and Antarctic and manages all U.S. activities in Antarctica as a single, integrated program. The polar regions are the focus of intense scientific and political interest as new navigation routes are opening access to resources and presenting security challenges. NSF-funded research and infrastructure are helping United States decision-makers understand environmental conditions in extreme environments, develop polar technology, and construct data-driven strategic and security policies. AGI encourages robust funding for the Antarctic Infrastructure Modernization for Science program.

A centralized pool of national geoscience infrastructure is an efficient way to achieve the maximum return on investment and to ensure that the Nation has the equipment and expertise needed to respond rapidly to opportunities and emergencies. AGI strongly supports robust and steady funding for infrastructure, operation, and maintenance of major facilities, including the Academic Research Fleet, the continuation of the important geodetic, seismic, and related geophysical functions in the GAGE and SAGE multi-user facilities, Ocean Discovery Program, the

Ocean Observatories Initiative, and the National Center for Atmospheric Research (NCAR).

AGI respectfully asks the subcommittee to provide at least \$6.6 billion to NSF's Research and Related Activities with appropriate distribution to GEO.

NSF Directorate for Education and Human Resources: AGI's Status of the Geoscience Workforce Report 2016 predicts a shortfall of approximately 90,000 geoscientists by 2024. NSF funding for geoscience education is essential to develop the competitive, skilled workforce that can fill this predicted gap in areas of vital national interest including jobs in the energy and natural resource sectors. Geoscience education also creates an informed citizenry prepared to make well-founded decisions about our planet and its resources. Outreach and education are important at all levels from K-12 through graduate-level education and should include formal and informal outlets to facilitate lifelong learning. AGI strongly encourages funding for geoscience education at all levels and particularly supports programs to diversify the geoscience student population and workforce, such as the NSF INCLUDES initiative.

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration: Geoscientists rely on NOAA for much of the data and long-term monitoring tools that enable research and rapid response for events such as hurricanes, drought, marine oil spills, and a range of coastal phenomena. The National Weather Service (NWS), Oceanic and Atmospheric Research (OAR), National Ocean Service (NOS), National Environment Satellite, Data and Information Service (NESDIS), and Office of Marine and Aviation Operations (OMAO) programs provide the data necessary to understand and mitigate these events and to sustain our natural resources. Extreme weather events cause major impacts throughout the country, triggering coastal erosion, landslides, and flooding. AGI supports increased, dedicated funding for NWS to support landslide hazard assessments and to reduce losses from landslides and other ground failures. We also recommend continued funding for the National Sea Grant College program, which supports applied research, education, and communication of marine and coastal science, and NOAA's Office of Education.

AGI supports \$6.2 billion for NOAA and respectfully requests that the subcommittee continue to support NOAA's observation, analysis, and research initiatives.

National Institute of Standards and Technology: Earth scientists and geotechnical engineers well-versed in the geosciences conduct basic research at NIST that is used by the public and private sectors to build resilient communities and stimulate economic growth. NIST research and information is essential for understanding natural hazards, identifying the infrastructure needed to build strong communities, and stimulating economic growth.

NIST is the lead agency for the National Earthquake Hazard Reduction Program (NEHRP), an interagency program responsible for the efficient coordination of research and resources to understand and mitigate earthquakes, but has received only a small portion of authorized funding in the past. AGI strongly supports \$1.2 billion for NIST and urges Congress to reauthorize and fully fund the National Earthquake Hazards Reduction Program (NEHRP).

Bureau of Economic Analysis and Census Bureau: AGI relies on key information from the Bureau of Economic Analysis and the Census Bureau, including the American Community Survey, when developing our analyses of the geoscience workforce. AGI respectfully asks Congress to maintain your support for continued, consistent statistical data collection.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NASA's fleet of Earth-observing satellites provides the data necessary to understand our dynamic planet. Scientists, farmers, industry professionals, and emergency managers rely heavily on this data gathered from space to support Earth and space weather predictions, to detect and monitor emergency situations such as volcanic eruptions, oil spills, and droughts, and to understand the links between ocean, atmosphere, land, and biological systems.

Other government agencies as well as the private sector use NASA information intensively for decisionmaking. NASA supports important NOAA and USGS missions. For instance, geoscientists have used observations from Landsat satellites since 1972 to monitor, predict, and react to drought, wildfires, and other changes to the Earth's surface. We ask Congress to please continue to support the Landsat program.

AGI strongly supports continuation of the NASA Earth Science program, which received flat funding in fiscal year 2018 despite an increase for the overarching NASA Science program. Satellites and remote sensing provide unique information about the Earth's air, ice, water, land, and biological systems—information that is essential for well-informed decisionmaking by government and the private sector. AGI recommends \$2 billion for NASA Earth Science to ensure the continued collection, preservation, and dissemination of long-term, consistent datasets. AGI also supports sustained funding for NASA's Office of Education to ensure education and outreach that inspires students and informs the Nation about our planet.

OFFICE OF SCIENCE AND TECHNOLOGY POLICY

The President must have the best possible advice on the science and technology that underpin the Nation's prosperity and security. We ask Congress to please support \$5.6 million for OSTP.

Thank you for the opportunity to present this testimony to the Subcommittee. If you would like additional information for the record, please contact Anna Normand at anormand@americangeosciences.org, or 4220 King Street, Alexandria, VA 22302–1502.

[This statement was submitted by Allyson K. Anderson Book, Executive Director.]

PREPARED STATEMENT OF THE AMERICAN INDIAN HIGHER EDUCATION CONSORTIUM

On behalf of the Nation's Tribal Colleges and Universities (TCUs), which collectively are the American Indian Higher Education Consortium (AIHEC), thank you for the opportunity to share our recommendations regarding the National Science Foundation's TCU Program (NSF–TCUP) and the National Aeronautics and Space Administration's Minority University Research and Education Project (NASA–MUREP) and programs for Tribal Colleges and Universities for fiscal year 2019.

NATIONAL SCIENCE FOUNDATION (NSF)

Education and Human Resources Directorate (EHR):

- Tribal Colleges and Universities Program (TCUP)*: TCUs urge the subcommittee to fund competitively awarded NSF–TCUP grants at a minimum of \$15,000,000 for fiscal year 2019.
- Louis Stokes Alliance for Minority Participation (LSAMP)*: TCUs ask that the Subcommittee express concern to NSF that the LSAMP program targeting American Indian, Alaska Native, and TCU students has not been prioritized for several years.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

- NASA Headquarters, Office of Education—Minority University Research and Education Programs (MUREP)*: TCUs urge the subcommittee to fund a NASA MUREP program for Tribal Colleges and Universities at \$5,000,000 for fiscal year 2019.

TRIBAL COLLEGES AND UNIVERSITIES: “DOING SO MUCH WITH SO LITTLE”

TCUs are an essential component of American Indian/Alaska Native (AI/AN) STEM education and research. Currently, 38 TCUs operate more than 75 campuses and sites in 17 States, within whose geographic boundaries 80 percent of all American Indian reservations and Federal Indian trust land lie. They serve students from well over 250 federally recognized Tribes, more than 85 percent of whom receive Federal financial aid—primarily Pell grants. In total, the TCUs annually serve 160,000 AIs/ANs and other community members through a wide variety of academic and community-based programs. TCUs are public institutions accredited by independent, regional accreditation agencies and, like all U.S. institutions of higher education, must regularly undergo stringent performance reviews to retain their accreditation status. Each TCU is committed to improving the lives of its students through higher education and to moving AI/ANs toward self-sufficiency. To do this, TCUs serve many roles in their reservation communities, functioning as career and business centers, open access computer labs, STEM summer camps and Saturday academies, community farms, economic development centers, GED or HiSET training and testing centers, place-based applied research hubs, and more.

The Federal Government, despite its direct trust responsibility and binding treaty obligations, has never fully funded TCU institutional operations as authorized under Federal law. Yet despite funding challenges, TCUs are leading the Nation in pre-

paring AI/AN nurses and, more recently, in preparing teachers for our Native schools. For example, seven TCUs have established STEM teacher education programs through NSF-TCUP, which are preparing Native science and math teachers who are strengthening the STEM pipeline in their Tribal communities. TCUs train other professionals in high-demand fields, including agriculture and natural resources management, IT, and engineering. By teaching the job skills most in demand on our reservations, TCUs are laying a solid foundation for Tribal economic growth, with benefits for surrounding communities and the Nation as a whole. But that is not enough. TCU leadership understands that we must do more—we must move beyond simply workforce training. Today, TCUs are tackling the tougher—and much more significant—issue of job creation, because we know that to break the cycle of generational poverty and end the culture of dependency that grips so much of Indian Country, simply preparing students for a very limited labor market is not enough. We must create new industries, new businesses, and a culture of self-sufficiency and innovation. Our job creation initiative focuses initially on advanced manufacturing, through a partnership with the U.S. Department of Energy, National Laboratories, TCUs, and industry.

TCU Students: Aaron Sansosie of Flatrock, AZ, is a U.S. Army veteran, father of four, and Navajo Technical University (NTU) student. He is one of thousands of American Indian and Alaska Native (AI/AN) students gaining valuable education and technical skills to enter the workforce at Tribal Colleges. Aaron is enrolled in an NTU certificate program and its Building Information Modeling Applied Science associate's degree program. To achieve his goals, Aaron has been taking 17–19 credits each semester, which keeps his days busy. While the schedule may seem grueling for any student, it is important to note that Aaron does this all while sleeping out of his truck. “The cost of living here is pretty high, especially in the dorms and having three meals a day. Sometimes Pell won't cover it all, which leaves me in debt. Even with my veteran benefits, which help me out a lot, [I need to save],” explained Aaron, whose desire to help his family and community is powerful.

NATIONAL SCIENCE FOUNDATION

Education and Human Resources Directorate (EHR)—Tribal Colleges and Universities Program (TCUP): TCUs urge the subcommittee to fund competitively awarded NSF-TCUP grants at a minimum of \$15,000,000. The NSF-TCUP, administered by the Education and Human Resources Directorate, is a competitive grants program that enables TCUs to develop and expand critically needed science and math education and research programs relevant to their respective communities. Through this program, TCUs that have been awarded grants to enhance their STEM instructional courses, workforce development, research, and outreach programs.

AI/AN students have the highest high school drop-out rates in the country. Those who do pursue postsecondary education often require developmental classes before beginning their studies in earnest. Placement tests administered at TCUs to first-time entering students indicate that 63 percent required remedial math. Of these students, our data indicate that while 67 percent successfully complete the course, many do not do so in 1 year. Without question, a large proportion of the TCUs' already limited resources is dedicated to addressing the continual failings of K–12 education systems.

To help rectify this, TCUs have developed strong partnerships with their K–12 feeder schools and are actively working, in large part through support from NSF-TCUP grants (and NASA funding), to engage young students in community and culturally appropriate science and math education and outreach programs. These efforts include weekend academies and summer STEM camps that reinforce and supplement current K–12 instructional programs.

NSF-TCUP provides critically important capacity building assistance and resources to TCUs. Since the program began, NSF-TCUP has become the primary Federal program for building STEM programmatic and research capacity at TCUs. For example, with NSF-TCUP support, the very rural and remote Navajo Technical University (Crownpoint, NM) now offers electrical and industrial engineering bachelor's degree programs that will soon be the first TCU ABET-accredited programs. In addition, six TCUs have pre-engineering degree programs. Through NSF-TCUP, TCUs are developing partnerships with larger institutions that enable Native students to seamlessly transfer to graduate level programs. For example, Northwest Indian College (Bellingham, WA) has a partnership with Western Washington University through which students continue to master's degree programs. Place-based research that could have national and international impacts is a big part of the TCU partnerships. At NWIC, students conduct complex research related to food security focused on salmon, shellfish, and Indigenous sea cucumbers. Aaniiih Nakoda College

(Harlem, MT) is monitoring streams for contaminants and investing West Nile virus vectors; and Sitting Bull College (SBC) (Fort Yates, ND) has established a water quality monitoring laboratory serving the Standing Rock Sioux and surrounding communities. Research at SBC shows that students participating in research opportunities have retention rates that are double the rate of students who are not engaged in research.

Programs funded through the NSF-TCUP are highly leveraged and successful. For example, students at Southwestern Indian Polytechnic Institute (Albuquerque, NM) competed in NASA's national "Swarmathon" competition for the past 3 years, through funding from NASA and NSF. For the past 3 years, SIPI students have won the top three prizes, placing first in the Nation in 2017 and second this year. SIPI has achieved other successes of national note: NSF Science and Engineering Indicators (2016) showed that of students graduating with a science or engineering degree, AI/ANs comprised 0.3 percent; of which 13 percent were female. In a time when engaging diverse populations in higher education is a priority and retaining female students in STEM fields is a challenge, the SIPI pre-engineering program is doing something right. Last year, SIPI's retention rate for engineering students was 44 percent. Its retention rate for female engineering students was 67 percent. SIPI's female students attribute their success to several TCU-specific factors: caring faculty who set expectations, sense of community, team research experiences, culturally grounded place-based experiential learning, and unfailing student support.

Despite its advances and successes, funding for the NSF-TCUP program has been stagnant for many years. Therefore, not all of the TCUs have had an opportunity to benefit from this very important program. We urge the subcommittee to fund competitively awarded NSF-TCUP grants at a minimum of \$15,000,000.

Louis Stokes Alliance for Minority Participation (LSAMP): TCUs ask that the subcommittee express concern to NSF that the LSAMP program targeting American Indian, Alaska Native, and TCU students has not been prioritized for several years.

The All Nations LSAMP (ANLSAMP) program at Salish Kootenai College (Pablo, MT) has demonstrated tremendous success over the past several years, and small underfunded TCU STEM programs consider it essential for expanding student research opportunities, sharing best practices, and the like. Through efforts of all ANLSAMP partners, more than 2,000 AI/ANs and under-resourced minority students have graduated with Bachelor's degrees in STEM. (This number is even higher, because it does not include university partners with their own LSAMP programs.) A recent survey revealed that more than 80 percent of ANLSAMP participants contacted had either graduated with a STEM major or bridged to a higher degree program.

However, despite several applications, the ANLSAMP program has not been prioritized by NSF for ongoing support. We urge the subcommittee to express concern and support for the inclusion of AI/AN and other under-resourced students at TCUs in LSAMP programs.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

Office of Education/Minority University Research and Education Programs (MUREP) and TCUs: TCUs urge the subcommittee to fund a NASA MUREP program specifically for TCUs at \$5,000,000 for fiscal year 2019. Under the MUREP umbrella, NASA has funded TCUs in various programs for the past several years at an extremely modest level. For example, in fiscal year 2014, NASA awarded \$1.28 million to TCUs under MUREP, with total TCU support at \$1.55M. In fiscal year 2015, NASA MUREP provided \$2 million to TCUs, with a total commitment of about \$2.5M. In fiscal year 2016, support was \$1.7M under MUREP and \$2.7 overall. With these modest funding levels, NASA MUREP is only able to fund a few TCUs. Its program for "American Indian Alaska Native Serving Institutions" can only support three TCUs, each of which receives a three-year award. In fiscal year 2017, the three-year awards went to SIPI—to continue its engineering/robotics work; NWIC; and Chief Dull Knife College (Lame Deer, MT). Other TCUs cannot compete for at least 2 years.

Under a previous grant from NASA, SIPI students and local AI/AN high school students engage in hands-on projects through which they learn computer programming, computer networking, microprocessors, sensor technology, 3D printing, and design engineering. The annual NASA Swarmathon, funded by MUREP and mentioned previously, is an advanced robotics competition in which students test their STEM skills by writing complex robotic codes and building robots equipped with sensors, webcams, and GPS systems. The STEM knowledge and analytical skills needed to compete in Swarmathon are the same high-demand skills needed to advance our space technology and future space exploration. We are proud that SIPI

teams ranked in the top three nationally over the past 3 years, as mentioned earlier.

The continuation of NASA MUREP program, particularly with funding specifically designated for Tribal Colleges and Universities is essential to capacity building at TCUs as well as NASA. TCUs urge the subcommittee to fully fund the NASA MUREP program and support a Tribal College and University program within MUREP at \$5,000,000 for fiscal year 2019.

CONCLUSION

Tribal Colleges and Universities provide access to high-quality, culturally appropriate postsecondary education opportunities, including STEM-focused programs for thousands of AI/AN students. The modest Federal investment in TCUs has paid great dividends in terms of employment, education, and economic development. Please support TCUs, whose faculty and students are making sacrifices every day, working with meager and stretched resources in the trench to build a better, safer, and more secure America. Thank you.

PREPARED STATEMENT OF THE AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES

The American Institute of Biological Sciences (AIBS) appreciates the opportunity to provide testimony in support of fiscal year 2019 appropriations for the National Science Foundation (NSF). We encourage Congress to provide the NSF with at least \$8.45 billion in fiscal year 2019.

The American Institute of Biological Sciences is the national scientific organization that promotes the use of science to inform decisionmaking that advances biology for the benefit of science and society. Established in 1947 as a part of the National Academy of Sciences, AIBS has been an independent, member-governed organization since the 1950s. The combined membership and staff of our more than 130 member organizations exceeds 200,000 individuals.

Biological research is in our national interest. Increasing our knowledge of how genes, cells, tissues, organisms, and ecosystems function is vitally important to efforts to improve the human condition. Food security, medicine and public health, national security, and sound environmental management are all informed by biological research. Biological knowledge gained from NSF-funded research also stimulates the development of new research tools and industries.

Biological research strengthens our economy. The translation of biological research into formal and informal education programs fosters the development of the scientifically and technically informed workforce employers seek. Federal research programs, especially those of the NSF, are important engines powering our Nation's economic growth. Over the past 50 years, roughly half of the economic growth at private businesses in the United States has resulted from advances in knowledge resulting from research and development. Research funding from NSF has given rise to successful companies, such as Genentech, Allylix, Google, and Chromatin, as well as new industries that provide more robust food crops or disease detection tools and techniques. Additionally, data show that employers continue to seek workers with scientific and technical skills. Since 1960, growth in U.S. employment in science and engineering has outpaced growth in total employment, increasing at an average rate of 3 percent per year.

The cornerstone of NSF excellence is a competitive, merit-based peer review process that underpins the highest standards of excellence. Through its research programs, NSF invests in the development of new knowledge and tools that solve the most challenging problems facing society.

—*Combating emerging diseases:* Long before Zika virus made headlines in the United States, the NSF was supporting research to study the environmental and social factors that put people at risk from diseases carried by mosquitos, to understand the physiology and life cycles of disease vectors, to model the spread of mosquito-borne disease, and to understand the evolution of insecticide resistance. The knowledge gained from these lines of research enabled public health officials to respond quickly when an outbreak of Zika virus started in the U.S. in late 2015.

—*Controlling invasive species:* NSF-supported research on population biology and ecosystems provides the knowledge required to inform efficient strategies to combat economically harmful invasive species. Such research has shed light on the variable rates of spread of invasive species, the understanding of mass extinctions, and informed calculations of the costs resulting from invasive species.

—*Mobilizing big data*: Access to and analysis of vast amounts of data are driving innovation. The NSF enables integration of big data across scientific disciplines, including applications in the biological sciences. Digitization of natural science collections involves multi-disciplinary teams, which have put more than 95 million specimens and their associated data online for use by researchers, educators, and the public.

Other examples of research that have benefited the public are chronicled in a recent AIBS report, “Biological Innovation: Benefits of Federal Investments in Biology,” which is available at https://www.aibs.org/public-policy/biological_innovation_report.html.

The NSF also plays a central role in recruitment and training of our next generation of scientists. Support for science education for undergraduate and graduate students is critically important to our research enterprise. Students learn science by doing science, and NSF programs engage students in the research process.

Initiatives such as the Graduate Research Fellowship and the Faculty Early Career Development program are important parts of our national effort to attract and retain the next generation of researchers. Since 1952, the number of students supported by NSF Graduate Research Fellowships has grown to 55,700. Other programs, such as the NSF Research Traineeship and Postdoctoral Research Fellowships in Biology, provide opportunities to train biologists in high priority areas like data-enabled science and research using biological collections. NSF awards reach 2,000 colleges, universities, and other public and private institutions across the country.

The NSF is an important supporter of biological research infrastructure, such as field stations, natural history museums, and living stock collections. These place-based research centers enable studies that take place over long time periods and variable spatial scales.

The U.S. share of worldwide R&D has continued to decline in the past 15 years, whereas foreign countries, especially China, have been rapidly increasing their investments in science. To fully realize the benefits of NSF-supported research and to remain at the forefront of innovation, the government must make new and sustained investments in the NSF. Unpredictable swings in funding can disrupt research programs, create uncertainty in the research community, and stall the development of the next great idea.

Funding rates have become “dangerously low” according to NSF. When pre-proposals are taken into account, the funding rate for some program areas within the Directorate for Biological Sciences are in the single digits. The NSF is the primary Federal funding source for biological research at our Nation’s universities and colleges, providing 69 percent of extramural Federal support for non-medical, fundamental biological and environmental research at academic institutions.

Funding the NSF at \$8.45 billion in fiscal year 2019 is a step toward resolving the issues that slow scientific discovery. The requested funding will enable NSF to pursue its 10 Big Ideas. These are important new cutting-edge initiatives at the frontiers of science and engineering. These include research programs such as Understanding the Rules of Life (URoL), Navigating the New Arctic (NNA), Growing Convergence Research (GCR), and Harnessing the Data Revolution for 21st-Century Science and Engineering (HDR).

Thank you for your thoughtful consideration of this request and for your prior efforts on behalf of science and the National Science Foundation.

[This statement was submitted by Jyotsna Pandey, Public Policy Manager, and Robert Gropp, Co-Executive Director.]

PREPARED STATEMENT OF THE AMERICAN MATHEMATICAL SOCIETY

The American Mathematical Society is the home society of approximately 30,000 individuals and over 500 institutional members. The AMS has been serving the mathematical sciences community since 1888. The Society’s programs and services for its members and the global mathematical community include professional programs; publications of books and journals; meetings and conferences; support for young scholars programs; and tools for researchers such as MathSciNet. The organization is headquartered in Providence, Rhode Island, with a Government Relations Office in Washington, DC.

The American Mathematical Society (AMS) appreciates the opportunity to submit written testimony in support of fiscal year 2019 appropriations for the National Science Foundation (NSF).

We encourage Congress to provide the NSF with \$8.45 billion in fiscal year 2019.

The NSF is the key funding agency for the mathematical sciences. Most mathematics research is done by Ph.D. mathematicians at universities and colleges. The NSF accounts for approximately 64 percent of Federal support for academic research in the mathematical sciences.

The NSF is the only Federal agency that supports research and education across all fields of science, engineering, and mathematics and at all educational levels. Research and education programs supported through the NSF are essential for increasing and developing the knowledge base needed for pushing the frontiers of science, mathematics, and engineering disciplines; developing new fields of inquiry; and supporting technological innovation. Support for the scientific training of undergraduate and graduate students is critically important to our research enterprise. Other NSF investments in education support broadened participation in STEM fields and development of the STEM workforce in demand by American employers.

The entire country benefits from NSF funding and Chairman Moran's state can serve as an example.¹

Kansas, an EPSCoR State,² received \$42 million in NSF funding in fiscal year 2017. There were 138 NSF grants awarded to researchers in Kansas. Funds go toward research—for example, researchers in the Kansas State University Medical Component Design Laboratory used NSF funding to develop supplemental sensors for ingestible-pill technology that monitor the health of livestock, protecting against disease outbreaks. Funds go toward STEM education—for example, The Noyce Teacher-Leaders for Western Kansas project at Fort Hays State University is developing STEM teachers for rural Kansas communities.

The NSF has funded mathematics research and education in Kansas:

- At Wichita State University, Professor Victor Isakov is improving numerical algorithms for measurements used in biomedicine, economics, geophysics, and material science. In particular, the results of his work will dramatically enhance the quality of a cheap, fast, and safe diagnostic imaging method called electrical impedance tomography.³
- Kansas State University is the site of an NSF-funded Research Experience for Undergraduates (REU) program in mathematics. Each summer, students from across the country come to Manhattan where they are trained to become independent researchers while working on problems in the important fields of network security and biomathematics.
- Kansas State Professor Dave Auckly has funding to expand the Navajo Nation Math Circles.⁴ This includes a mathematical visitor program sending mathematicians to schools to work with students and their teachers as well as inclusion of mathematics in public festivals to increase community mathematical awareness.

Society has benefitted from the many products, procedures, and methods that have resulted from NSF supported research in mathematics—research performed over many years and typically not intended for specific applications. These benefits include innovations such as the Google Page Rank algorithm, enhancement of magnetic resonance imaging (MRI), and in cybersecurity. The plethora of applications that have resulted from basic research in the mathematical sciences is described in the National Academies report “The Mathematical Sciences in 2025” or in the executive summary “Fueling Innovation and Discovery: The Mathematical Sciences in the 21st Century”.^{5,6}

Strong and sustained investment will allow the NSF to continue to support innovative and transformational scientific research that fuels the American economy, strengthens national security, maintains our global competitiveness, improves public health and the quality of life for Americans, and contributes to the development of the next generation of science, mathematics, and engineering researchers.

Many of our global competitors are increasing financial support for scientific research at the same time that the rate of growth of funding for research in the U.S. is slowing. Because our national investment in basic science research has been declining as a share of the Federal budget for decades, we are losing our global edge.

¹ <https://cnsf.us/factsheets2017.cfm>

² EPSCoR enhances research competitiveness of targeted jurisdictions (states, territories, commonwealth) by strengthening STEM capacity and capability. For more information, see <https://www.nsf.gov/od/oia/programs/epscor/>

³ https://nsf.gov/awardsearch/showAward?AWD_ID=1514886&HistoricalAwards=false

⁴ Navajo Nation Math Circles was featured in the documentary “Navajo Math Circles,” which aired nationwide in September 2016 on the Public Broadcasting System.

⁵ <https://www.nap.edu/catalog/15269/the-mathematical-sciences-in-2025>

⁶ <https://www.nap.edu/catalog/13373/fueling-innovation-and-discovery-the-mathematical-sciences-in-the-21st>

To compare, China has grown its R&D spending rapidly since 2000, at an average of 18 percent annually. During the same period, U.S. R&D spending grew by 4 percent [per year].⁷

A strong level of funding together with a predictable pattern of funding will facilitate a robust stream of high-level research and researchers that, in turn, will support the level of technological development needed to remain globally competitive.

Thank you for your consideration of this request, and for your prior efforts on behalf of the NSF.

[This statement was submitted by Ken Ribet, President and Karen Saxe, Director of Government Relations.]

PREPARED STATEMENT OF THE AMERICAN PHYSICAL SOCIETY

On behalf of the American Physical Society (APS), representing more than 55,000 scientists in universities, national laboratories and the private sector, I want to express our strong support for the National Science Foundation (NSF). APS is grateful for the 4 percent increase to NSF's budget in the fiscal year 2018 omnibus bill and thanks the subcommittee for recognizing the agency's critical role in our scientific ecosystem. Looking forward, APS urges the subcommittee to build on NSF's momentum from fiscal year 2018 by prioritizing the agency in its fiscal year 2019 appropriations bill. Doing so would provide NSF the resources to support a leading-edge research portfolio, world-class facilities and education programs to help prepare the future STEM workforce, while also investing in the agency's 10 Big Ideas.

NSF—established by Congress in 1950 with a mission “to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes”—is a pillar of our Nation's scientific enterprise, supporting nearly one quarter of all federally funded fundamental research conducted at U.S. colleges and universities. The agency supports science and engineering education, from pre-K to graduate school and beyond, helping to ensure the U.S. has a pipeline of talent ready to work at the forefront of science, technology, engineering, and mathematics (STEM). Along with fostering this STEM talent, the broader impacts of NSF-funded research include the benefits of transformative discovery through new innovations, improving societal well-being, engaging a wider audience for science, and connecting with international counterparts to address global issues.

NSF is the only Federal agency that invests in fundamental, early stage research across all non-medical fields of science and engineering, advancing our scientific knowledge and understanding across many disciplines, including physics. The agency supports high-risk, high-reward research projects that not only have the potential to advance our knowledge, but also benefit society. NSF-sponsored research projects have resulted in discoveries leading to new technologies and companies, spawning new industries and strengthening the U.S. economy. NSF-funded research can be linked to applications that enhance our national preparedness and security, including advanced sensors to aid in early warning earthquake systems and new tools for detecting explosives. While NSF does not directly fund medical research, the NSF research portfolio includes projects—such as the foundational research that led to MRI techniques and brain imaging technology—that have yielded critical insights that enhance the quality of life for Americans.

NSF also plays a critical role in preparing our students for a world increasingly dependent on science and technology. By supporting education at all levels—from K–12 STEM education to postdoctoral training—NSF is helping to prepare America's future STEM workforce. NSF-sponsored research and education programs strengthen our Nation's scientific knowledge base today and help prepare our scientists and engineers of tomorrow.

For more than half a century, the U.S. Government's commitment to funding early stage research—through NSF and other Federal science agencies—at our colleges, universities and research institutions has helped ensure our position as a global leader in science, technology and innovation. With other Nations across Europe and Asia taking note of America's success and bolstering their own national investments in science and technology, we must build on Congress's bipartisan commitment to scientific research demonstrated in the fiscal year 2018 omnibus bill.

APS recognizes the need for thoughtful and measured Federal spending, but robust funding for NSF is an essential investment for strengthening the U.S. economy and our global competitiveness, enhancing our national security, and improving the

⁷ <https://www.nsf.gov/statistics/2018/nsb20181/report>

quality of life for Americans. APS urges your strong support of NSF throughout the fiscal year 2019 appropriations process.

Thank you for your consideration of our views. If you would like any additional information for the record, please do not hesitate to contact Francis Slakey, Chief Government Affairs Officer, American Physical Society—Office of Government Affairs, slakey@aps.org].

[This statement was submitted by Dr. Roger Falcone, President.]

PREPARED STATEMENT SUBMITTED BY THE NATIONAL SCIENCE FOUNDATION AND THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ON BEHALF OF THE AMERICAN PHYSIOLOGICAL SOCIETY

The American Physiological Society (APS) thanks you for your sustained support of science at the NSF and NASA. In this statement we offer our recommendations for fiscal year 2019 funding levels for these two agencies.

- The APS urges you to fund the fiscal year 2019 NSF budget at a level of at least \$8.45 billion to prevent further erosion of program capacity.
- The APS urges you to restore cuts to NASA’s life sciences research budgets and to increase funding for the Human Research Program.

NSF and NASA support scientific research and technology development programs that are critical to the future technological excellence and economic stability of the United States. Federal investment in research is critically important because breakthroughs in basic and translational research are the foundation for new technologies that help patients, fuel our economy, and provide jobs. A strong Federal investment in the sciences is also critical to maintaining the United States’ position as a science and engineering leader in a global context. The 2018 Science and Engineering Indicators show that other countries including China have continued to increase their investments in research at a rate that outpaces the growth of U.S. investments.¹

NSF funds outstanding research and education programs

NSF provides support for 27 percent of all federally funded basic science and engineering and provides 69 percent of the support for non-medical biology research. This includes investment in basic biological research across a broad spectrum of subdisciplines, as well as the infrastructure that is needed to support scientists in their work. Time and time again we have seen that the knowledge gained through basic biological research is the foundation for more applied studies that sustain the health of animals, humans and ecosystems. NSF-funded research has led to countless new discoveries that could not have been envisioned when the research began. Nevertheless, these unforeseen applications have had enormous impact on science, health and the world’s economy.

The majority of the NSF funding is awarded through competitive, merit-based peer review. Merit review ensures that the best possible projects are supported. Both the scientific reviewers and NSF program staff consider not only the intellectual merit of each research proposal, but also its broader impacts. NSF’s criteria for broader impact address the potential for research to benefit society or to achieve specific outcomes. NSF has an exemplary record of accomplishment in terms of funding research that produces results with far-reaching potential. Since its inception in 1950, NSF has supported the work of 231 Nobel Laureates, including the 2017 winners of the Medicine, Chemistry, Physics and Economics prizes.

Biological research is just one part of the NSF portfolio. The APS believes that each of the NSF directorates support research that is critical to NSF’s mission “to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense . . .” Collaboration among scientific disciplines is increasingly recognized as the best and most efficient way to advance science. This will only be possible with strong support for all disciplines of research.

In addition to funding innovative research in labs around the country, the NSF education programs foster the next generation of scientists. The APS is proud to have partnered with NSF in programs to provide training opportunities and career development activities to enhance the participation of underrepresented minorities in science. We believe that NSF is uniquely suited to foster science education programs of the highest quality, and we recommend that Congress continue to provide Federal funds for science education through the NSF.

The APS joins the Federation of American Societies for Experimental Biology (FASEB) in recommending that the NSF be funded at a level of at least \$8.45 billion

¹ <https://www.nsf.gov/statistics/2018/nsb20181/report/sections/overview/introduction>

in fiscal year 2019. The increase provided to the NSF in fiscal year 2018 is a first step toward restoring the erosion of NSF's purchasing power. Prior to fiscal year 2018 the NSF budget had been flat in real terms for 15 years. The NSF is poised to address major challenges facing our Nation and our world in the 21st Century, but it needs adequate resources to continue to carry out its mission.

Support for Life Sciences Research should be increased at NASA

NASA sponsors research across a broad range of the basic and applied life sciences, including gravitational biology, biomedical research and the Human Research Program (HRP). The gravitational biology and biomedical research programs explore fundamental scientific questions through research carried out both on Earth and aboard the International Space Station, which provides an environment for the conduct of experiments in space. NASA's HRP conducts focused research and develops countermeasures with the goal of enabling safe and productive human space exploration. The program funds more than 300 research grants that go to academic researchers in more than 30 States around the country.

During prolonged space flight, the physiological changes that occur due to weightlessness, increased exposure to radiation, confined living quarters, and alterations in eating and sleeping patterns can lead to debilitating conditions and reduced ability to perform tasks. Scientists are actively engaged in research that explores the physiological basis of these problems with the goal of contributing to the identification of therapeutic targets and development of novel countermeasures. One of the most well-known studies of these physiological changes is the NASA Twin Study which compares identical twin brothers and fellow astronauts Mark and Scott Kelly to see what changes occurred following Scott Kelly's 1 year mission aboard the International Space Station.² The knowledge gained from this research is not only relevant to humans traveling in space, but is also directly applicable to human health on Earth. For example, some of the muscle and bone changes observed in astronauts after prolonged space flight are similar to those seen in patients confined to bed rest during periods of critical illness as well as during the process of aging.

NASA is the only agency whose mission addresses the biomedical challenges of human space exploration. Over the past several years, the amount of money available for conducting this kind of research at NASA has dwindled. In the past, appropriations legislation specified funding levels for biomedical research and gravitational biology, but ongoing internal reorganizations at NASA have made it difficult to understand how much money is being spent on these programs from year to year. The APS recommends that funding streams for these important fundamental research programs be clearly identified and tracked within the NASA budget. The APS also recommends restoration of cuts to peer-reviewed life sciences research to allow NASA-funded scientists to conduct research that will be critical in not only supporting the success of future long-range manned space exploration but also leading to innovative discoveries that can be applied to Earth-based medicine. As highlighted above, investment in the basic sciences is critical to our Nation's technological and economic future. This innovative engine of research fuels our world leadership and our economy. The APS urges you to make every effort to provide these agencies with increased funding for fiscal year 2019.

The APS is a professional society, numbering more than 11,000 members, dedicated to fostering research and education as well as the dissemination of scientific knowledge concerning how the organs and systems of the body function.

[This statement was submitted by NSF and NASA on behalf of the American Psychological Society, Jeff Sands, MD, President.]

PREPARED STATEMENT OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

The American Psychological Association (APA) is a scientific and professional organization of more than 115,700 psychologists and affiliates. APA is the largest scientific and professional organization representing psychology in the United States and is the world's largest association of psychologists. Comprising researchers, educators, clinicians, consultants, and students, APA works to advance the creation, communication, and application of psychological knowledge to benefit society and improve people's lives.

² <https://www.nasa.gov/feature/nasa-twins-study-confirms-preliminary-findings>

NATIONAL SCIENCE FOUNDATION (NSF)

APA urges the Committee to fund the National Science Foundation (NSF) at \$8.45 billion in fiscal year 2019. The Coalition for National Science Funding (CNSF), an alliance of over 140 universities, businesses, and scientific associations (including APA) also endorses this level of support for NSF, the only Federal research agency “charged with the promotion of scientific progress across all scientific and engineering disciplines” and one that is vital to U.S. economic health, educational achievement, global competitiveness, and national security.

1. Support Core Psychological Research at NSF

NSF is the only Federal agency whose primary mission is to support basic research and education in math, engineering and science—including the behavioral and social sciences. NSF’s investment in basic research across these disciplines has allowed for extraordinary scientific and technological progress, ensuring continued economic growth, improvements in the design, implementation and evaluation of public education, strengthened national security, and the generation of cutting-edge new knowledge.

Although psychologists receive funding from various programs within NSF, most core psychological research is supported by the Social, Behavioral and Economic Sciences Directorate (SBE), which focuses on the variables that determine human behavior across all ages, interactions among individuals and groups, and the development of social and economic systems. In addition to core behavioral research in cognitive neuroscience, human cognition and perception, learning and development, and social psychology, SBE will continue to invest funds to participate in special initiatives and cross-directorate programs that address vital national priorities, including those in NSF’s “10 Big Ideas” such as The Future of Work at the Human-Technology Frontier, Harnessing the Data Revolution, and Understanding the Rules of Life.

The Biological Sciences Directorate at NSF also provides support for research psychologists who ask questions about the principles and mechanisms that govern life at the level of the genome and cell, or at the level of a whole individual, family or species. In previous testimony, APA has expressed concern about diminishing support for key behavioral research programs within this Directorate, most notably those focused on learning and cognition. We urge NSF to strengthen support both in the Biological Sciences Directorate and Foundation-wide for research projects that seek to understand the neural or genetic mechanisms by which learning occurs, use learning as an assay for the effects of environmental change on a biological system, construct and evaluate artificial learning systems, conceptualize the role of learning in biodiversity and evolution, and apply learning principles to education and workforce challenges.

NSF should receive support sufficient to allow full investment into the ambitious work proposed by NSF’s 10 Big Ideas in addition to, and not in replacement of, the core research programs being done within the directorates. Ensuring that NSF has sufficient resources to fully fund the core programmatic research currently ongoing and continue developing and expanding the 10 Big Ideas provides a strong platform for decades of future scientific discovery.

2. Counter Specific Threats to Basic Science, NSF Merit Review, and the Behavioral and Social Sciences

Addressing questions about human behavior is as critical to our Nation’s survival and well-being in a global context as is investigating physical systems as minute as a nanostructure or as vast as the universe. Alongside APA, scientific and industry leaders, both private and public, continue to urge members of Congress to strongly support all individual scientific disciplines and NSF Directorates, and to avoid attacking individual, peer-reviewed grants funding behavioral and social science projects (including those of psychologists). All NSF grant proposals are reviewed according to two criteria: Intellectual Merit and Broader Impacts. Grant proposals must advance knowledge and benefit society, and for the last 60 years, NSF has used this gold-standard merit review process to review and award funding to the best scientific research. Further, basic research, by nature, is aimed at increasing our body of knowledge to address both known and unknown challenges today and in the future. For example, basic psychological research today is essential for the continued development of AI, self-driving vehicles, and other emerging technologies. Failing to support basic research, including behavioral and social science, today undermines our ability to confront the unforeseen challenges and opportunities of tomorrow.

3. *Continue Increasing Investments in Basic Science and the National Science Foundation to Address Domestic and International Priorities*

APA urges Congress to continue building on the increased investments in NSF from fiscal year 2018. Failing to invest in basic science undercuts U.S. opportunity domestically and puts the Nation at a disadvantage internationally. Domestically, NSF could fund an additional \$3.92 billion in grant awards without compromising its current, international gold-standard proposal quality. The \$3.92 billion in unfunded, quality research represents wasted scientific potential that could address vital national priorities, such as advancing discoveries that could improve public health programs, encouraging development of next-generation technology, or strengthening the national defense. Failing to capitalize on the ingenuity, creativity, and intellectual rigor of the basic science supported by NSF imperils the U.S. capacity to remain globally competitive at a time when other nations pour enormous resources into research, leading to an innovation deficit with vast economic and national security implications. Internationally, China's investments in research and development are expected to surpass those of the U.S. by the end of 2018, according to the National Science Board's Science and Engineering Indicators Report. NSF and the basic science it funds are essential for our success as a Nation.

DEPARTMENT OF JUSTICE (DOJ)

APA is deeply committed to reforming the criminal justice system, supporting those with mental illness within the system, meeting the needs of victims of violence, and ensuring that the best scientific evidence is funded and used to make programmatic and policy changes.

1. *Reduce Incarceration, Protect Public Safety, and Provide Better Stewardship of Tax Dollars*

APA strongly supports comprehensive efforts in Congress to reform the Federal criminal justice system. The vast majority of incarcerated offenders return from jail or prison to their communities, and an estimated 77 percent of former prisoners are rearrested within 5 years of release. This represents a systemic failure which Congress and many States are making important steps to redress. fiscal year 2019 appropriations for DOJ represent another avenue for reform and to reduce the burden of incarceration on public coffers and affected families and communities.

Achieving these goals requires a shift in strategy and funding priorities. To this end, APA urges the Committee to adopt a reform-minded approach in certain appropriations for the Bureau of Prisons (BOP) and Office of Justice Programs (OJP).

APA remains extremely concerned about the use of augmentation by the BOP and its effects on facility safety and programming. To this end, we are very grateful to congressional appropriators for striving to hold BOP accountable for unfilled positions and related augmentation. The administration has used financial savings related to reductions in the BOP population to justify permanent elimination of approximately 6,000 BOP staff positions. The shortsightedness of this approach cannot be understated. To redress these problems, we urge the Committee to continue directing BOP to maintain staffing sufficient to the adequate performance of the agency's custody and care responsibilities. To help continue the trend of successful long-term reduction of the BOP population, APA also requests \$42.6 million for cognitive behavioral treatment in residential reentry centers and \$91.3 million to facilitate prisoner reentry, by enhancing pre-release programming, increasing available reentry center beds, facilitating prisoner-family connections, and improving educational and vocational training.

APA also urges the Committee to adequately fund a number of priorities at OJP to support State and local justice reforms. Several States have provided leadership in reducing unnecessary incarceration, and OJP can help ensure other States gain the benefits of similar reforms. APA specifically requests that the Committee provide: \$100 million for the Second Chance Act; \$30 million for Justice Reinvestment; \$58 million for Criminal Justice Statistics; \$48 million for Research, Development, and Evaluation within the National Institute of Justice (including \$3 million for Social Science Research on Indigent Defense); and restoration of funding to the Comprehensive School Safety Initiative at NIJ.

Finally, APA asks the Committee to provide strong funding for juvenile justice programming, to support intervention in the lives of young people while the chances are highest for them to develop along a healthy, productive, and fulfilling trajectory. APA requests: \$80 million for juvenile justice Part B formula grants; \$10 million for girls in the juvenile justice system; \$4 million for the National Forum on Youth Violence Prevention; \$25 million for the Community-Based Violence Prevention Initiative; \$42 million for the Delinquency Prevention Program (Title V); \$5.4 million

for the Improving Juvenile Indigent Defense Program; \$30 million for the Juvenile Accountability Block Grant; \$20 million for the Smart on Juvenile Justice Initiative; and \$23 million for the Defending Childhood initiative.

2. Address Mental Illness and Reduce Strain on Criminal Justice Systems

APA strongly supports diversion from deeper levels of justice system involvement, when public safety allows, so that individuals with mental illness can obtain the care they need. Law enforcement officers who serve on crisis intervention teams (CIT) divert individuals pre-arrest and connect them with public mental health resources; problem-solving courts provide pre-trial diversion, while maintaining the accountability of court supervision; and probation provides community corrections alternatives to incarceration that also maintain accountability and provide community mental health resources. Diversion also allows criminal justice agencies to focus on those individuals for whom correctional custody is deemed necessary, and this includes providing the mental and behavioral healthcare to which inmates have a constitutional right.

To this end, in the Federal prison system, APA urges the Committee to provide BOP with an additional \$9.7 million for mental health staff and \$20 million for changes to restrictive housing intended to provide better alternatives, such as the model Secure Mental Health Step-Down Program, for individuals with mental illness. These investments will help inmates achieve better health and make treatment of their criminogenic needs more likely to succeed, so that they can thrive and maintain employment when they return to the community. This would help protect public safety, reduce burdens on other social systems, make families stronger, and add to the tax base.

To support important State and local government efforts across the Nation in addressing the high rate of mental and behavioral health needs among those in contact with criminal justice systems, APA is incredibly grateful for the Committee's fiscal year 2018 appropriations for the Justice and Mental Health Collaboration Grant Program, Drug Courts, Veterans Treatment Courts, and Residential Substance Abuse Treatment for State Prisoners at \$30 million, \$75 million, \$20 million, and \$30 million, respectively. We request continued funding at these levels. In addition, we urge the Committee to provide \$7.5 million for the national center to train law enforcement on responses to individuals with mental illnesses or developmental disabilities. APA notes the particular importance of increased funding for this national center, given current gaps between law enforcement demand for this training and its availability.

3. Support Victims of Violence

APA strongly supports the Office of Violence Against Women (OVW). The Violence Against Women Act (VAWA), which authorizes the OVW, is the Federal framework for the U.S. response to domestic and sexual violence. Since the enactment of VAWA, rates of domestic abuse have declined in the U.S. However, exposure to violence is still very common—one in three women will experience rape, physical violence, or stalking in her lifetime. Any cuts to OVW funding would imperil progress made over the last three decades.

APA urges the Committee to give special consideration to the needs of underserved and marginalized populations. Women of color, women with disabilities, individuals who identify as lesbian, gay, bisexual, or transgender, and other marginalized populations are at higher risk of victimization from domestic or sexual violence. APA asks the Committee to prioritize effective prevention and support around domestic and sexual violence for these populations. Specifically, of the funds made available to the Office of Violence Against Women, APA requests: \$9 million for Protections and Services for Disabled Victims; \$9 million for the Elder Abuse Grant Program; \$5 million for Grants to Tribal Governments; \$2 million for Outreach to Underserved Populations; and \$222 million for STOP Grants. These programs are crucial in preventing further violence, helping victims seek safety, and starting them on the road towards recovery.

4. Support Improved Police-Community Relations

Psychological research has revealed effective strategies to enhance law enforcement and community relations, improve public safety, and reduce the risks of violence and aggression. These include the development of community-informed responses to violence, implementation of community-based policing implemented in a way that builds trust between police and the communities they serve, training on stereotypes and the effects of implicit bias, and programs that support the mental health and well-being of officers. APA urges the Committee to provide adequate funding to BJA, the Office of Community Oriented Policing Services, and the Office of Juvenile Justice and Delinquency Prevention to support additional Federal, State,

and local activities, by providing: \$20 million for the Community Policing Development Program; \$20 million for the Collaborative Reform Initiative; and \$17.5 million for the Innovations in Community Based Crime Reduction Program. While APA supports the integration of body cameras into law enforcement work, it is critical that additional, rigorous research be conducted on their use, to establish best practices that ensure accountability on both sides of interactions between law enforcement and community members.

Contact: Micah Haskell-Hoehl, Legislative and Federal Affairs Officer, mhaskell-hoehl@apa.org.

PREPARED STATEMENT OF THE AMERICAN SOCIETY FOR ENGINEERING EDUCATION

SUMMARY

This written testimony is submitted on behalf of the American Society for Engineering Education (ASEE) to the Senate Subcommittee on Commerce, Justice, Science, and Related Agencies for the official record. ASEE appreciates the Committee's support for the National Science Foundation (NSF) in the fiscal year 2018 omnibus and asks you to robustly fund the agency in fiscal year 2019, including the Research and Related Activities and the Education and Human Resources accounts. ASEE joins the academic and scientific community in requesting support of at least \$8.45 billion for NSF in fiscal year 2019 to advance both core research and education activities as well as NSF's Big Ideas for Future Investment. Additionally, ASEE supports continuation of funding at the National Aeronautics and Space Administration (NASA) dedicated to the Space Technology Mission Directorate (STMD), which supports engineers and scientists in developing technology to advance science and space missions in the national interest, and the Office of Education, which supports and coordinates NASA educational efforts in engineering and STEM.

WRITTEN TESTIMONY

The American Society for Engineering Education (ASEE) is dedicated to advancing engineering and engineering technology education and research, and is the only society representing the country's schools and colleges of engineering and engineering technology. Membership includes over 12,000 individuals hailing from all disciplines of engineering and engineering technology and including educators, researchers, and students as well as industry and government representatives. The U.S. engineering workforce numbered 1.7 million people in 2015,¹ the most jobs of any STEM discipline, and the demand for engineering professionals continues to grow. As the pre-eminent authority on the education of engineering professionals, ASEE works to develop the future engineering and technology workforce, expand technological literacy, and convene academic and corporate stakeholders to advance innovation and sound policy.

NATIONAL SCIENCE FOUNDATION

Engineering shapes our Nation and powers our innovation ecosystem. National Science Foundation (NSF) basic research, conducted in engineering schools and colleges around the country, catalyzes new industries and revolutionary advances. A workforce of well-trained engineers in industry and government takes those discoveries and develops innovative new technologies to improve our future. This system is essential to growth and innovation across our economy, and is helping to solve challenges in health, energy, and national security. NSF is an essential partner, funding basic engineering and engineering education research at universities and supporting students to enable access to engineering education.

ASEE would like to commend you for your vision and commitment to funding NSF and for providing a critical increase of \$295 million in funding, or \$7.767 billion total, in the fiscal year 2018 omnibus. Prior to this increase, NSF received flat funding for several years, challenging the agency's ability to spur innovative discoveries and research, particularly as the buying power of this funding decreased. ASEE joins the research and higher education community in requesting that the Committee fund NSF at \$8.45 billion in fiscal year 2019 to continue the momentum from increased funding in fiscal year 2018 to drive advances in research and education and enable the U.S. to retain global competitiveness and scientific leadership.

¹National Science Board. 2018. Science and Engineering Indicators 2018. NSB-2018-1. Alexandria, VA: National Science Foundation.

ASEE strongly supports NSF's Big Ideas for Future Investment that would dramatically propel engineering research and education forward while revolutionizing the human-technology frontier, medicine, quantum communications, and other areas. NSF cannot adequately pursue these exciting, new interdisciplinary and transformative ideas without increased investments or would risk threatening core investments that power our research ecosystem.

NSF-funded research catalyzes fundamental advances that are utilized for national security applications while engineers trained with NSF funding become key components of the national security workforce and industrial base. Our national security ecosystem depends on healthy NSF research and workforce support. Additionally, we are encouraged by recent efforts by NSF and the Air Force to partner on new innovations such as space, materials, and quantum technologies. NSF is also tackling major national security challenges through the *Navigating the New Arctic* and other Big Ideas.

Investments in engineering education and research from NSF are essential for having a workforce trained and ready to contribute to industry, government, and academia. NSF is a major supporter of engineering research and workforce initiatives funding 40 percent of engineering and 87 percent of computer science academic fundamental research. NSF-funded advancements touch every corner of our lives and economy, from wireless systems to advanced manufacturing, and from new tools to combat brain diseases to technologies to ensure our cybersecurity. NSF supports engineering education at all levels, ensuring that the next generation of the U.S. engineering workforce is appropriately prepared to contribute and innovate across sectors and that domestic students are attracted to careers in engineering and engineering technology.

The NSF Directorate for Engineering provides critical support for engineering education and research across the breadth of the discipline. These investments have the dual outcomes of training future engineers that will discover tomorrow's innovations, all while furthering today's cutting-edge research. Engineering investments at NSF provide critical advancements in areas such as resilient infrastructure, advanced materials and manufacturing, and bioengineering, in addition to equipping students with the skills they need to be the next generation of technological leaders. These programs support university research and centers, as well as partnerships with industry, that provide experiential opportunities fundamental to engineering education.

The NSF Directorate for Computer and Information Science and Engineering also plays a key role supporting engineering education and research, particularly within the Division of Information & Intelligent Systems, which supports efforts at the frontiers of information technology, data science, artificial intelligence, among other areas. These investments are critical as we move into a world even more reliant on human-technology interactions.

ASEE strongly supports NSF Education and Human Resources (EHR) funding to foster inclusive and effective learning and learning environments. The STEM workforce, particularly engineers, technologists, and computer scientists, is the driving force behind innovation and our economic development. We need to fully develop all of our Nation's human talent in order to tackle the pressing problems we face. Access to STEM experiences and skills are a critical aspect of developing well-rounded citizens, technological literacy, and the future STEM workforce. ASEE supports the *Improving Undergraduate STEM Education* (IUSE) program, which is critical for preparing professional engineers and enhancing engineering educational experiences to broaden participation and retention in engineering and engineering technology programs.

NSF also plays a key role ensuring the development of new tools for teaching engineering design and analysis skills, which are under-taught in today's K-12 classrooms. As noted in the 2009 National Academies report *Engineering in K-12 Education*, engineering education has received little attention yet has the potential to improve student learning and achievement in other areas of STEM, increase awareness of engineering careers, and increase technological literacy. Engineering's focus on design and analysis enhances problem solving, teaches students new ways to approach challenges, and encourages students to connect science and math topics to real-world applications. These skills are critical to the future technical workforce. EHR also supports graduate fellowships and broadening participation efforts to create a pipeline of students knowledgeable and excited about engineering to fill workforce needs.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

ASEE is concerned with the administration's proposal to consolidate the Space Technology Mission Directorate (STMD) of the National Aeronautics and Space Administration (NASA) and redirect its activities solely towards human exploration. Of importance to ASEE, STMD activities support the workforce development pipeline of future space engineers and technologists by engaging directly with the academic community through early career faculty programs, early stage research grants, and university-led multidisciplinary research institutes. STMD's broad portfolio of activities helps to meet NASA's science objectives, establishes new commercial and academic partnerships, and stimulates the growth of the Nation's technology sector. STMD programs fill significant capability gaps for NASA and better position the agency to meet its long-term strategic goals in areas across all its directorates ranging from propulsion and power generation to materials science and high-performance computing. ASEE urges the Committee to block the administration's proposal and protect STMD's ability to focus on a broad array of NASA technology challenges, continue its engagement with the academic and private sectors, and keep its long-term focus beyond specific near-term mission goals. ASEE joins the research community in requesting \$796 million for STMD in fiscal year 2019.

ASEE is also concerned with the administration's proposed elimination of NASA's Office of Education and asks that the Committee sustain funding for this office in fiscal year 2019 and beyond. NASA Education programs inspire students to pursue engineering, science, and technology careers, and the Office of Education plays a vital role coordinating education programs throughout the agency, including those at NASA centers. ASEE supports the continuation of NASA Education programs including the *National Space Grant College and Fellowship Program* (Space Grant), which supports university consortia in all 50 States, funding fellowships for engineering and other STEM students, while also offering important resources for faculty professional development and strengthening curricula. ASEE is also supportive of initiatives at the NASA Office of Education to broaden participation in STEM and to bring engineering design and analysis experiences to K–12 students.

CONCLUSION

National Science Foundation education and research investments have truly transformed our world through engineering breakthroughs such as the Internet, fiber-optics, and medical imaging technology. These investments keep our communities safe, lower healthcare costs, and spur our economy. Today, engineering research is opening possibilities through advances in areas such as artificial intelligence, biosensors, and advanced materials. We ask that you robustly fund NSF at \$8.45 billion to support critical education and research programs. In addition, we urge you to continue both the Space Technology Mission Directorate and Office of Education at NASA in fiscal year 2019. Thank you for the opportunity to submit this testimony.

[This statement was submitted by Bevlee Watford, President, and Norman Fortenberry, Executive Director.]

 PREPARED STATEMENT OF KARL ANDERSON ON BEHALF OF AMERICAN SOCIETY OF AGRONOMY, CROP SCIENCE SOCIETY OF AMERICA, AND SOIL SCIENCE SOCIETY OF AMERICA

The American Society of Agronomy (ASA), Crop Science Society of America (CSSA), and Soil Science Society of America (SSSA) support \$8.45 billion for the National Science Foundation (NSF). Within NSF we request \$55.8 million for Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS).

The American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, represent over 18,000 scientists in academia, industry and government. We support more than 13,300 Certified Crop Advisers (CCA), and over 700 Certified Professional Soil Scientist (CPSS). Our members and certified professionals are dedicated to meeting the demands of a growing world population through the pursuit of agronomic, crop, and soil science knowledge and application.

The Nation's agricultural system must sustainably produce the food and fuel America relies on for national and economic security. Growing global competition is putting America's agricultural economy at risk. The U.S. has lost its spot as the top global funder of public agricultural R&D, falling behind China in 2009. Today, the U.S. trails Western Europe and is outspent nearly 2:1 by China.

We support \$8.45 billion for the National Science Foundation for the fiscal year 2019. This funding level will increase the broad base of fundamental knowledge in

key disciplines, such as biology, plant science, chemistry, and soil science, which is needed to address agriculture's most intractable challenges. Such research funding will simultaneously support the scientists creating innovations today and the students who will tackle the unforeseen issues of tomorrow.

Within NSF, the Societies are very supportive of the Innovations at the Nexus of Food, Energy, and Water Systems (\$55.8 million). There is a pressing need to understand the interconnectedness of food, energy, and water and to develop new technologies that increase farm productivity while reducing costly energy and water-intensive inputs. The recent droughts in large swaths of the country, and their corresponding impact on agricultural and economic productivity, underscore the need to balance these resources. NSF's INFEWS program uniquely blends perspectives from each of these often-siloed fields. It offers scientific approaches to mitigate the impacts of future droughts, easing the tensions between competing land and natural resource interests, and creating resiliency in food, energy, and water systems.

The research and education programs funded by NSF are essential to ensure an economically competitive America now and into the future. A strong commitment to federally funded scientific research will boost the Nation's capacity for innovation, agricultural productivity, and economic prosperity.

We appreciate the opportunity to provide written testimony and look forward to working with the subcommittee as it considers funding for the National Science Foundation. Thank you.

[This statement was submitted by Karl Anderson, Director of Government Relations.]

PREPARED STATEMENT OF THE ANIMAL WELFARE INSTITUTE

Thank you for the opportunity to submit testimony on fiscal year 2019 funding priorities for the U.S. Department of Commerce's (DOC) John H. Prescott Marine Mammal Rescue Assistance Grant Program (Prescott Grant Program), which is funded through the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS); as well as on the Marine Mammal Commission (MMC), an independent Federal agency established by Congress under the Marine Mammal Protection Act (MMPA).

Prescott Grant Program—\$4.00 million

The Prescott Grant Program, under NOAA's National Marine Fisheries Service, provides competitive grants to marine mammal stranding network organizations to rescue and rehabilitate sick, injured, or distressed live marine mammals and to investigate the events and determine the cause of death or injury to marine mammals. Over the past 18 years, the Prescott grants have been critical to protecting and recovering marine mammals across the country while also generating critical information regarding marine mammals and their environment. As the sole source of Federal funding for the National Marine Mammal Stranding Network, which is comprised of over 90 member organizations within 23 States, robust funding is required for the Prescott Grant Program in order for it to continue with its vital work.

Marine Mammal Commission (MMC)—\$5.25 million

The Marine Mammal Commission (MMC) is an independent Federal agency established by Congress in 1972 under the Marine Mammal Protection Act (MMPA). Responsible for overseeing the proper implementation of the MMPA, the MMC provides comprehensive, independent, science-based oversight of all Federal and international policy and management actions affecting marine mammals. The MMC's work is crucial for maintaining healthy populations of marine mammals, such as whales, manatees, dolphins, seals, sea otters, walrus, and polar bears, and ensuring their survival for generations to come. Additionally, the MMC seeks to ensure that Alaska Natives can meet their subsistence needs through hunting of marine mammals.

Since fiscal year 2015, the MMC has been funded at a flat level of \$3.43 million—this level of funding translates to about one penny per American per year. However, since that time, the MMC has absorbed significant fixed costs leading to reduced discretionary funding for its core functions by roughly 53 percent (\$1.82 million). In order to restore the MMC to the discretionary funding level it had in fiscal year 2015, \$5.25 million is needed. This level of funding will better enable the MMC to fulfill its obligations as outlined in the MMPA.

[This statement was submitted by Nancy Blaney, Director, Government Affairs.]

PREPARED STATEMENT OF THE ASIAN AMERICANS ADVANCING JUSTICE | AAJC

CENSUS BUREAU

On behalf of Asian Americans Advancing Justice | AAJC (Advancing Justice | AAJC), we submit this written testimony to the Senate Appropriations Committee's Subcommittee on Commerce, Justice, Science, and Related Agencies regarding the fiscal year 2019 budget for the Census Bureau. By the 2020 Census, the Census Bureau must put its field infrastructure in place; finalize the design and operations for the census; verify the master address list that defines the census universe; develop an effective advertising and outreach campaign; and ensure that all IT systems that will support the first "high tech census" are secure and work well. Fiscal year 2019 is critical to ensuring a fair and accurate count—one that counts all communities equally well¹—and must have a significant funding ramp-up—a minimum of \$4.735 billion.²

ORGANIZATIONAL BACKGROUND

Advancing Justice | AAJC is a national nonprofit, non-partisan organization founded in 1991. Our mission is to advance the civil and human rights of Asian Americans and to build and promote a fair and equitable society for all. Advancing Justice | AAJC considers the census, including the American Community Survey (ACS), to be the backbone of its mission. Advancing Justice | AAJC maintains a permanent census program that monitors census policy, educates policy makers, and conducts community outreach and education to encourage participation in the surveys conducted by the Census Bureau, including for Census 2000 and Census 2010. Advancing Justice | AAJC also serves on the National Advisory Committee on Racial, Ethnic and Other Populations to the Census Bureau and currently co-chairs the Leadership Conference on Civil and Human Rights' (Leadership Conference) Census Task Force.

IMPORTANCE OF CENSUS TO ASIAN AMERICANS

Census data are critical for a functioning society as it allows for the distribution of over \$800 billion Federal funds annually to States,³ informs effective and efficient policy and planning decisions, and is used to reapportion political representation and to redistrict at all levels. Without an accurate count of Asian Americans, these decisions will not address the needs of growing Asian American communities.

Census data are even more important for Asian Americans as the most comprehensive set of socioeconomic data points on Asian American communities, particularly for subgroups. Often viewed as homogenous, these communities include more than several dozen detailed racial and ethnic groups that can differ dramatically across key social and economic indicators. Only with detailed data can we build the solid foundation necessary for public policy, ensure that the right programs are reaching the right communities, and dismantle the conscious and unconscious beliefs that there is a racial hierarchy in our Nation. As one of the few entities that collect and report detailed data, an inaccurate count of Asian Americans by the Census Bureau would mean that many of our communities, and their attendant needs, would be rendered invisible and neglected.

FUNDING REQUEST FOR FISCAL YEAR 2019 FOR THE CENSUS BUREAU

The 2020 Census has been underfunded from beginning of its lifecycle by approximately \$210 million cumulatively from fiscal year 2012 through fiscal year 2017. Congress must ensure a sufficient funding ramp-up for the 2020 Census because of the unique cyclical nature of this constitutionally required activity. The failure to invest sufficiently in final preparations and early operations could depress participa-

¹Asian Americans are among those who have historically experienced a differential undercount. While the 2010 Census had a relatively "accurate" count for AAPIs, the 2010 Census, in fact, missed hundreds of thousands of Asian Americans—a problem that was offset, at the national level, by double counting or other mistaken enumerations.

²The President's proposed fiscal year 2019 funding level for the 2020 Census of \$3.015 billion is \$437 million below the Commerce Department's revised fiscal year 2019 cost estimate of \$3.452 billion. Thus, this amount is \$933.5 million above the president's request but only \$475.5 million above the Commerce Department's cost estimates for fiscal year 2019 activities.

³Andrew Reamer, George Washington University Institute of Public Policy, COUNTING FOR DOLLARS 2020 The Role of the Decennial Census in the Geographic Distribution of Federal Funds Report #2: Estimating Fiscal Costs of a Census Undercount to States (2018), <https://gwipp.gwu.edu/sites/g/files/zaxdzs2181/f/downloads/GWIPP%20Reamer%20Fiscal%20Impacts%20of%20Census%20Undercount%20on%20FMAP-based%20Programs%2003-19-18.pdf>.

tion and increase operational mistakes and failures in 2020, potentially increasing census costs by billions of dollars and diminishing public confidence in the results. Furthermore, the recent last-minute and misguided decision by Commerce Secretary Wilbur Ross to add an untested question about citizenship on the 2020 decennial census form will have unknown, but likely significant, impacts on participation rates, particularly of those already disinclined to participate, as well as on operational decisions. These impacts will increase the need for funding in the lead-up to Census Day, as well as for the Non-Response Follow-Up phase, which is the most expensive component of the census. It will be important to press Secretary Ross to understand the fiscal implications of this misguided decision and ensure the Census Bureau has the resources it needs to ameliorate the harmful impact of this decision.

The additional funds (to raise the full funding in fiscal year 2019 to \$4.735 billion for the U.S. Census Bureau) are needed for the following activities:

- Partnership Staff* (+\$62.5 million).—Provide funding for additional Partnership staff who will engage, educate, and mobilize States, localities, and community-based organizations in support of the census.
- Communications Campaign* (+\$100 million).—Increase funding for communications, in light of a lower projected self-response rate, to expand targeted and “in-language” advertising to communities that are harder to reach, and to address public fears.
- More Area Census Offices* (+\$312 million).—Expand the Census Bureau’s “footprint” in the field by increasing the number of local (“Area”) census offices.
- Contingency fund* (+\$314 million).—Congress has appropriated money for a contingency fund in past decades and should do so now, as Commerce Secretary Ross recommended.

The additional funding is critical for ensuring a fair and accurate count of Asian Americans, especially because of the importance of the partnership program and the media to communicate with hard-to-count Asian American communities. Respondents interacting with trusted leaders, such as government leaders, school leaders, faith-based leaders, and other community leaders who are directly communicating with their members about the importance of participating and how the community benefits, rather than with a stranger representing the Federal Government, are more willing to participate in the census. Increasing the partnership staff is particularly important to provide the necessary outreach for minority communities. The growing privacy concerns and distrust in the Census Bureau, the growing diversity, hostile climate to certain communities, and the general distrust of government make a strong and vibrant partnership and outreach program even more necessary and important for an accurate count in 2020.

In addition to the partnership program, the communications campaign played an important role in reaching hard-to-count communities in the 2000 and 2010 Censuses. Media is an important tool in communicating with hard-to-count Asian American communities and thus increased funding to expand the communications program is critical to engaging the Asian American community. In particular, ethnic media⁴ is the most effective way to reach a substantial part of Asian American communities, though the precise use of ethnic media may be different across various ethnic groups.⁵ Online media is a particularly ripe opportunity for reaching Asian Americans, but many Asian Americans, particularly those in hard-to-count communities, are not Internet proficient and lack access to computers. Also, as Asian Americans vary generationally, spanning from recently arrived immigrants to those with roots in the community for more than one hundred years, any communications or marketing plan must be multi-faceted to address the needs of the various ethnic groups, various languages, and various generations. Each individual Asian American sub-ethnic group has intrinsic characteristics that require customization in messaging, treatment, and media vehicles based on particular nuances. In addition, there are multiple factors that pose additional challenges for reaching the especially

⁴See New America Media, *National Study on the Penetration of Ethnic Media in America* (2009), http://media.namx.org/polls/2009/06/National_Study_of_the_Penetration_of_Ethnic_Media_June_5_2009_Presentation.pdf (hereinafter “New American Media Study”).

⁵The New American Media Study saw 59 percent of Chinese, 61 percent of Koreans, 83 percent of Vietnamese, 84 percent of Filipinos and 85 percent of Asian Indians relying on ethnic media. See New American Media Study. Other differences seen include: 52 percent of Vietnamese, 45 percent of Chinese and 43 percent of Korean relied on ethnic media as a news source for political information while only 11 percent of Asian Indians, 19 percent of Filipinos, and 8 percent of Japanese and do the same. Karthick Ramakrishnan, Janelle Wong, Taeku Lee, and Jennifer Lee, *Asian American Voices In The 2016 Election Report On Registered Voters In The Fall 2016 National Asian American Survey* (2016), <http://naasurvey.com/wp-content/uploads/2016/10/NAAS2016-Oct5-report.pdf>.

hard-to-count Asian American communities. Thus, there needs to be increased funding to ensure the Asian American-focused subcontractor can effectively reach the different segments within the Asian American community.

As part of the expanded Partnership program and communications plan, a robust language support program for the 2020 Census must be properly funded, in place in a timely fashion, and culturally appropriate and relevant. The Asian American population in the United States is larger than it has ever been in our Nation's history, currently at 21.4 million.⁶ Asian Americans represented the fastest growing group in the 2010 Census,⁷ and continues to be the fastest growing during this decade.⁸ Of this rapidly growing segment of the population, about two-thirds are foreign-born,⁹ and more than a third of the Asian American population, over 5.6 million people, is considered limited English proficient (LEP).¹⁰ The LEP rate of Asian Americans is almost 22 times more than that of non-Hispanic Whites (1.6 percent). Additionally, Asian American households are 25 times more likely to be limited English speaking households.¹¹ This is important because it means all adults in the household are LEP, which makes participating in the census even more difficult. Together, these factors result in a significant portion of the population being both linguistically and culturally at a disadvantage when it comes to census participation.

The Census Bureau's current plan includes an Internet questionnaire and Census Questionnaire Assistance in approximately 12 non-English languages, and the development of video and paper Language Assistance Guides (LAGs) in 59 non-English languages.¹² Additionally, the 2020 Language Support Team and the Integrated Partnership and Communications team are already working together to ensure these languages are supported through the Integrated Partnership and Communications Plan. However, the Census Bureau must have adequate funding to finalize development of, and operationalize, its language program. Factoring in the development of appropriate materials for promotion and outreach—leaflets to distribute to individuals, posters and other promotional materials—and questionnaire aids in different languages, the Census Bureau needs to start the process as soon as possible, and the additional funds can help ensure that the Bureau has the appropriate funding to support such work.

CONCLUSION

Advancing Justice | AAJC appreciates the opportunity to provide input on the fiscal year 2019 appropriations for the U.S. Census Bureau. Census Day is less than 2 years away, and the time is now to right the ship and get a fair and accurate count in 2020. The Census Bureau must receive a significant funding ramp-up—a minimum of \$4.735 billion—in order to fulfill its constitutional duty and achieve a fair and accurate count of all communities.

[This statement was submitted by John C. Yang, President & Executive Director, and Terry Ao Minnis, Director of Census and Voting Programs.]

⁶Asian Americans Advancing Justice—Los Angeles, Press Release, Asian Americans Remain Fastest Growing Racial Group In Country, Growth Driven By New Immigrants (June 21, 2017), available at <https://advancingjustice-la.org/media-and-publications/press-releases/asian-americans-remain-fastest-growing-racial-group-country#.WbgZebKGNkg> (hereinafter "Fastest Growing Press Release").

⁷See U.S. Census Bureau, *2010 Census Briefs: The Asian Population: 2010* (2012), available at <https://www.census.gov/content/dam/Census/library/publications/2012/dec/c2010br-11.pdf>.

⁸See Fastest Growing Press Release.

⁹U.S. Census Bureau, 2015 American Community Survey 1-Year Estimates, Table B05003d Sex By Age By Nativity and Citizenship Status (Asian Alone).

¹⁰U.S. Census Bureau, 2015 American Community Survey 1-Year Estimates, Table B16005d Nativity By Language Spoken At Home By Ability To Speak English For The Population 5 Years And Over (Asian Alone).

¹¹A "limited English-speaking household" is one in which no member 14 years old and over (1) speaks only English or (2) speaks a non-English language and speaks English "very well." U.S. Census Bureau, 2011–2015 American Community Survey Selected Population Tables, Table B16002: Household Language by Household Limited English Speaking Status.

¹²U.S. Census Bureau, 2020 Census Program Management Review, Questions Planned for the 2020 Census and the American Community Survey: A Process Overview (Jan. 26, 2018), <https://www2.census.gov/programs-surveys/decennial/2020/program-management/pmr-materials/01-26-2018/pmr-2020-operations-01-26-2018.pdf>.

PREPARED STATEMENT OF THE ASSOCIATION FOR PSYCHOLOGICAL SCIENCE

HIGHLIGHTS OF APS RECOMMENDATIONS

- As a member of the Coalition for National Science Funding, APS recommends at least \$8.45 billion for NSF in fiscal year 2019. This level of funding would address the erosion of the agency’s budget resulting from it being underfunded for many years. Since fiscal year 2011, the average annual increase in NSF’s budget has been 1.7 percent, which in some years has not even kept up with inflation.
- NSF’s Directorate for Social, Behavioral, and Economic (SBE) Sciences conducts research that increases the fundamental understanding of human social development and interaction and of human behavior. SBE programs enable basic research in cross-cutting topics by psychological scientists along with behavioral economists, political scientists, sociologists, linguists, neuroscientists, anthropologists, and other social and behavioral scientists to address problems that range from coastal flood response to the needs of an aging population to preparing our military with the insights they need to understand behavior in a changing world. Through its various core disciplinary and interdisciplinary programs, as well as contributions to cross-directorate NSF investments, SBE supports approximately 5,000 scientists, educators, and students in a typical year. Unfortunately, in eras of tight budgets, the SBE Directorate is also a popular target for budget cuts. APS urges the Committee to recognize the important contributions of the SBE Directorate with supportive report language and implied funding increases.

Mr. Chairman and Members of the subcommittee, thank you for the opportunity to provide testimony as you consider funding priorities for fiscal year 2019. I am Sarah Brookhart, Executive Director of the Association for Psychological Science (APS).

APS is a nonprofit organization dedicated to the advancement of scientific psychology nationally and internationally. APS’s 33,000 members are scientists and educators at the Nation’s universities and colleges, conducting research supported by the National Science Foundation (NSF). APS believes the research funded by NSF’s Social, Behavioral, and Economic (SBE) Sciences Directorate provides a fundamental understanding of the human condition without which decisionmaking on the full range of major national issues would not be based on evidence, resulting in suboptimal inefficient outcomes and an otherwise avoidable waste of Federal dollars. SBE scientists develop and employ rigorous methods to discover fundamental principles of human behavior at levels ranging from cells to society and from neurons to neighborhoods. We urge the Committee to include supportive report language and implied funding increases for the SBE Directorate in the fiscal year 2019 CJS Appropriations bill and report.

Mr. Chairman, APS joins the Coalition for National Science Funding (CNSF)—a broad-based group of over 140 professional organizations, universities, businesses, and scientific societies that advocates for robust and sustained Federal support for science and recommends a fiscal year 2019 appropriation of at least \$8.45 billion for NSF. We also wholeheartedly support a recommendation included in the American Academy of Arts & Sciences report titled “Restoring the Foundation” that concludes that to secure America’s leadership in science and engineering and to ensure a growing economy, Federal science agencies should be funded at an annual increasing rate of 4 percent real growth—that is, 4 percent plus inflation. This recommendation was repeated in another important report titled “Innovation: An American Imperative” which was a clarion call-to-action supported by more than 500 organizations and several top corporate leaders.

Further, we urge that the Committee recognize, through report language, the important work conducted by NSF’s SBE Directorate. The importance of social and behavioral research has recently been recognized by a major NSF award. The Alan T. Waterman Award, the Nation’s highest honor for early career scientists and engineers, was recently awarded to psychological scientist Kristina R. Olson. Dr. Olson was selected from a large group of highly qualified nominees representing all disciplines for her innovative contributions to understanding children’s attitudes toward and identification with social groups; early prosocial behavior; the development of notions of fairness, morality, inequality; and the emergence of social biases. Dr. Olson received funding from NSF’s SBE Directorate and her work exemplifies the type of groundbreaking research funded by that Directorate.

RECOGNIZING THE LEADERSHIP OF THE SUBCOMMITTEE

Mr. Chairman, APS recognizes and appreciates your leadership and the leadership of this subcommittee in supporting Federal research. We applaud the Committee's commitment to maintaining our Nation's economic growth, national security, and overall global competitiveness through investment in science. We are particularly grateful for your leadership in securing a nearly 4 percent increase to NSF's budget in the fiscal year 2018 Omnibus. This commitment is necessary for the United States to remain globally competitive. The National Science Board recently released the 2018 Science and Engineering Indicators Report which clearly shows that competitor nations, especially China, are rapidly improving their global position in science and technology while the United States is resting on its laurels of past investments. The report indicates that China is poised to become the global leader in science and technology in the next few years. Continued leadership from the subcommittee is necessary to ensure that the United States remains competitive and at the forefront of science, technology and innovation.

The leadership of the subcommittee not only supports the competitiveness and growth of our country, but also each of Members' States as well. In fiscal year 2017, for example, Kansas research institutions were competitively awarded 71 NSF grants totaling \$41.6 million and New Hampshire research institutions were competitively awarded 129 NSF grants totaling \$40 million. NSF research benefits every State in the country on a local and global level.

FUNDING FOR THE NATIONAL SCIENCE FOUNDATION AND POLICY ISSUES

As previously noted, APS recommends an fiscal year 2019 funding level of at least \$8.45 billion for NSF, which would help underscore that supporting fundamental scientific research is a national priority. The administration's request of \$7.5 billion in fiscal year 2019, almost a full billion cut from fiscal year 2018, is reckless and short sighted. This type of cut would be detrimental to the universities across the country and the American research enterprise. APS is in fierce opposition to the administration's proposal.

In addition to funding priorities, APS is concerned about the administration cutting funding for the Social, Behavioral, and Economic Sciences Directorate. The administration has recommended a disproportionate cut of 11.2 percent to SBE which will result in 111 fewer SBE research awards. As mentioned previously, SBE research has implications for improving the safety of our troops in combat, reducing violence among our youth, improving public health and education, improving the effectiveness of the criminal justice system, helping paralyzed people communicate, and improving economic decisionmaking. Despite being the smallest Directorate at NSF, the SBE Directorate funds 55 percent of all university-based social and behavioral science research in the Nation. In the Chairman and Ranking Member's home States of Kansas and New Hampshire, SBE awarded over \$2.4 million in competitive research grants. We therefore urge the Committee include the following report language:

Directorate for Social, Behavioral, and Economic Sciences.—The Committee supports the research funded by the Directorate for Social, Behavioral, and Economic Sciences and recognizes the fundamental importance of this research to advancing our understanding of human behavior and its application to improving the outcomes of a wide range of complex human systems including national health, national defense and security, education and learning, and the efficient integration of humans and machines. This category of research has implications for improving the safety of our troops in combat, reducing violence among our youth, improving public health, improving the effectiveness of the criminal justice system, helping paralyzed people communicate, and improving economic decisionmaking. The Directorate for Social, Behavioral, and Economic Sciences funds 55 percent of the university-based social and behavioral science research in the Nation, but it remains the smallest of the NSF Directorates accounting for only 3.7 percent of the entire NSF budget. The Committee believes that Social, Behavioral, and Economic Sciences research provides a fundamental understanding of the human condition which enables decision-making on the full range of major National issues to be based on objective scientific evidence, resulting in improved solutions to National concerns and more effective use of Federal dollars.

SUMMARY AND CONCLUSION

Mr. Chairman, again we wish to thank the subcommittee for its past leadership. APS shares your commitment to foster innovation and U.S. economic competitiveness through appropriately investing in our Nation's research infrastructure. While

APS recommends at least \$8.45 billion for fiscal year 2019, that amount will result in only 22 percent of competitive NSF grant proposals being funded out of the 50,000 grant proposals NSF expects to receive in fiscal year 2019—approximately 11,000 proposals. Even more Federal funding for NSF could result in more research projects being funded, research that could lead to new knowledge, new discoveries, and possibly products, services, and new industries. Additional SBE research will continue to help us understand patterns of stability and change at the individual, group, organizational, and societal levels that can be applied to promote the progress of science and to advance national health, prosperity, and welfare.

We appreciate the opportunity to provide this testimony and thank you for your continued leadership.

[This statement was submitted by Sarah Brookhart, Executive Director.]

PREPARED STATEMENT OF THE ASSOCIATION OF PUBLIC AND LAND-GRANT
UNIVERSITIES' (APLU) BOARD ON OCEANS, ATMOSPHERE, AND CLIMATE (BOAC)

On behalf of the Association of Public and Land-grant Universities' Board on Oceans, Atmosphere, and Climate (BOAC), we thank you for the opportunity to provide recommendations for the proposed fiscal year 2019 budgets for the National Oceanic and Atmospheric Administration (NOAA), the National Aeronautics and Space Administration (NASA) and the National Science Foundation (NSF). BOAC represents hundreds of scientists and administrators at APLU's 218 U.S. member universities and systems. *We support a budget of \$549 million for NOAA's Office of Oceans and Atmospheric Research, including \$85 million for the National Sea Grant Program, \$52.8 million for Sustained Ocean Observations and Monitoring; \$37.7 million for the NOAA's Regional Integrated Ocean observing System of the National Ocean Service; \$6.5 billion for NASA's Science Directorate and \$8.456 billion for NSF.*

NOAA

NOAA is responsible for providing the Nation with weather, climate, and water information; and protecting, conserving and managing the use of coastal and ocean resources.

One-third of the Nation's gross domestic product is supported via NOAA's products and services. From farmers to truckers to airlines and energy companies, every American depends on the vital weather and climate information provided through NOAA and the support of marine shipping through nautical charts and navigational information. Last year, the Nation set a record for highest cost of damages from weather and climate disasters—a total of \$309.4 billion. By comparison, NOAA's entire budget in 2017 was \$5.7 billion.

To help NOAA meet its mission, NOAA's Office of Oceanic and Atmospheric Research (OAR) enables better forecasts, earlier warning for natural disasters, and a greater understanding of the complex systems that support our planet. We recommend a budget of \$549 million for OAR. OAR conducts research across three major areas: weather and air quality; climate; and ocean and coastal resources. Supporting NOAA's efforts in all these areas are the Cooperative Institutes, which are academic and non-profit research institutions that conduct research for NOAA. Currently, NOAA supports 16 Cooperative Institutes (CI) consisting of 42 universities and research institutions across 23 States and the District of Columbia. Many of the CI collocated with NOAA research laboratories, creating a strong, long-term collaboration between scientists in the laboratories and in the university. Funding the CI expands NOAA's scientific workforce and capacity. In addition, many of the cooperative agreements between NOAA and our academic partners provide for formal NOAA sponsorship of students through fellowships. Thus, Cooperative Institutes serve an additional important function: they help educate and train the next generation of NOAA's and the Nation's scientific workforce.

Another strong Federal-State partnership is the National Sea Grant College Program, which we would recommend funding at \$85 million. Sea Grant works to turn research into action, ensuring that coastal communities are economic engines and remain resilient in the face of natural hazards. In 2016, Sea Grant activities resulted in over 7,000 jobs created or retained, \$611 million dollars in economic benefit to the communities they serve, and the training of over 2,300 undergraduate and graduate students. Sea Grant leverages \$3 for every \$1 of Federal money it receives. In 2016, Sea Grant worked with nearly 1,300 industry and private sector, local, State and regional partners and assisted 494 communities with technical assistance.

Sea Grant is local; it provides NOAA with boots on the ground throughout the country's coastal areas. Sea Grant personnel hear directly from community members about their needs and work directly with communities to provide technical assistance. We provide below two examples of the type of work Sea Grant has done related to community resiliency.

For example, in 2016, Alaska Sea Grant's Marine Advisory agent worked closely with the Alaska Department of Health and Social Services in responding to dangerous paralytic shellfish poisoning incidents. The agent, who is a vital link in local communications in the remote 3,600-square-mile Kodiak archipelago distributed a high volume of public outreach through phone, email, social media, and public service announcements. It is likely that rapid and consistent outreach helped prevent additional illnesses in the Kodiak region that year.

Every day NOAA collects more than 20 terabytes of data, which is more than twice the volume of data in the U.S. Library of Congress' printed collection. NOAA and its partners translate that data into weather forecasts, information on harmful algal blooms, tactical information for search and rescue operations, and many other important products.

Two programs that provide an enormous amount of data for NOAA are OAR's National Sustained Ocean Observations and Monitoring (SOOM) program and the National Ocean Services' Integrated Ocean Observing System (IOOS).

BOAC supports a funding level of \$52.8 million for SOOM, which funds observing, including globally deployed floats, drifters, and fixed moorings to provide information essential for accurate forecasting of hurricanes, atmospheric rivers and associated flooding and heat waves. Ocean observing is increasingly relevant to drought early warning systems, enhanced tsunami warning systems, and storm surge monitoring. Ocean observations are also imperative for calibrating and validating satellite observations.

BOAC recommends funding for the National Ocean Services Integrated Ocean Observing System (IOOS) at \$37.7 million. IOOS provides new tools and forecasts to improve safety, enhance the economy, and protect our life and property. IOOS data is available in near real-time, as well as retrospectively, and support a variety of missions, including weather forecasting, efficient marine operations, daily tactical support of military operations worldwide, and ecosystem monitoring. IOOS is a partnership of 17 Federal agencies and 11 regional associations. The regional associations fill critical ocean observing information gaps providing over 50 percent of the marine data used by the National Weather Service.

NSF

BOAC supports \$8.456 billion for NSF. NSF provides 59 percent of geoscience basic research funding at academic institutions as well as supporting critical infrastructure such as the National Center for Atmospheric Research—Wyoming Supercomputing Center, the Academic Research Fleet, and the Ocean Observatories. Additionally, NSF is the home of traditionally strong STEM education programs. NSF's investments in the geosciences address important national challenges, spur new economic sectors, and lead to the development and implementation of advanced technologies that save lives, protect property, and support our economy.

BOAC supports the NSF's research effort called Prevention of and Resilience against Extreme Events (PREEVENTS), the purpose of which is to enhance national resilience to natural hazards by improving our understanding of the fundamental processes underlying natural hazards and extreme events in the geosciences. Along the U.S. coast, storm surge is often the greatest threat to life and property from a hurricane. NSF-funded researchers are quantifying how future tropical storm surges may impact U.S. coastal properties, using past patterns of coastal sea-level change. From 1990 to 2008, population density increased by 32 percent in Gulf coastal counties, 17 percent in Atlantic coastal counties, and 16 percent in Hawaii, according to the U.S. Census Bureau. In 2011, 45 percent of our Nation's GDP was generated in the Coastal Shoreline Counties along the oceans and Great Lakes. A storm surge of 23 feet could inundate 67 percent of interstate highways, 57 percent of arterial roads, almost half of rail miles, 29 airports, and virtually all ports in the Gulf Coast area. Information on coastal property risk is vital to owners, insurers, and government.

NSF has also teamed up with NOAA to devise new ways to warn citizens of the dangers of storm surge. They devised a new storm surge communication system that will likely save lives. By bringing social scientists together with meteorologists, NSF is protecting Americans' welfare.

Danger, of course, does not only come from Earth. Rare violent storms on the Sun—the source of space weather—have the potential to knock out the entire elec-

trical power grid, possibly for months, resulting in trillions of dollars of damage and bringing chaos to much of the country. NSF's investment in understanding, modeling, and observing space weather systems are developing predictive models to forecast and mitigate this catastrophic possibility.

Finally, BOAC is also pleased to see NSF continue research into Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS). This cross-directorate program aims to research the intersection of food, energy, and water systems to discover new knowledge and novel technologies to solve challenges facing all three areas. The INFEWS program seeks to support research that incorporates social and behavioral processes (such as decisionmaking and governance), physical processes (such as built infrastructure and new technologies for more efficient resource utilization), natural processes (such as biogeochemical and hydrologic cycles), biological processes (such as agroecosystem structure and productivity), and cyber-components (such as sensing, networking, computation and visualization for decisionmaking and assessment) into the complex systems of food, energy, and water. Investigations of these complex systems may produce discoveries that cannot emerge from research on food or energy or water systems alone.

NASA

Like NOAA & NSF, NASA is critical to understanding Earth's ever-changing processes. Space-based observations of our planet matters to each of us, on a daily level, for things like GIS technology, weather forecasts, and agricultural productivity. Earth observations contribute to our economy, our national security, and our personal safety. Without a sustained commitment to both exploratory and applied Earth science and related observing systems, none of these benefits would be possible.

In 2018, the National Academies issued the decadal survey report, "Thriving on Our Changing Planet: A Decadal Strategy for Earth Observation from Space." *BOAC supports the current decadal survey and its recommendations.*

NASA is instrumental in deploying satellites used by NOAA. Furthermore, without the tools developed at NASA, oceanic, atmospheric, hydrologic and earth-system scientists and the Nation would have only a fragmentary picture of the interconnected functioning of the planet's oceans, atmosphere and land. NASA plays a role in technology transfer from NOAA by testing new sensors. The NASA data archive is an irreplaceable collection of environmental information that researchers depend upon. NASA also flies the WB-57 high altitude research aircraft, which performs valuable atmospheric research missions including remote sensing for coastal resiliency and the study of hurricane formation and intensity change. Furthermore, through its support for young scientists and graduate students, the NASA science mission supports innovation in the education and future workforce pipeline.

BOAC thanks you for the opportunity to provide our views to the subcommittee. We look forward to working with you through the fiscal year 2019 appropriations process.

About APLU and the Board on Oceans, Atmosphere and Climate

APLU's membership consists of 224 State universities and State-university systems. APLU institutions enroll more than 4.1 million undergraduate students, and 1.2 million graduate students, award 1.1 million degrees, employ 1.1 million faculty and staff and conduct \$42.4 billion annually in university-based research annually. The Board's mission is to provide Federal relations for issues involving university-based programs in marine, atmospheric, and climatological sciences. BOAC representatives are chosen by their president's office to serve. They include some of the Nation's leading research and educational expertise in atmospheric, marine, and climate disciplines.

[This statement was submitted by co-chairs: Dr. John M. Kelly, President, Florida Atlantic University and Dr. Steve Ackerman, Associate Vice Chancellor for Research and Graduate Education, and Director, Cooperative Institute for Meteorological Satellite Studies, University of Wisconsin.]

PREPARED STATEMENT OF THE ASSOCIATION OF SCIENCE-TECHNOLOGY CENTERS

Chairman Moran, Ranking Member Shaheen, and Members of the subcommittee:

Thank you for accepting this statement submitted by the Association of Science-Technology Centers (ASTC). I am Cristin Dorgelo, the President and Chief Executive Officer for ASTC. I appreciate the opportunity to present the views of ASTC to the subcommittee for its consideration as it prepares to write the fiscal year 2019 Commerce, Justice, Science, and Related Agencies Appropriations bill.

ASTC represents more than 670 members in nearly 50 countries, including not only science centers and museums, but also nature centers, aquariums, planetariums, zoos, botanical gardens, and natural history and children's museums, as well as companies, consultants, and other organizations that share an interest in informal science education. Of those members, more than 380 are science centers and museums located throughout the United States. Taken together, our global reach demonstrates the universal recognition of the importance of science in our lives. Our centers are leading institutions in the efforts to promote education in science, technology, engineering, and mathematics (STEM), through innovative and creative informal and classroom experiences. We are helping to create the next generation of scientific leaders and inspiring people of all ages about the wonders and the meaning of science in their lives.

In the past we have testified on behalf of the specific funding numbers for programs under this subcommittee's jurisdiction. But today I want to start by looking at the bigger picture—the overall science budget of the U.S. Federal Government.

As you are well aware, last year the administration proposed significant cuts to the budgets of a number of domestic agencies. Included in the list of impacted programs were a number of science agencies and science programs. Similar cuts have been proposed in the administration's fiscal year 2019 budget.

I want to personally thank you for not agreeing to the cuts. You, the Members of this subcommittee, and indeed, the entire Congress, rejected the proposed budget and instead passed a budget with robust funding for science. The subcommittee increased funding for NSF, NOAA, NASA, and the National Institute of Standards and Technology. Other subcommittees increased funding for the National Institutes of Health, the science programs of the U.S. Department of Energy, and the science programs of the U.S. Department of Agriculture. Congress also increased funding for the Institute of Museum and Library Services, among other agencies.

Taken together, the science budget of the U.S. Federal Government is larger than ever. Total R&D funding increased 12.8 percent or \$20 billion in the fiscal year 2018 budget over the fiscal year 2017 budget according to Science Magazine, to a total of \$176.8 billion. On behalf of the all the members of ASTC, I want to say thank you, with gratitude for a job well done.

ASTC and its member centers were involved in the effort to support a robust science budget last year and will continue our efforts in the future. Many of our centers hosted science days, participated in marches, and reached out to their elected representatives to make the case for the importance of science and STEM education. ASTC will continue to advocate for science funding at every opportunity.

Every day, our science centers and museums open their doors for students and the public. And every day, our centers across the United States reach out to students of underserved populations in both urban and rural areas, so that quality STEM education can be accessed by every American student. Every day, our centers provide these educational experiences with science and technology in interesting and innovative ways. Every day, our centers reach out to every student in their community, to ensure that our Nation has the trained STEM workforce we will need for the future. With continued Congressional support for informal STEM education programs, you will make our efforts more effective.

Turning to specifics, ASTC strongly urges the subcommittee to provide for the following programs at NSF:

- \$902 million for the Directorate for Education and Human Resources (EHR)
- \$62.5 million for Advanced Informal STEM Learning (AISL)
- \$51.9 million for Science, Technology, Engineering, and Mathematics + Computing Partnerships (STEM+C)

Within the budget for NOAA, ASTC recommends the subcommittee maintain the total budget for the Office of Education at \$28 million.

For programs within NASA, ASTC recommends the subcommittee provide these increases to allow for adequate operations of the Competitive Program for Science Museums, Planetariums, and NASA Visitor Centers (CP4SMPVC) within the NASA Office of Education, which is the only congressionally authorized program within NASA's Science Education and Accountability Projects (SEAP) portfolio:

—\$115 million for NASA Education programs, an increase from \$100 million in fiscal year 2018

—\$15 million for the CP4MPVC program, an increase from \$10 million in fiscal year 2018

In summary, we continue to thank this subcommittee for all its support of a robust science budget. You have demonstrated your support for crucial programs that promote STEM education for our Nation's students. Like ASTC, you recognize these are vital investments in our future, and we thank you in advance for taking action accordingly.

[This statement was submitted by Cristin Dorgelo, President and Chief Executive Officer.]

PREPARED STATEMENT OF BIG BROTHERS BIG SISTERS OF AMERICA

I want to thank the committee for the opportunity to submit testimony in favor of expanding funding for youth mentoring. As the President and CEO of Big Brothers Big Sisters of America and as a former mayor, I understand how impactful and life-changing a caring mentor has on a child's life.

This week, I visited our Affiliate in Broward County, Florida to meet with 27 students who serve as High School Bigs through Marjory Stoneman Douglas High School to Little Brothers and Little Sisters from a nearby elementary school. They meet every Monday with their Littles, spending time with them going over homework, talking about what's going on in their lives, and being the caring mentor they need.

These 27 High School Bigs were at school that terrible day in February, and one of them was shot during the incident and is recovering. Knowing the trauma these high schoolers had gone through, I thought it was possible that the group might have lost some interest in spending time with their Littles. I was wrong. They shared with me something I didn't expect to hear—that the relationships they had formed with their Littles actually helped them get through the past 2 months. They spoke of the innocence of the elementary school children, and how the Littles' questions and concerns helped them process what they had experienced. They spoke about how giving a part of themselves to a child helped them move forward with purpose. What came clearly into focus for me was the importance of the connection between two people, a reminder that the relationships we create every day strengthen both the child and the volunteer.

For more than 100 years, Big Brothers Big Sisters has been creating life-changing mentoring relationships like these between youth and caring adults. Big Brothers Big Sisters' mentoring model is evidence-based, backed up by sound research and sustained by thorough monitoring and support. We match youth ("Littles") with mentors ("Bigs") taking into account background, personality, and interests. The mentoring relationships ("matches") often last years, and are supported by our professional staff who focus on child safety and youth development.

Having a mentor can contribute to a child's sense of self-confidence in general and competence at school. Mentoring can also make it more likely that a student will strive to attain higher education. Seventy-six percent of at-risk young adults who had a mentor aspire to attend and graduate college, whereas only 56 percent of at-risk young adults without a mentor have those goals.¹ One of the first signs that a child is falling off track is that he or she starts missing school. Having a mentor can be key to getting a child back on track and attending school regularly. A study of Big Brothers Big Sisters programs showed that having a mentor meant that youth were 52 percent less likely to skip school.²

Being a Little in a Big Brothers Big Sisters program can also lead to a child engaging in fewer risky behaviors. Research shows that, compared to children who did not have a Big Brothers Big Sisters mentor, Littles are 46 percent less likely to start using drugs and 27 percent less likely to start using alcohol. They are also almost one-third less likely to hit someone. Decreasing the frequency of these risky behaviors means that fewer youth will start engaging in criminal activity or be involved with the juvenile justice system, which relieves a considerable financial burden on the State while promoting prosocial behaviors.

¹ Bruce, Mary and Bridgeland, John (2014). *The Mentoring Effect: Young People's Perspectives on the Outcomes and Availability of Mentoring*. Washington, D.C.: Civic Enterprises with Hart Research Associates for MENTOR: The National Mentoring Partnership. www.civicerprises.net/Education

² Tierney, J. P., Grossman, J. B., & Resch, N. L. (1995). *Making a difference: An impact study of Big Brothers/Big Sisters*.

Last year, Big Brothers Big Sisters of America received \$6 million in mentoring grants from the U.S. Department of Justice Office of Juvenile Justice and Delinquency Prevention (OJJDP) which we administered to 67 Affiliates for one-to-one mentoring. OJJDP's mission to prevent juvenile delinquency and ensure all youth have the chance for a successful future aligns with Big Brothers Big Sisters' mission. Federal grants from OJJDP allow our Affiliates to serve more children by matching them in mentoring relationships through our rigorously tested, evidence-based program. OJJDP grants have also allowed us to enhance our Bigs in Blue program, which recruits law enforcement officers to become volunteer mentors ("Bigs") to youth facing adversity (our "Littles"). This program creates understanding between police and the communities they serve. We greatly appreciate OJJDP's support.

Our model, the oldest in the country, has faithfully served millions of children over the past century and continues to change the lives of youth and adults alike by creating strong and supportive matches. On behalf of the thousands of youth waiting to be matched with a mentor, I thank you for your past support of Big Brothers Big Sisters, and ask you continue to make mentoring a priority in your discussions.

[This statement was submitted by Pam Iorio, President and CEO.]

PREPARED STATEMENT OF THE BOYS & GIRLS CLUBS OF AMERICA

Boys & Girls Clubs of America (BGCA) would like to thank the Members of the subcommittee for their leadership and continued support. We appreciate the opportunity to comment on the Department of Justice's (DOJ) National Mentoring Program.

BGCA serves 4.3 million youth each year, with 458,000 children and teens entering the doors of a Boys & Girls Club every day. Our nearly 4,400 Clubs represent a cross-section of American culture and heritage—with 1,659 school-based Clubs, 1,008 Clubs in rural areas, 287 Clubs in public housing facilities, 492 affiliated youth centers on military installations worldwide, and 177 Clubs on Native lands. We are the largest provider of youth services on Native lands and the second largest provider of afterschool programs in rural America, with public schools being the largest.

At BGCA, we believe every young person deserves a great future. Our vision is to provide a world-class Club Experience that ensures success is within reach of every young person who enters our doors, with all members on track to graduate from high school with a plan for the future, demonstrating good character and citizenship, and living a healthy lifestyle. Clubs offer young people a safe and positive place to learn and grow so that they become productive, caring and responsible citizens.

A growing body of evidence proves out-of-school time and summer learning programs are effective at helping youth to improve grades and school attendance, while fostering higher aspirations for graduating high school and attending some form of post-secondary education. According to our evidence-informed National Youth Outcomes Initiatives (NYOI) report (<https://www.bgca.org/about-us/club-impact>)¹:

- 97 percent of Club teens expect to graduate from high school and 87 percent plan to attend college
- 84 percent of Club members believe they can make a difference in their community
- 84 percent of Club 12th graders abstain from alcohol use, compared to 58 percent of their peers nationally
- 54 percent of alumni save the Club saved their life

The impact of Clubs extends far beyond the young people who walk through our doors every day. A study by the Institute for Social Research and the School of Public Health at the University of Michigan found that for every dollar invested in Boys & Girls Clubs, \$9.60 is returned to communities, approximately \$13.8 billion annually. Clubs provide underserved youth with regular access to and engagement in areas such as STEM, sports leagues, homework help and tutoring, summer learning loss prevention, and engagement in the arts. As a result, Club youth are able to leverage and create opportunities that shift the course of their life trajectories and undermine cycles of inequity. Additionally, access to affordable, reliable and safe out-of-school time programs allows parents and caregivers the opportunities to par-

¹NYOI is the largest set of privately-held youth development data. It enables us to leverage member-provided data to adjust our strategies in real-time to maximize outcomes for youth.

ticipate in the workforce. While their children are actively engaged at the Club, families can rest assured knowing that they have access to enhanced academic support to ensure youth are on track to graduate, nutritious food, opportunities to be physically active and health education, all provided by caring staff within the context of a safe and supportive Club environment. As a result, Clubs contribute to major savings for society by helping to prevent costly expenditures for healthcare, public assistance programs, and criminal justice system involvement and incarceration.

As Congress negotiates the fiscal year 2019 Commerce, Justice, Science, and Related Agencies Appropriations bill, we urge you to support \$120 million for the National Youth Mentoring Initiative, a key grant program administered by DOJ's Office of Juvenile Justice and Delinquency Prevention. While many young people have access to mentors, there are many more who do not. Mentoring promotes positive behaviors, attitudes, and outcomes for youth and reduces risk factors. It has been shown to improve academic performance, social and job skills, support behavioral or other personal development, and reduce consumption of alcohol and other drugs. We also urge the subcommittee to provide support to national mentoring stakeholders to expand youth mentoring services in areas inordinately effected by the opioid crisis, with a focus on programs that are demonstrably effective at providing prevention services, reducing risk factors leading to addiction, and promoting resilience in children, families and communities to ensure the largest and most impactful reach of this program.

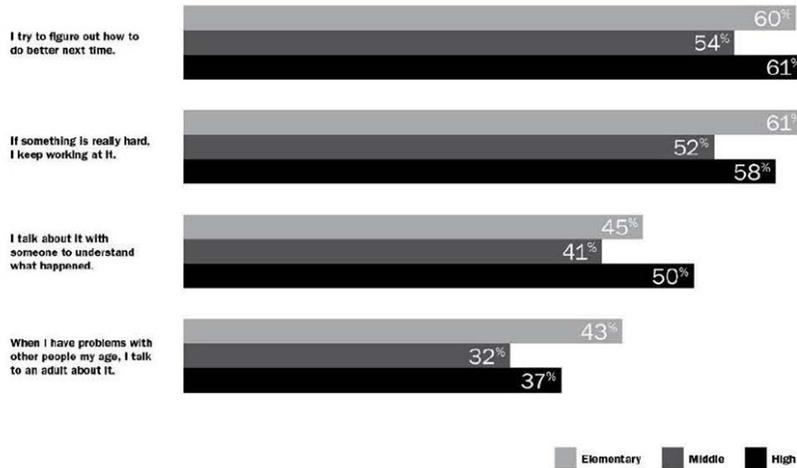
The National Youth Mentoring Initiative allows Boys & Girls Clubs to strengthen, expand and enhance youth mentoring programs with a focus on at-risk youth, delinquency and gang prevention, native youth, and military-connected youth. BGCA's National Youth Mentoring grant supports over 32,900 youth at Clubs in all 50 States, Puerto Rico and the District of Columbia, and at overseas military installations. Clubs use a combination of group and one-on-one mentorship approaches to foster the development of peer-to-peer relationships, strengthen the development of critical social skills, augment their ties with positive adult influencers and establish close connections to their communities.

BGCA compared regularly attending Club members and youth nationally by grade level. Across almost all health-risk behavior indicators, with each successive grade, the difference between Club members' abstention rates and those of Youth Risk Behavior Surveillance Systemⁱ respondents increased. In other words, teens who stay connected to a Boys & Girls Club as they get older seem better able to resist engaging in high-risk behaviors than their counterparts nationally at the same ages. Additionally, Club members learn the social-emotional skills they need to become successful.

ⁱThe Youth Risk Behavior Surveillance System (YRBSS) is a national survey administered by the Centers for Disease Control and Prevention that monitors health-risk behaviors among youth and young adults. The survey is administered every 2 years to students in 6th through 12th grades in their school classrooms. The NYOI member survey includes questions from the YRBSS.

Club Members Report Using Social-Emotional Skills When Experiencing Challenges

But Young Adolescents Don't Fare as Well



In addition to the return-on-investment Boys & Girls Clubs provide to members, communities, and the country at-large, investing in mentoring also pays dividends. The importance of mentoring has been demonstrated by a three-year, DOJ-contracted study on BGCA's group mentoring approach. The study shows that preventing at-risk youth from pursuing delinquent behavior over a 3 year period provided an average taxpayer savings per Club of \$374,622 and an average amount per youth of \$4,921, for a total maximum potential savings of \$110,891,000.ⁱⁱ

Prioritizing our youth not only leads to better individual outcomes but also to a healthier, safer and more prosperous Nation. We stand willing to work with you to help build the next generation of American leaders by increasing the number of young adults who have the character, education, fitness and skills they will need to be successful.

Thank you for your leadership and support for this vital program.

[This statement was submitted by Jim Clark, President & CEO.]

PREPARED STATEMENT OF THE CHOOSE CLEAN WATER COALITION

March 13, 2018

The Honorable Richard Shelby,
 Chairman
 Subcommittee on Commerce, Justice,
 Science and Related Agencies
 Room S-128, Capitol
 U.S. Senate
 Washington, D.C. 20510

The Honorable Jeanne Shaheen,
 Ranking Member
 Subcommittee on Commerce, Justice,
 Science and Related Agencies
 Room S-128, Capitol
 U.S. Senate
 Washington, D.C. 20510

Dear Chairman Shelby and Ranking Member Shaheen:

The undersigned members of the Choose Clean Water Coalition request continued support for programs that are essential to maintaining a healthy and vibrant Chesapeake Bay and a strong regional economy that is dependent on the Bay's resources. The National Oceanic and Atmospheric Administration (NOAA) has a strong and long term presence in the Chesapeake Bay area, and its Chesapeake Bay Office co-

ⁱⁱU.S. Department of Justice Programs. (2015). A comprehensive evaluation of group mentoring at the Boys & Girls Clubs of America. 2010-JU-FX-0119.

ordinates their efforts with other Federal agencies, State and local partners and users of the resource.

The programs that are run and/or coordinated by NOAA's Chesapeake Bay Office (NCBO) are critical for the Chesapeake Bay ecosystem and for its users and residents. These programs provide the science and management assistance necessary for those whose livelihood is to ply the Bay's waters for fish, crabs and oysters and to the hundreds of thousands of people who fish recreationally in the Bay every year and to the millions who boat, kayak, and/or view wildlife in the region.

NCBO is also critical for others, from students learning about science with hands-on experiences to local governments and residents along the shore to have the latest information to prepare for coastal flooding and hurricane emergencies.

Utilizing sound science in the management of Chesapeake Bay resources is critical for our regional economy. We request the following funding levels in fiscal year 2019:

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration—Chesapeake Bay Office (NCBO)—\$9.25 million

The NCBO was established by Congress in 1992 to provide resources, technical assistance and coordination through its two branches: the Ecosystem Science and Synthesis Program, which focuses on applied research and monitoring in fisheries and aquatic habitats; synthesis, and analysis to describe and predict Bay ecosystem processes; and technical assistance to Chesapeake Bay decision makers.

The second branch is Environmental Literacy and Partnerships Program, which focuses on the development of K–12 and higher education environmental science education programs; strategic partnerships with the Chesapeake Bay Program and other government, university, and nonprofit partners; and delivering NOAA products, services, and programs to targeted audiences.

The Office's programs play a key role in implementing the voluntary Chesapeake Bay Agreement among the States and is critical to ensuring that commitments are met to:

- restore native oyster habitat and populations in 10 tributaries by the year 2025;
- ensure students graduate with the knowledge and skills to protect and restore their local watershed;
- sustain a healthy blue crab and striped bass (rockfish) population; and
- maintain a coordinated watershed-wide monitoring and research program.

The specific breakdown of our request for \$9.25 million for the NCBO is as follows:

—Oyster Restoration—\$4 million

The Chesapeake Bay oyster population is less than 1 percent of historic levels and the ecosystem functions associated with oyster reefs, including fish habitat and nitrogen removal, are similarly diminished. NCBO has built on past success to restore entire tributaries, with self-sustaining oyster populations and to measure the resulting ecosystem benefits. NCBO works with Federal, State and private partners to plan and implement this tributary-scale restoration in both Maryland and Virginia. Funding for oyster restoration in the Chesapeake was also done through the U.S. Army Corps of Engineers, but they have not received funding in a number of years. Funding for this key program has eroded sharply since fiscal year 2010, and with the addition of Army Corps funds, NOAA is the only Federal agency left to continue this Key restoration program.

—Environmental Education and Literacy—\$3.5 million

NCBO encourages and supports efforts in K–12 and higher education to develop and implement comprehensive environmental literacy programs. NCBO runs the nationally recognized Bay Watershed Education and Training Program (B-WET)—a competitive grant program for hands-on watershed education for students and teacher training to foster stewardship of the Chesapeake Bay. B-WET's funding has steadily eroded since 2010 and should be restored to at least that level.

—Fisheries Science and Management—\$1 million

Recreational and commercial fisheries are among the most valuable economic activities for the coastal communities of the Bay. Fishing pressure, habitat loss, invasive species, degraded water quality, and toxics affect these important fisheries, including striped bass (rockfish), blue crabs, oysters, menhaden and cownosed rays. NOAA supports well-managed Chesapeake Bay fisheries and the

habitats they depend on by delivering timely ecosystem-based science and forecasts to science and management partners. Historically, the States have looked to NCBO to conduct stock assessments, particularly for blue crabs. Each State often has its own assessment data, but NOAA's ability to look at the stocks for the entire Bay is critical. Each stock assessment costs approximately \$500,000.

—*Chesapeake Bay Interpretive Buoy System (CBIBS)*—\$750,000

The Chesapeake Bay ecosystem is dynamic, and water quality is driven by variable local and regional forces. High quality data is needed to monitor, understand, forecast, and provide information for science-based decisions and needs to be continuously measured and summarized. NCBO maintains the CBIBS, a network of 10 buoys that collects and relays near-real-time data to users. This supports public access to the Bay and boater safety on the water through the Captain John Smith Chesapeake National Historic Trail, administered by the National Park Service.

Thank you for your consideration of these very important requests to maintain funding for programs that are critical to the health of the Chesapeake Bay and its natural resources. Please contact Peter J. Marx at Peter@ChooseCleanWater.org with any questions or concerns.

Sincerely,

1000 Friends of Maryland	Interfaith Partners for the Chesapeake
Alice Ferguson Foundation	James River Association
Alliance for the Chesapeake Bay	Lackawanna River Conservation Association
American Chestnut Land Trust	Lancaster Farmland Trust
American Rivers	Lower Susquehanna Riverkeeper
Anacostia Watershed Society	Lutheran Advocacy Ministry in Pennsylvania
Audubon Naturalist Society	Lynnhaven River NOW
Audubon Society of Northern Virginia	Maryland Conservation Council
Back Creek Conservancy	Maryland Environmental Health Network
Baltimore Tree Trust	Maryland League of Conservation Voters
Blue Heron Environmental Network	Maryland Native Plant Society
Blue Ridge Watershed Coalition	Mattawoman Watershed Society
Blue Water Baltimore	Mehoopany Creek Watershed Association
Cacapon Institute	Mid-Atlantic Council Trout Unlimited
Capital Region Land Conservancy	Mid-Atlantic Youth Anglers & Outdoor Partners
Catskill Mountainkeeper	Montgomery Countryside Alliance
Center for Progressive Reform	Muddy Branch Alliance
Chapman Forest Foundation	National Aquarium
Chesapeake Bay Foundation	National Parks Conservation Association
Chesapeake Legal Alliance	National Wildlife Federation
Chesapeake Wildlife Heritage	Natural Resources Defense Council
Clean Fairfax	Nature Abounds
Clean Water Action	Neighbors of the Northwest Branch
Coalition for Smarter Growth	New York League of Conservation Voters
Conservation Voters of Pennsylvania	New York State Council of Trout Unlimited
Delaware Nature Society	Otsego County Conservation Association
Ducks Unlimited	Otsego Land Trust
Earth Force	PennEnvironment
Earth Forum of Howard County	PennFuture
Eastern Pennsylvania Coalition for Abandoned Mine Reclamation	Pennsylvania Council of Churches
Elizabeth River Project	Piedmont Environmental Council
Elk Creeks Watershed Association	Potomac Conservancy
Environmental Working Group	Potomac Riverkeeper
Friends of Accotink Creek	Potomac Riverkeeper Network
Friends of Dyke Marsh	Prince William Conservation Alliance
Friends of Lower Beaverdam Creek	Queen Anne's Conservation Association
Friends of Quincy Run	Rachel Carson Council
Friends of St. Clements Bay	Rivanna Conservation Alliance
Friends of Sligo Creek	Rivertown Coalition for Clean Air and Clean Water
Friends of the Middle River	
Friends of the Nanticoke River	
Friends of the North Fork of the Shenandoah River	
Friends of the Rappahannock	

Rock Creek Conservancy	Trash Free Maryland
St. Mary's River Watershed Association	Upper Potomac Riverkeeper
Savage River Watershed Association	Upper Susquehanna Coalition
Severn River Association	Virginia Conservation Network
Shenandoah Riverkeeper	Virginia Eastern Shorekeeper
Shenandoah Valley Network	Virginia Interfaith Power and Light
ShoreRivers	Virginia League of Conservation Voters
Sidney Center Improvement Group	Warm Springs Watershed Association
Sleepy Creek Watershed Association	Water Defense
South River Federation	Waterkeepers Chesapeake
Southern Environmental Law Center	West/Rhode Riverkeeper
Southern Maryland Audubon Society	West Virginia Citizens Action Group
SouthWings	West Virginia Environmental Council
Sparks-Glencoe Community Planning Council	West Virginia Highlands Conservancy
Susquehanna Heritage	West Virginia Rivers Coalition
The Downstream Project	Wicomico Environmental Trust

[This statement was submitted by Peter J. Marx, Contractor for the Choose Clean Water Coalition.]

PREPARED STATEMENT OF THE COALITION FOR AEROSPACE AND SCIENCE

April 20, 2018

The Honorable John Culberson
2161 Rayburn House Office Building
Washington, D.C. 20515

The Honorable Richard Shelby
304 Russell Senate Office Building
Washington, D.C. 20510

The Honorable José Serrano
2354 Rayburn House Office Building
Washington, D.C. 20515

The Honorable Jeanne Shaheen
506 Hart Senate Office Building
Washington, D.C. 20510

Dear Chairman Culberson, Ranking Member Serrano, Chairman Shelby and Ranking Member Shaheen:

The Coalition for Aerospace and Science (CAS) is an alliance of prominent industry, university, and science organizations united in our support for robust and sustained Federal investments in the National Aeronautics and Space Administration (NASA). As a group, we believe that increasing Federal support and maximizing the efficiency and effectiveness for this vital agency will help ensure our Nation's scientific, industrial, and academic leadership long into the future. As you allocate funding for fiscal year 2019, we urge you to provide NASA with at least \$21.7 billion for fiscal year 2019, 5 percent above the funding level in the fiscal year 2018 Omnibus.

Strong funding, a balanced portfolio of missions and research, and policies that encourage innovative collaborations are essential to our Nation's leadership in science, expanding the frontiers of human exploration, new space technology and aeronautical technology development. NASA's long history of transformative advances in science and technology have positioned the U.S. as a world leader across many fields, driving strong U.S. exports, supporting jobs, and drawing the best and brightest students to American universities. As the Nation addresses new problems and challenges, robust support for NASA is critical to fostering a 21st century economy and restoring America's global scientific and technological leadership.

Every member of CAS has unique concerns and requests. However, the entire coalition is united in our support and advocacy for NASA's critical research, missions, and programs. As NASA-wide stakeholders, we respectfully request that within the topline request, Congress take note of the following specific opportunities for progress and impact:

TECHNOLOGY

CAS requests at least \$796 million for the Space Technology Mission Directorate (STMD). Since its inception, STMD has focused on improving NASA's technological capabilities across a wide array of areas—from propulsion and power generation to materials science and high-performance computing—that help the agency achieve mission requirements across all its directorates. As recently as 2016, the National

Academies of Science, Engineering, and Medicine (NASEM) reaffirmed its support for this approach, asserting that a standalone technology development program is critical to meeting technology needs across the agency's mission portfolio.

More broadly, STMD has spurred the creation of a technology development ecosystem that spans numerous States—including those that do not host NASA centers—and supports industry and academic researchers alike. In so doing, STMD has created products and services that stimulate America's economy with new businesses, industries, and high-skilled, sustainable jobs. These activities underpin partnerships across government agencies with commercial space programs and international space entities. Ultimately, STMD enhances the United States' global economic competitiveness and international recognition as the principal driver in the field of space technology.

The Coalition is unified in its opposition to STMD becoming subsumed by another directorate and strongly advocates that its independence and standalone activities remain within the current structure. STMD's culture, strategy, and technology implementation approach is unique within the agency and has a proven, successful track record. It is imperative that Congress rejects the administration's request to subsume STMD into another directorate.

HUMAN EXPLORATION AND SPACE OPERATIONS

The Coalition requests continued funding support for the Orion Multi-Purpose Crew Vehicle and Space Launch System (SLS) programs. For our Nation to continue making progress towards human exploration beyond Earth orbit, it is vital to ensure these programs have the resources needed to build upon the progress already achieved on SLS and Orion—the foundational programs for future U.S. human exploration. Consequently, for fiscal year 2019, we are requesting \$2.15 billion for SLS, including no less than \$400 million for the SLS Exploration Upper Stage; \$1.35 billion for Orion; and at least \$557 million for Exploration Ground Systems—with the additional funds needed to complete the second Mobile Launch Platform and accelerate the crewed Orion EM-2 mission to the vicinity of the moon.

Furthermore, NASA should utilize SLS and Orion vehicles for the development of cislunar space—a region with the potential to vastly expand economic activity in space. The United States economy can benefit greatly from the commercial development of cislunar space, and it is vitally important for reasons of national security and foreign policy, as well, that the United States be at the forefront in cislunar development.

Regarding other parts of the Human Exploration and Operations Directorate, CAS recommends \$1.46 billion for the ISS, including for commercial cargo resupply. For the Commercial Crew program, which is important both to restore independent U.S. access to the ISS and to increase the amount of science performed on it, CAS recommends \$2.11 billion. CAS commends the administration's interest in developing a plan to privatize the day-to-day operations for ISS and research in Low Earth Orbit. We believe this will help to maintain this vital capability for continued U.S. operations and leadership in LEO, and CAS also supports the \$150 million requested for commercial LEO development to create new stakeholders to offset future operating costs. Realized savings should be applied to accelerate the deep space exploration program.

The Coalition requests that NASA only consider bids from cargo and science providers from domestic launch providers. NASA should be utilizing and benefiting from a competitive U.S. launch landscape and avoid putting any taxpayer funded cargo or exploration missions on foreign launch vehicles.

Finally, to support new deep space exploration capabilities, including NASA's Lunar Orbital Platform (LOP)—Gateway, CAS supports the administration's request for \$889 million.

SCIENCE

The Coalition requests at least \$6.5 billion to fund NASA's Science Mission Directorate (SMD) and maintain a balance across the portfolio. This represents a 5 percent increase over the fiscal year 2018 enacted level. NASA science programs help us answer profound questions about Earth as well as our place in the universe. New knowledge made possible from SMD inspires future generations to pursue careers in science, technology, engineering and mathematics (STEM), sustaining U.S. leadership in groundbreaking discoveries.

The Coalition requests Congress continue to provide ample funding in order for the Planetary Science Division to adhere to the priorities set by the Planetary Science Decadal Survey. We applaud Congress' past support for exploring Europa, which the scientific community has determined offers one of the most promising ex-

traterrestrial habitable environments in the solar system. Additionally, sufficient funding is necessary to ensure the Europa Clipper mission can meet target launch dates in the 2020s. The Coalition also supports ongoing missions on Mars and elsewhere—including the Mars2020 rover and preliminary sample return plans—as well as continued funding for future Discovery and New Frontiers missions in alignment with decadal priorities.

CAS requests robust funding for the Earth Science Division (ESD) to ensure continued support for key missions and programs. The Coalition appreciates the continued support in fiscal year 2018 for OCO-3, PACE, NISAR, CLARREO Pathfinder, and Earth-facing instruments on DSCOVR, and requests that Congress continue its funding in fiscal year 2019. These missions will advance science frontiers and provide critical data for society. For example, PACE will help us monitor the duration and impact of harmful algae blooms and CLARREO Pathfinder will enable industry and military decision-makers to more accurately assess natural hazards, such as flooding. Increased funding for ESD in fiscal year 2019 will be critical to responding to recommendations of the National Academy of Sciences' Earth Science and Applications from Space (ESAS) Decadal Survey report released earlier this year. An increase in funding for fiscal year 2019 will be necessary to meet the report's top recommendations—Designated and Earth System Explorer mission classes—whose budgetary requirements begin rapidly increasing starting in fiscal year 2020. Additionally, the Coalition requests that Congress direct NASA to competitively select these future missions to encourage responsible cost and schedule constraints, develop novel remote sensing technologies, and leverage the talents and expertise of scientists at universities and research institutions.

The Coalition requests strong support for the Heliophysics Division. Heliophysics will lead to a greater understanding of our Sun and will help to mitigate the hazards that solar activity poses to the ground- and space-based platforms that strengthen our national security, economic competitiveness, and scientific prowess. Robust support will allow for implementation of key community priorities outlined in the Space Weather Action Plan.

Additionally, increased funding for Heliophysics is needed to support missions under formulation and development and current Announcement of Opportunities (such as the Interstellar Mapping and Acceleration Probe, IMAP) within the Living with a Star, Solar Terrestrial Probes, and Explorer programs without jeopardizing the future of vital activities within the other elements of the HPD. These include new initiatives such as the Diversify, Realize, Integrate, Venture Educate (DRIVE), Heliophysics Science Centers and increased support, jointly with NOAA, for "O2R/R2O" and computational programs in space weather research. Support for these programs is consistent with congressional intent for each NASA Division to make progress on the top recommendations of the Solar and Space Physics Decadal Survey.

Full funding for the Astrophysics Division will allow for continued progress on the balanced portfolio of Astronomy and Astrophysics Decadal Survey priorities, including the Wide Field Infrared Survey Telescope (WFIRST). WFIRST is the top-ranked large space mission in the most recent decadal survey. This next generation telescope will advance the search for life on planets outside our solar system, and its wide field instrument will provide a field of view of the sky that is 100 times larger than what is possible with the Hubble Space Telescope. CAS supports efforts by NASA to actively manage the scope of the mission during formulation to control costs and asks Congress to allow planned efforts to control costs to move forward. Abandoning this top scientific priority, as proposed in the President's fiscal year 2019 budget, undermines future decadal surveys and erodes U.S. ability to develop future flagship missions as part of a world-leading program.

EDUCATION

The Coalition opposes the administration's proposed elimination of NASA's Office of Education, and asks you to once again reject this proposal, as you did in fiscal year 2018. NASA plays a pivotal role in inspiring and encouraging young people to pursue STEM disciplines of study and careers; engaging the broader public in NASA's mission; and strengthening NASA and the Nation's workforce. The NASA Office of Education supports programs such as the Space Grant College and Fellowship Program and the Minority University Research and Education Project (MUREP).

The Space Grant program funds nearly 4,000 fellowships and scholarships for students in all 50 States and the District of Columbia who are pursuing a STEM career, allowing them to participate in NASA aeronautics and space projects integrating classroom learning with on-the-job training much like apprenticeships.

Through MUREP, NASA provides competitively bid awards to minority-serving institutions to recruit and retain underrepresented and underserved students into STEM fields, preparing these students with marketable skills and practical work experience. Continued support for the Office of Education is vital to ensure the United States continues to train and inspire our next generation of scientists, engineers, and technicians in order to remain globally competitive.

AERONAUTICS

Beyond our requests for space programs, the Coalition also recommends at least \$790 million for the Aeronautics Research Mission Directorate (ARMD), which will allow for an increase in funding for subsonic, supersonic and hypersonic flight technologies and flight demonstrators. This directorate conducts and funds research that is vital to the continued leadership of our Nation's aviation sector. Research from this directorate develops technologies that transform the way we fly by lowering operating costs while increasing efficiency and reducing aviation's environmental impact. Aviation contributes more than one trillion dollars annually to the U.S. economy, and it is vital we fund this research to continually improve the efficiency, safety and adaptability of our air transportation system. NASA's Aeronautics enterprise is also doing essential research to enable harnessing the potential of Unmanned Aircraft Systems by safely integrating their operations into the national airspace while assuring U.S. hypersonics research remain first rate.

Thank you for your consideration of our funding requests. We hope you will consider CAS as a resource as you work to craft fiscal year 2019 appropriations.

NASA FUNDING

[Numbers in millions]

Account	Fiscal Year 2017 Omnibus	Fiscal Year 2018 Omnibus	Fiscal Year 2019 President's Budget Request	Fiscal Year 2019 CAS Request
Science	5,764.9	6,221.50	5,895.0	6,500.0
Space Technology	686.5	760	Moved to ERT	796.0
Aeronautics	660.0	685	633.9	790.0
Orion Multi-purpose Crew Vehicle	1,350.0	1,350	1,163.5	1,350.0
SLS	2,150.0	2,150	2,078.1	2,150.0
SLS Exploration Upper Stage	300	300	N/A	400.0
Exploration Ground Systems	429.0	895	428.2	557.0
ISS	1,450.9	N/A	1,462.2	1,460.0
Commercial Crew Program	1,184.8	N/A	731.9	2,110.0
Advanced Exploration Systems	0	N/A	889.0	889.0
NASA Overall	19,653.3	20,736.14	19,892.2	21,700.0

MEMBER ORGANIZATIONS

Aerospace Industries Association	SPIE—the international society for optics and photonics
American Astronautical Society	The Planetary Society
American Astronomical Society	United Launch Alliance
American Geophysical Union	University Corporation for Atmospheric Research
American Society of Agronomy	University of Arizona
Association of American Universities	University of Colorado—Boulder
Association of Public and Land-grant Universities	University of California—San Diego
Ball Aerospace	University of Florida
Boston University	University of Iowa
Consortium for Ocean Leadership	University of Maryland—Baltimore County
Crop Science Society of America	University of Maryland—College Park
Geological Society of America	University of Michigan
Georgia Institute of Technology	University of New Hampshire
Human Factors and Ergonomics Society	University of Texas at Austin
Lockheed Martin Corporation	University of Washington
New Mexico State University	University of Wisconsin—Madison
Northrop Grumman Corporation	Washington State University
Princeton University	Woods Hole Oceanographic Institution
Purdue University	
Raytheon Company	
Soil Science Society of America	

PREPARED STATEMENT OF THE COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

The Columbia River Inter-Tribal Fish Commission (CRITFC) is pleased to share our views on the Department of Commerce's fiscal year 2019 budget and has identified the following funding needs:

\$56.6 million for Salmon Management Activities of which:

- \$26.6 million for Columbia River Mitchell Act programs to implement reforms of which \$6.7 million (or 25 percent of the enacted amount) is directed to the Tribes to enhance supplementation (natural stock recovery) programs;
- \$30.0 million for the Pacific Salmon Treaty, of which \$28.2 million is for the implementation of the 2019–2028 Agreement, and previous base programs; and \$1.8 million is for the Chinook Salmon Agreement Implementation;

\$65 million for the Pacific Coastal Salmon Recovery Fund to support on-the-ground salmon restoration activities.

BACKGROUND: The Columbia River Inter-Tribal Fish Commission (CRITFC) was founded in 1977 by the four Columbia River treaty Tribes: Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation of Oregon, Confederated Tribes and Bands of the Yakama Nation, and Nez Perce Tribe. CRITFC provides coordination and technical assistance to the Tribes in regional, national and international efforts to protect and restore the fisheries and fish habitat.

In 1855, the United States entered into treaties with the four Tribes.¹ The Tribes' ceded millions of acres of our homelands to the U.S. and the U.S. pledged to honor our ancestral rights, including the right to fish at all usual and accustomed places. Unfortunately, a long history of hydroelectric development, habitat destruction and over-fishing by non-Indians brought the salmon resource to the edge of extinction with 12 salmon and steelhead trout populations in the Columbia River basin listed under the Endangered Species Act (ESA).

Today, the treaties form the bedrock of fisheries management. The CRITFC Tribes are among the most successful fishery managers in the country leading restoration efforts and working with State, Federal and private entities. CRITFC's comprehensive plan, *Wy-Kan-Ush-Mi Wa-Kish-Wit*, outlines principles and objectives designed to halt the decline of salmon, lamprey and sturgeon populations and rebuild the fisheries to levels that support Tribal ceremonial, subsistence and commercial harvests. To achieve these objectives, the plan emphasizes strategies that rely on natural production, healthy rivers and collaborative efforts.

Several key regional agreements were completed in 2008. The Columbia Basin Fish Accords set out parameters for management of the Federal Columbia River Power System for fish passage. New agreements in *U.S. v. Oregon* and the Pacific Salmon Commission established fishery management criteria for fisheries ranging from the Columbia River to Southeast Alaska. The *U.S. v. Oregon* agreement also contains provisions for hatchery management in the Columbia River Basin. The terms of all three agreements run through 2018. We have successfully secured other funds to support our efforts to implement these agreements, including funds from the Bonneville Power Administration (BPA), the Department of Interior, and the Southern Fund of the Pacific Salmon Treaty, to name just few. Continued Federal funding support is needed to accomplish the management objectives embodied in the agreements.

Columbia River (Mitchell Act) Hatchery Program: Restoring Pacific salmon and providing for sustainable fisheries requires using the Columbia River Mitchell Act hatchery program to supplement naturally spawning stocks and populations. To accomplish this goal, \$26.6 million is requested for the Tribal and State co-managers to jointly reform the Mitchell Act hatchery program. Of this amount, \$6.7 million, or 25 percent of enacted funding, will be made available to the Columbia River Treaty Tribes for supplementation (natural stock recovery) programs. The Mitchell Act program provides regional economic benefits. NOAA Fisheries estimates that the program generates about \$38 million in income and supports 870 jobs.

Since 1982, CRITFC has called for hatchery reform to meet recovery needs and meet mitigation obligations. In 1991, this subcommittee directed that "Mitchell Act hatcheries be operated in a manner so as to implement a program to release fish in the upper Columbia River basin above the Bonneville Dam to assist in the re-

¹Treaty with the Yakama Tribe, June 6, 1855, 12 Stat. 951; Treaty with the Tribes of Middle Oregon, June 25, 1855, 12 Stat. 963; Treaty with the Umatilla Tribe, June 9, 1855, 12 Stat. 945; Treaty with the Nez Perce Tribe, June 11, 1855, 12 Stat. 9.

building of upriver naturally-spawning salmon runs.” Since 1991, we have made progress in increasing the upstream releases of salmon including Mitchell Act fish that have assisted the rebuilding and restoration of naturally-spawning upriver runs of chinook and coho. These efforts need to continue.

We now face the challenges of managing for salmon populations listed for protection under the ESA, while also meeting mitigation obligations. The Final Environmental Impact Statement (FEIS) for operation of Columbia River basin hatcheries released by NOAA in 2016 illustrates the conundrum we face. While the FEIS, which assumes level funding for Mitchell Act hatcheries, it also points out the need for hatchery reform. The implementation scenario for the preferred alternative calls for substantial reductions in hatchery releases of fall chinook. Under the preferred alternative the future is increased regulation under the ESA, resulting in more constrained fisheries along the west coast. The funding for the Mitchell Act program should be increased along with natural stock recovery program reform (supplementation) so that we can make progress towards ESA delisting. This would transition the Mitchell Act program to a much more effective mitigation program.

We support hatchery reform to aid in salmon recovery while meeting mitigation obligations. The CRITFC Tribes are leaders in designing and managing hatchery facilities to aid in salmon restoration and believe similar practices need to be implemented throughout the basin to reform current hatchery production efforts. Years of inadequate funding have taken a toll resulting in deteriorating facilities that do not serve our objectives.

Evidence to Support Tribal Salmon Restoration Programs under the Mitchell Act: The Tribes’ approach to salmon recovery is to put fish back in to the rivers and protect the watersheds where fish live. Scientific documentation of Tribal supplementation success is available upon request. The evidence is seen by the increasing returns of salmon in the Columbia River Basin. Wild spring chinook salmon are returning in large numbers to the Umatilla, Yakima and Klickitat tributaries. Coho in the Clearwater River are now abundant after Snake River coho was once declared extinct. Fish are returning to the Columbia River Basin and it is built on more than 30 years of Tribal projects.

Once considered for listing under the ESA, only 20,000 fall chinook returned to the Hanford Reach on the Columbia River in the early 1980’s. This salmon run has been rebuilt through the implementation of the Vernita Bar agreement of the mid-1980s combined with a hatchery program that incorporated biologically appropriate salmon that spawn naturally upon their return to the spawning beds. Today, the Hanford Reach fall chinook run is one of the healthiest runs in the basin supporting fisheries in Alaska, Canada, and the mainstem Columbia River. In 2013, close to 700,000 Fall Chinook destined for the Hanford Reach entered the Columbia River, which was a record since the construction of Bonneville Dam.

In the Snake River Basin, fall chinook has been brought back from the brink of extinction. Listed as threatened under the ESA, the estimated return of naturally-spawning Snake River fall chinook averaged 328 adults from 1986–1992. In 1994, fewer than 2,000 Snake River fall chinook returned to the Columbia River Basin. Thanks to the Nez Perce Tribe’s modern supplementation program fall chinook are rebounding and the Snake River fall chinook is well on their way to recovery and ESA delisting. In 2013 about 56,000 fall chinook made it past Lower Granite Dam. Of those, approximately 21,000 were wild, twice the previous record for wild returns since the dam was constructed in 1975.

A Request for Review of Salmon Mass-Marking Programs: CRITFC endeavors to secure a unified hatchery strategy among Tribal, Federal and State co-managers. To that end, we seek to build hatchery programs using the best available science and supported by adequate, efficient budgets. A congressional requirement, delivered through prior appropriations language, to visibly mark all salmon produced in federally funded hatcheries should be reconsidered. We have requested that Federal mass-marking requirements, and correlated funding, be reviewed for compatibility with our overall objective of ESA delisting and with prevailing laws and agreements: *U.S. v Oregon*, Pacific Salmon Treaty and the Columbia Basin Fish Accords.²

Salmon managers should be provided the latitude to make case-by-case decisions whether to mark fish and, if so, in the appropriate percentages.

Pacific Salmon Treaty Program: CRITFC supports the U.S. Section recommendation of \$30.0 million for Pacific Salmon Treaty implementation. Of this amount, \$20.5 million is for the Pacific Salmon Treaty base program with Alaska, Oregon, Idaho, Washington, and NOAA to share as described in the U.S. Section of the Pa-

²Letter from Bruce Jim, Chairman, Columbia River Inter-Tribal Fish Commission to U.S. House of Representatives Chairmen Frank Wolf, Mike Simpson and Doc Hastings, July 11, 2011.

cific Salmon Commission's Budget Justification. In addition, we support \$1.8 million as first provided in 1997 to carry out necessary research and management activities to implement the abundance based management approach of the Chinook Chapter to the Treaty. Costs of the programs conducted by State agencies to fulfill national commitments created by the treaty are substantially greater than the funding provided in the NOAA budget. State agencies supplement the Federal appropriation from other sources including: State and Federal grants, and the Pacific Coastal Salmon Recovery Fund, to the extent those sources are available.

Pacific Coastal Salmon Recovery Program (PCSRF): The PCSRF program was developed in 2000 by the State of Alaska, the Pacific Northwest States, and the treaty Tribes since the renewal of the Pacific Salmon Treaty in 1995 to fulfill the unmet needs for the conservation and restoration of salmon stocks shared in the Tribal, State, and international fisheries. Since that time, the number of entities eligible for receiving funding has grown.

The PCSRF has funded 354 Yakama, Umatilla, Warm Springs, Nez Perce, and CRITFC Tribal salmon recovery projects. These projects have contributed greatly to the sustainability of Columbia Basin salmon species and their habitat. Accomplishments include 1,638 stream miles being protected; 408 miles of stream made accessible to salmon; 4,885 acres of riparian area treated; 11,169 acres conserved by acquisition or lease; and 1.2 million salmon fry/smolt released annually. The PCSRF is vital to fulfill the region's goal of full salmon recovery and sustainability of the fishery.

The co-managers have developed an extensive matrix of performance standards to address accountability and performance standards, which includes the use of monitoring protocols to systematically track current and future projects basin-wide. The PCSRF projects implemented are based on the best science, adequately monitored and address the limiting factors affecting salmon restoration. Projects undertaken by the Tribes are consistent with CRITFC's salmon restoration plan and the programmatic areas identified by Congress.

We recommend maintaining the current funding level at \$65 million for the PCSRF fiscal year 2019 allocation. Long-term economic benefits can be achieved by making PCSRF investments on-the-ground to rebuild sustainable, harvestable salmon populations into the future.

In summary, the CRITFC and our four member Tribes have developed the capacity and infrastructure to become the regional leaders in restoring and rebuilding salmon populations of the Columbia Basin. Our collective efforts protect our treaty reserved fishing rights and provides healthy, harvestable salmon populations for all citizens to enjoy. This is a time when increased effort and participation are demanded of all of us and we ask for your continued support of a coordinated, comprehensive effort to restore the shared salmon resource of the Columbia and Snake River Basins. We will be pleased to provide any additional information that this subcommittee may require.

Contact: Charles Hudson, Director of Government Affairs, hudc@critfc.org.

[This statement was submitted by the Hon. Casey Mitchell, Chairman.]

PREPARED STATEMENT OF THE CONSORTIUM OF SOCIAL SCIENCE ASSOCIATIONS

On behalf of the Consortium of Social Science Associations (COSSA), I offer this written testimony for inclusion in the official committee record. For fiscal year 2019, COSSA urges the Committee to appropriate \$8.45 billion for the National Science Foundation (NSF), \$4.735 billion for the Census Bureau, \$42 million for the National Institute of Justice (NIJ), and \$48 million for the Bureau of Justice Statistics (BJS).

First, I wish to thank the subcommittee for its longstanding support for Federal science agencies. Despite tough, ongoing fiscal challenges, the subcommittee has continued to maintain funding for basic research as a top priority. Thank you.

COSSA serves as a united voice for a broad, diverse network of organizations, institutions, communities, and stakeholders who care about a successful and vibrant social science research enterprise. We represent the collective interests of all STEM disciplines engaged in the rigorous study of why and how humans behave as they do as individuals, groups and within institutions, organizations, and society. Social and behavioral science often refers to the disciplines of and fields within anthropology, communication, demography, economics, geography, history, law, linguistics, political science, psychology, sociology, and statistics, as well as countless multidisciplinary subfields.

Social and behavioral science research is supported across the Federal Government, including at the National Science Foundation and the Department of Justice.

Further, Federal statistics collected by the Census Bureau and other Federal statistical agencies provide important data needed to conduct social science research that informs policy decisions. Taken together, Federal social and behavioral science and statistical data help to provide us with answers to complex, human-centered questions such as:

- How to convince a community in a path of a tornado to heed warnings;
- Ways to slow and hopefully eradicate the opioid epidemic; and
- How to support counter-terrorism efforts and prevent conflict.

In addition, new findings across the social sciences continue to increase the efficiency of our industries, improve the quality of K–12 education, help us understand crime patterns and evaluate prevention strategies, help manage our natural resources, keep our troops safe, help us to be informed as consumers, and allow paralyzed individuals to communicate. Among the countless innovations enabled by Federal support for basic social science research are telecommunications spectrum auctions, life-saving kidney exchanges, and warning systems to protect lives and property from extreme weather events, to name a few.

In short, knowledge derived from social and behavioral science research has made our population healthier, our democracy fairer, our Nation safer, and our economy stronger. Without these sciences, policy-making on major national issues would not be based on evidence, and billions of dollars would be wasted.

NATIONAL SCIENCE FOUNDATION

COSSA joins the broader scientific community and the 161 Members of the House of Representatives who signed the March 16, 2018 bipartisan letter in support of \$8.45 billion for the National Science Foundation (NSF) in fiscal year 2019. This amount would put NSF back on a growth trajectory and would allow the agency to recover some of the purchasing power lost in recent years due to sequestration and caps on discretionary spending.

Recognizing the centrality of scientific research to America’s broader economic, social, and security interests, more than 500 organizations representing top U.S. industries (including Boeing, John Deere, Microsoft, National Association of Manufacturers, and Northrop Grumman), higher education, and scientific and engineering societies endorsed the statement, *Innovation: An American Imperative* in 2015. The statement calls for at least 4 percent annual growth for Federal basic science research agencies, such as NSF. The \$8.45 billion request for NSF would put the agency on track for this necessary increase. The U.S. scientific enterprise requires stability, predictability, and sustainable funding growth, and Federal policies that are patient and can tolerate a reasonable amount of risk to achieve the greatest payoff.

NSF funds basic scientific discovery, workforce training, and state-of-the-art facilities that keep the U.S. ahead of our global scientific competitors. It is the only U.S. Federal agency tasked with supporting scientific research across all fields of science. NSF supports about a quarter of all federally-funded basic scientific research conducted at colleges and universities nationwide and serves as the largest single funder of university-based basic social and behavioral science research. Though the Social, Behavioral, and Economic Sciences Directorate (SBE)—one of seven research directorates at NSF—represents less than 5 percent of the entire NSF research budget, it supports around two-thirds of total Federal funding for academic basic research in the social and behavioral sciences (excluding psychology). Unfortunately, the President’s budget request proposes a disproportionate cut to the SBE Directorate, redirecting funds to other sciences. We strongly urge the committee to reject such a move, which would put in place an arbitrary process for allocating NSF resources.

Instead, experts at NSF, the outcomes of the merit-review process, and the vast network of scholars around the country who provide technical and content expertise to the NSF leadership should be trusted to advise the agency on the most promising science worthy of support. NSF, through its gold-standard merit review process, allows the demands of scientific discovery to dictate how best to spend basic research dollars, leaving politics and individual ideologies at the door. It is important that Congress maintain NSF’s authority over the distribution of its precious research dollars and not set arbitrary funding levels for NSF’s individual directorates, keeping with current practice. The House CJS Appropriations Bill should maintain current practice of appropriating funds to the Research & Related Activities account, leaving NSF with the flexibility to fund the most promising science across all fields.

CENSUS BUREAU, U.S. DEPARTMENT OF COMMERCE

COSSA urges the Committee to appropriate \$4.735 billion for the U.S. Census Bureau in fiscal year 2019 to keep the agency on track to execute an innovative and cost-effective 2020 Decennial Census and maintain support for its other crucial economic and demographic surveys. With the 2020 Census less than 2 years away, the Census Bureau is entering its peak phase of decennial operations. The Bureau is putting years of research, testing, evaluation, and development into practice in service of the Nation's largest peacetime mobilization. In fiscal year 2019, the Bureau will finalize its operational plan for 2020, building on the lessons learned during the 2018 End-to-End Census Test, the "dress rehearsal" for the real count. The Bureau will begin hiring tens of thousands of census workers, launch the first phase of its public information campaign to educate communities about the Census, mobilize thousands of partner organizations to enhance its reach in hard-to-count communities, and finalize IT systems to ensure the security of Americans' personal information.

With time before Census Day running out, robust and stable funding is essential in order for the Bureau to complete the necessary preparations and ensure a fair and accurate Census. The Census Bureau is obligated by the U.S. Constitution to count every person in the country, regardless of expense. Interfering with the careful preparations undertaken by the Census Bureau—by inadequately funding operations during the lead-up years or by adding last-minute untested questions to the form—will only add to costs down the road.

In addition, COSSA calls on Congress to fully fund the American Community Survey (ACS) and maintain its status as a mandatory Federal survey. The ACS is the only source of comparable, consistent, timely, and high quality demographic and socio-economic data for all communities in the U.S. As a component of the Constitutionally-mandated Decennial Census, the ACS is a "mandatory" national survey. The accuracy of the data collected by the ACS relies on this mandatory status. Targeted cuts and changes to make the survey voluntary would significantly undermine the ability to collect usable data on all U.S. counties, particularly in less populous, rural areas of the country.

NATIONAL INSTITUTE OF JUSTICE AND BUREAU OF JUSTICE STATISTICS, U.S.
DEPARTMENT OF JUSTICE

COSSA urges the Committee to appropriate \$42 million for the National Institute of Justice (NIJ) and \$48 million for the Bureau of Justice Statistics (BJS) within the U.S. Department of Justice (DOJ). NIJ serves as the research arm of the Department of Justice, filling an important role in helping the agency to understand and implement science-based strategies for crime prevention and control. It supports rigorous social science research that can be disseminated to criminal justice professionals to keep communities safe and prevent and reduce crime.

The Bureau of Justice Statistics (BJS) is one of 13 principal Federal statistical agencies. BJS produces data that provides statistical evidence needed by researchers and criminal justice policy decision makers. Taken together with NIJ, these modest annual investments represent the only dedicated sources of Federal research support committed to enhancing our understanding of crime and the criminal justice system, including around topics like victimization, law enforcement, recidivism and reentry, drugs and crime, and Tribal justice.

Numerous pressing criminal justice and law enforcement issues are at the fore of public consciousness today, including understanding the mental health needs of people who become involved in the justice system, the drivers of domestic radicalization, effective solutions to opioid addiction, and ways to improve police officer safety and community relations. By working with jurisdictions at all levels to compile data and support research, DOJ—through NIJ and BJS investments—provides key insights that improve public safety. Making the results of this research available to State and local officials and the public allows justice and law enforcement professionals to learn what works, adopt best practices, and improve public safety by leveraging the best research and data to protect the public, reduce recidivism, and support law enforcement and communities. While objective research is needed now more than ever, Federal funding in support of such research has been largely stagnant. Congress must prioritize Federal data collection and research if we are to provide local, State, and Federal officials with the information they need to develop strategies to improve public safety in our communities.

Thank you for the opportunity to present this testimony on behalf of the social and behavioral science research community. Please do not hesitate to contact me should you require additional information.

CONSORTIUM OF SOCIAL SCIENCE ASSOCIATIONS

American Anthropological Association	Association Of American Law Schools
American Association For Public Opinion Research	Law And Society Association
American Economic Association	Linguistic Society Of America
American Educational Research Association	Midwest Political Science Association
American Political Science Association	National Communication Association
American Psychological Association	Population Association Of America
American Society Of Criminology	Society For Personality And Social Psychology
American Sociological Association	Society For Research In Child Development
American Statistical Association	ment

[This statement was submitted by Wendy A. Naus, Executive Director.]

PREPARED STATEMENT OF THE COUNCIL ON UNDERGRADUATE RESEARCH

The Council on Undergraduate Research (CUR) urges the subcommittee to prioritize investments at the National Science Foundation (NSF), the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA) and programs therein that support high-quality undergraduate student-faculty collaborative research and scholarship as they consider the Fiscal Year 2019 Commerce, Justice, Science (CJS) Appropriations bill.

What is CUR?

CUR is a dynamic and vibrant non-profit organization of more than 13,000 members, representing close to 1000 institutions. CUR identifies undergraduate research as an inquiry or investigation conducted by an undergraduate student that makes an original intellectual or creative contribution to the discipline, in close collaboration with faculty members and other professional mentors. Undergraduate research moves students from passive participants in lecture-based classroom experiences, to independent researchers, with strong critical thinking, communication, organizational, and team work skills. Simply put, undergraduate researchers gain the real-life experience that employers and the research enterprise need and say they can't find in today's novice employee or researcher.

Why Undergraduate Research?

Nearly 2 million students graduate from four-year colleges each year, suggesting a steady supply of skilled labor to the workforce. Yet employers continue to bemoan the dearth of new employees with the appropriate skills to succeed and advance in the workplace. Hart Research Associates report that over 80 percent of employers expect students to have strong skills in communication, problem solving, and critical thinking; and over 90 percent of employers think these skills are more valued by employers than a student's specific major. Unfortunately, 58 percent of employers do not think recent graduates demonstrate these skills effectively for entry level positions and 64 percent feel recent graduates are not prepared for advancement in a company. Baccalaureate students who have engaged in undergraduate research and creative experiences bring these "skills in demand" with them to their first job and are better prepared to apply them successfully.

In addition to these critical workforce skills, there is a growing demand in the workforce for skilled labor in science and technology. At the same time, there has been a trend toward declining numbers of degrees in science disciplines. Only 40 percent of students who enter college intent on majoring in Science, Technology, Engineering, and Mathematics (STEM) disciplines graduate with STEM degrees and only 20 percent of underrepresented minority students follow through in STEM. Economic projections show the number of STEM degrees graduated annually will not meet our Nation's demand for more skilled workers in the myriad of health-related fields such as practitioners, technicians and manufacturers. As a result, the United States is quickly falling behind on filling the science and technology positions necessary to maintain the mantle of the world's economic leader. The President's Council of Advisors on Science and Technology concluded that we must increase the number of STEM degrees awarded annually by 34 percent to remain competitive. As a means of encouraging and supporting students in STEM disciplines, undergraduate research is a particularly robust tool and student participation in research has been shown to increase retention, persistence, and graduation rates in these areas.

Universities carry the responsibility to produce students ready to meet the demands of the workforce with the necessary broad skills as well as the appropriate degrees. Research is the ultimate form of active learning. Students learn to conceptualize the problem, generate potential solutions, test them, and revise the question. Skills developed include perseverance, communication within groups, and ability to collaborate with others in ways that will help them work confidently with peers and supervisors in the workforce.

This is particularly important for achieving the goal of increasing participation by currently underrepresented populations in STEM fields. These students tend to engage in structured research opportunities in higher percentages than do white, non-Latino students. The structured programs develop communities that benefit Black, Latino, and Native American students and encourage them in future academic and research pursuits. Assessment of undergraduate research repeatedly points to its positive educational outcomes both in the short term (early-career) and longitudinally (mid- and late-career). As a result, 87 percent of employers stated they were more likely to hire graduates who completed research-based projects. This is because the mentored research process actively engages students, more effectively developing critical thinking, improving motivation and persistence, and building confidence. Students self-report that they feel “better able to think independently and formulate their own ideas”. Research experiences help students clarify their career goals, and they are more likely to apply to graduate school. Finally, getting students involved in research early in their college career helps to keep them in college and persist in STEM majors.

A strong economy and a vibrant society thrive on an engaged and well-trained workforce. The evidence that undergraduate research supports these goals is clear. Thus, to accomplish the goal of increasing undergraduate research opportunities it is essential to support the Federal research agencies that invest in these high-impact practices. This support may take many forms, but ensuring that Federal research agencies have adequate funds to support faculty researchers who are eager to use undergraduate researchers as part of their work is crucial. Interested and committed faculty supported by substantive financial investment can help develop the next generation of creative and critical thinkers. Fostering these resilient and dedicated individuals is critical to maintaining our country’s leadership role in finding and implementing innovative solutions to current and future problems. Augmenting Federal funding streams for these high-impact practices will result in a demonstrated return on the investment of public money as the government seeks to strengthen the economy and American society.

CUR members represent a diverse cross-section of the country. They hail from community colleges to baccalaureate-granting institutions, large public institutions and small private colleges, military and religious institutions, rural and urban settings, and from all 50 States. Additionally, CUR is a founding partner, along with NSF, in the Community College Undergraduate Research Initiative (CCURI), and continues to work with 38 institutional partners to support the practice of undergraduate research at the community college level.

What are CUR’s Funding Priorities?

Undergraduate research is supported by many programs at multiple Federal agencies. In some instances, the program is dedicated to the practice, such as the NSF’s Research Experiences for Undergraduates. In other instances, undergraduate research is supported in a proposal submitted by a prospective principal investigator (PI), or a PI chooses to use undergraduate researchers once they have won an award. As a result, CUR and its members are interested in numerous research opportunities available to them and their institutions.

With regard to funding, please robustly support programs such as the NSF’s Research Experiences for Undergraduates and the Improving Undergraduate STEM Education program, NOAA’s Sea grant and other programs and agencies that support undergraduate research. CUR and its members are concerned that cuts or flat funding to research agencies—at a time when other countries are making significant investments in basic research—could lead to the erosion of America’s preeminence in innovation and scientific research. We know that the subcommittee is keenly interested in maintaining our nation’s edge in producing the best science and scientists, and we urge you to continue to seek opportunities to maximize funding.

Thank You

We thank you for your leadership on these issues and look forward to working with you further as the fiscal year 2019 Commerce, Justice, Science Appropriations bill advances. If you or your staff have any questions about this testimony, the cita-

tions therein, CUR, undergraduate research or Federal policies that affect the practice. Contact me at eambos@cur.org. Thank you for your attention to these views.

The mission of the Council on Undergraduate Research is to support and promote high-quality undergraduate student-faculty collaborative research and scholarship. The Council on Undergraduate Research (CUR) and its affiliated colleges, universities, and individuals share a focus on providing undergraduate research opportunities for faculty and students at all institutions serving undergraduate students. CUR believes that faculty members enhance their teaching and contribution to society by remaining active in research and by involving undergraduates in research, and students succeed in their studies and professional advancement through participation in undergraduate research. CUR's leadership works with agencies and foundations to enhance research opportunities for faculty and students. CUR provides support for faculty, administrator, and student development. Our publications and outreach activities are designed to share successful models and strategies for establishing and institutionalizing undergraduate research programs. We assist administrators and faculty members in improving and assessing the research environment at their institutions. CUR also provides information on the importance of undergraduate research to State legislatures, private foundations, government agencies, and the U.S. Congress. CUR welcomes as members faculty, staff, and students from all types of academic institutions.

[This statement was submitted by Elizabeth L. Ambos, Executive Officer.]

PREPARED STATEMENT OF THE DAUGHTERS OF PENELOPE

Chairman Moran, Ranking Member Shaheen, and distinguished members of the Commerce, Justice, and Science Appropriations Subcommittee, the Daughters of Penelope (DOP), an international service organization for women of Greek heritage and Philhellenes, which is dedicated in part to supporting victims of domestic violence, is requesting support for Victims of Crime Act (VOCA) and Violence Against Women Act (VAWA) programs at the Department of Justice. Specifically, we request a Crime Victims Fund cap for fiscal year 2019 to be set at least at the fiscal year 2018 level of \$4.4 billion and without any transfers to programs not authorized under the VOCA statute; and we support a strong investment of \$571 million for VAWA programs.

VOCA PROGRAMS & CRIME VICTIMS FUND

The Victims of Crime Act (VOCA) created the Crime Victims Fund, which serves as a mechanism to fund compensation and services for the Nation's victims of Federal crime. The Fund is comprised of money from criminals, and by law, the Fund is dedicated solely to victim services. For example, the Fund is used to help pay for State victim compensation and assistance programs, grants to victim service providers, and other victim related programs. A considerable amount of this money supports victims' out-of-pocket expenses such as medical and counseling fees; lost wages and funeral and burial costs. According to the Department of Justice, in fiscal year 2017, State VOCA victim assistance grants supported an estimated 14,000 victims' services projects administered by 7,800 public and community-based agencies in the United States. These agencies provided services to nearly millions of victims of crime, including victims of murder, assault and sexual assault, domestic violence, stalking and elder abuse, among many others.

The Crime Victims Fund is financed by fines, forfeitures, or other penalties paid by Federal crime offenders. Therefore, the Crime Victims Fund is not funded by taxpayer dollars. However, it is unfortunate Congress often carves out funds from the Crime Victims Fund to use as offsets for other government programs. Because the Crime Victims Fund is comprised of non-taxpayer dollars, it should not be considered available for use for non-VOCA programs in the Federal budget. Moreover, according to the co-chairmen of the Congressional Victims' Rights Caucus, U.S. Reps. Ted Poe (R-TX) and Jim Costa (D-CA), "not only does raiding the Crime Victims Fund violate the intent of the law, but it violates the [VOCA] statute itself . . ." Therefore, we recommend to the subcommittee that the Crime Victims Fund be used only for programs authorized under the VOCA statute. However, recent major appropriations bills passed by Congress, and previous administrations' budget requests, have carved out funds from the Crime Victims Fund for non-VOCA authorized programs. As examples, the fiscal year 2018 omnibus appropriations bill transferred \$492 million from the Crime Victims' Fund to VAWA programs and the administration's fiscal year 2019 budget proposes a \$485.5 million transfer from the

Crime Victims' Fund to VAWA programs. We request the elimination of transfers that harm the Fund's long-term viability and ability to commit fully to crime victims. Another unfortunate ramification of allowing transfers from the Fund is that it causes politicization of the Fund. This is why we support H.R. 5363, Crime Victims Fund Preservation Act of 2018. The bipartisan-backed bill creates a "lockbox" to ensure that money in the Fund cannot be used for anything other than victims' programs authorized under the VOCA statute. Also, the bill permanently excludes the Crime Victims Fund from any future government sequestration.

Finally, we recommend setting the Crime Victims Fund cap to at least the fiscal year 2018 enacted level of \$4.4 billion. Congress established an appropriation cap on funds available for distribution intended to maintain the Crime Victims Fund as a stable source of support for future victim services. At the cap level, Congress will not only ensure the continuation of enhanced services to victims to meet their needs, but it also does not contribute to, or add to, the national debt or deficit because these are non-taxpayer funds.

VAWA PROGRAMS

Domestic violence is a pervasive, life-threatening crime affecting millions of individuals across our Nation regardless of age, gender, socio-economic status, race or religion. The statistics are alarming. According to the Centers for Disease Control and Prevention (CDC) and The National Intimate Partner and Sexual Violence Survey (NISVS), 2010–2012 State Report:

—In the United States, Intimate partner contact sexual violence, physical violence, and/or stalking was experienced by 37.3 percent of U.S. women during their lifetime.¹

—One in 4 women and 1 in 9 men have experienced severe physical violence by an intimate partner during their lifetime.²

—In 2015, 1,270 women and men were murdered by an intimate partner (e.g. husband, wife, boyfriend, girlfriend).³

Also, of concern, are the following stats:

—Nationwide, an average of 3 women are killed by a current or former intimate partner every day.⁴

—Approximately 15.5 million children are exposed to domestic violence annually.⁵

Our Nation's response to intimate partner violence is driven by VAWA programs at the U.S. Department of Justice. Each of these programs is critical to ensuring that victims are safe, that offenders are held accountable, and that our communities are more secure. Thanks to VAWA, steady progress has been made there are many victims who still suffer in silence. In fact, a 2016 24-hour survey of domestic violence programs across the U.S. found that although 20,239 Hotline calls were answered (averaging more than 14 calls every minute), that nearly 12,000 requests for services (such as emergency shelter, transportation, or legal representation) went unmet because programs lacked the resources to provide them. The unconscionable gap between need and resources only widens.

DAUGHTERS OF PENELOPE'S WORK TO SUPPORT DOMESTIC VIOLENCE SHELTERS

Why are VAWA and VOCA programs important to the Daughters of Penelope? In addition to our chapters supporting domestic violence shelters in their respective local communities, the Daughters of Penelope is a national sponsor and stakeholder of two domestic violence shelters—Penelope House, in Mobile, Alabama; and Penelope's Place, in Brockton, Massachusetts. In the past, the Daughters of Penelope has supported WIN Hellas, which is an NGO based in Athens, Greece that is active in the prevention of violence against women.

Regarding Penelope House, it was the first of its kind in Alabama when it opened its doors in 1979. Since then, Penelope House has become a nationally-recognized as a model shelter for others to emulate. VAWA and VOCA grant funding has been critical in helping Penelope House to meet its mission of providing safety, protection and support to victims of domestic violence and their children through shelter, advocacy, and individual and community education.

¹ <https://www.cdc.gov/violenceprevention/pdf/NISVS-StateReportBook.pdf>

² <https://www.cdc.gov/violenceprevention/pdf/NISVS-infographic-2016.pdf>

³ <https://www.cdc.gov/violenceprevention/pdf/NISVS-StateReportBook.pdf>

⁴ NNEDV Domestic Violence Fact Sheet, accessed <https://nnedv.org/mdocs-posts/domestic-violence-and-sexual-assault-factsheet/>

⁵ Ibid.

For example, Penelope House has been awarded VAWA and VOCA grants from the following programs: Shelter Services, Court Advocate Program, and Transitional Living Program. Portions of these grants help to fund the case managers, case and court advocates, and children's counselors and program coordinators, among other employees who help to provide the life-saving support to domestic violence victims and their children.

Statistics—Effectiveness and Importance of VAWA & VOCA Grant Funding

—VOCA/VAWA grant funding comprises 27 percent of Penelope House's 2018 budget.

—VOCA is the largest source of Penelope House's funding.

Penelope House's Court Advocacy Program is funded by VOCA & VAWA. It's stats for clients served are:

—Adult Clients: 4,895

—Children: 4,676

—Court Appointments with Clients: 3,904

—Clients Assisted to obtain protection from abuse or no contact orders: 1,272

VOCA supports the salaries and benefits for seven Court/Victim Advocates who provide services to victims of domestic violence throughout Mobile, Washington, Clarke and Choctaw Counties of Alabama as they navigate within the court system. (VOCA grant funding has become increasingly important to Penelope House because Penelope House's services has been expanded to include to more counties in Alabama.)

VAWA supports a full-time Court Advocate Assistant and a portion of the salary for a Court/Victim Advocate for the Court Advocacy Program. The Court Advocate Assistant provides administrative support to Court/Victim Advocates and provides assistance to the Court Advocacy Supervisor. The Court Advocate Assistant collects and compiles program data needed for the evaluation of the Court Advocacy Program. The Court Advocate Assistant is dually trained to serve as a Court/Victim Advocate when necessary in case of illness or any other absence of court advocates. Thus, a victim will not have to be alone as he/she attempts to navigate within the court system.

Penelope House's Emergency Shelter Program is funded by VOCA. It's 2017 service stats are:

—Adults sheltered: 402

—Children sheltered: 431

—Total Client Service Hours: 12,773

—Total Nights of shelter provided: 7,960

—Crisis calls: 1,602

—Meals Served: 23,880

RECOMMENDATION

The Daughters of Penelope (DOP) is requesting support for Victims of Crime Act (VOCA) and Violence Against Women Act (VAWA) programs, which are vital to DOP programs that serve its mission. Specifically, we request a Crime Victims Fund cap for fiscal year 2019 to be set at least at the fiscal year 2018 level of \$4.4 billion and without any transfers to programs not authorized under the VOCA statute; and we support a strong investment of \$571 million for VAWA programs.

The Crime Victims Fund is not funded by taxpayer dollars. Therefore, the cap can be sustained or raised without adding to the national debt or deficit and transfers (or carve outs) must be eliminated in fiscal year 2019 and going forward. Also, it therefore must not subject to sequestration.

Clearly, as the missions of domestic violence centers across the country, such as Penelope House, have expanded into jurisdictions due to the unfortunate increased need to provide victims' services, that the viability of the Crime Victims Fund, VOCA, and VAWA grants, have become increasingly important to meet the victims' needs.

Thank you for the opportunity to present and submit our written testimony before the subcommittee.

[This statement was submitted by Eva Jean Fomalont, National President.]

PREPARED STATEMENT OF DAVID JONAS BARDIN
(Retired member of Arent Fox LLP, *pro se* as a private citizen)

FISCAL YEAR 2019 BUDGET FOR NOAA AND NSF

Chairman Moran and Ranking Member Shaheen,

For the sake of public safety, national security, and prevention of electric power blackouts, please—

1. Plus up NSF's budget to complete its MT survey of Earth conductivity—filling a gap in 14 Southern and Southwestern States of the contiguous United States (CONUS), and
2. Put forward Report language objecting to termination of USGS Geomagnetism Program—on which NOAA relies—and urging Program preservation and stability.

NOAA's 2017 Report to Congress, mandated by this Committee,¹ explains reasons why.

MT CONDUCTIVITY SURVEY GAP

NOAA reported to Congress, as a space weather forecasting gap:²

Since 2006, [NSF] has supported a national-scale magnetotelluric survey in the United States, through the EarthScope program, . . . In a separate, smaller project, USGS performed a magneto-telluric survey of the Florida peninsula in 2015. . . . By 2018, about two thirds of the Nation will have been surveyed, but there are presently no plans (nor is there any funding identified) to complete the rest of this survey for the other one third of the Nation.

Magnetotelluric data provide scientists with an estimate of the relationship between geomagnetic activity (such as during a storm) and the geo-electric field which is a hazard for the Nation's electric power grid. Thus, accurate forecasts of the impact to the electric power grid will not be possible for one third of the Nation.

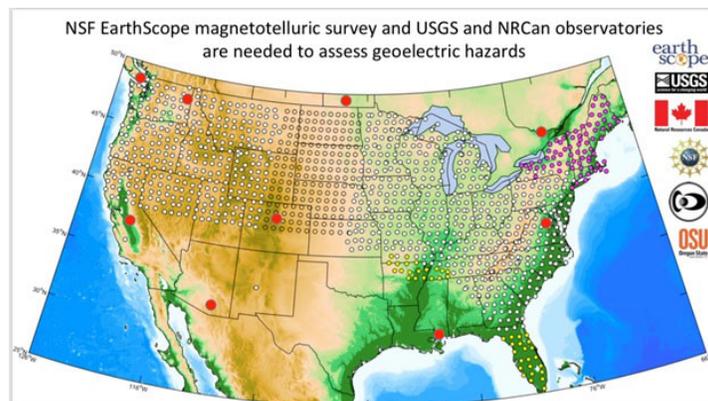
Mitigation Strategies: Funding is required to complete the survey for the remaining third of the Nation. The cost of completing the magnetotelluric survey for the entire United States was estimated by USGS at \$5.5 million (over 5 years).

The deprived one third of the Nation includes all or parts of 14 Southern and Southwestern CONUS States: ALABAMA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, FLORIDA, KANSAS, LOUISIANA, MISSISSIPPI, NEVADA, NEW MEXICO, OKLAHOMA, TEXAS and UTAH. Protecting the electric power grid from Geomagnetic Disturbances (GMDs) caused by natural explosion from the Sun (or from E3 pulses due to a high-altitude nuclear explosion), requires data about electric conductivity of the Earth.

In map below, small circles mark two thirds of CONUS where surveying is being done. An NSF Appropriation plus up could fill the gap for one third of the Nation.

¹ Report to Congress—The National Oceanic and Atmospheric Administration's Report on Inventory of Space Weather Data for Operational Forecasting and Potential and Existing Gaps—For the Senate Committee on Appropriations as Requested in Commerce, Justice, Science, and Related Agencies Appropriations Bill, 2016 Senate Report 114-66—August 2017.

² Report to Congress, at 8-9.



MAGNETOMETERS—NEED AND GAP

NOAA's 2017 report also identified USGS Geomagnetism Program magnetometers as space weather prediction assets, with estimated lifetime costs of \$107 million for the existing USGS facilities:³

Magnetometers provide highly-reliable, real-time measurements of Earth's time-varying magnetic field. The data are required to specify the level of geomagnetic activity. The data are combined with identical observations from international partners to derive the NOAA G-scale, a global indicator of activity that NOAA forecasts and uses to issue watches, warnings, and alerts. A significant portion of NOAA/SWPC⁴ users are adversely affected by geomagnetic activity, including the electric power industry, spacecraft operations, GPS users, pipelines, and radio communications.

NOAA amplified in congressional testimony last month:⁵

Observation Platforms: NOAA utilizes an array of space-based and ground based observations in our space weather forecast operations and related research. Many of these data sets are available in near real-time, and come from a variety of sources, ranging from solar imaging satellites to ground magnetometer stations. In addition to NOAA operational assets, we have partnerships with other organizations such as . . . USGS [utilizing their data] to complement the NOAA observations.

. . . .

The underpinning data used by NOAA to supply the Nation with geomagnetic storm warnings and alerts are the ground-based magnetic field observations provided by the USGS Geomagnetism Program. NOAA's geomagnetic storm alerts and warnings are based on the USGS magnetometers. These observations describe the local intensity of the changes in magnetic fields and allow NOAA to characterize the intensity of the geomagnetic storm.

In the map above, large circles mark six USGS magnetometers in CONUS⁶ (there are five more in Alaska and one each in Hawaii, Guam, and Puerto Rico) and three Canadian ones near the border. Note a huge gap between USGS's Boulder CO and Fredericksburg VA facilities.

The President's fiscal year 2019 budget request unfortunately seeks (again) to end the entire USGS Geomagnetism Program and all its magnetometers. The Omnibus

³Report to Congress, at 23–24.

⁴Space Weather Prediction Center.

⁵April 26, 2018, joint hearing of House Committee on Science, Space, and Technology, Subcommittees on Environment and Space, on *Surveying the Space Weather Landscape*, written testimony of Dr. Neil Jacobs (Assistant Secretary of Commerce for Environmental Observation and Prediction, National Oceanic and Atmospheric Administration).

⁶Of the six, four are in the Western Interconnection service area [Western Electricity Coordinating Council (WECC)] (in Washington, Colorado, Arizona, California), two in the Eastern Interconnection (in Mississippi, Virginia); none are in the Texas Interconnection service area [Electric Reliability Council of Texas (ERCOT)] since USGS dismantled its Del Rio facility for budgetary reasons in 2009.

(Public Law 115–141) rejected an identical fiscal year 2018 proposal to terminate this vital Program.^{7 8 9}

I urge increased funding (\$1.7 million) for the Geomagnetism Program, in order to add magnetometers, in the Interior, Environment, and Related Agencies Appropriation Bill.

I ask this subcommittee to discuss the USGS Program’s importance to NOAA’s mission and our National Space Weather Strategy, to public safety and national security.

UPDATE OF NATIONAL SPACE WEATHER STRATEGY (NSWS)

On April 20, NOAA kicked off Executive Branch review and updating of the 2015 National Space Weather Strategy by a Request for Information.¹⁰ Hopefully that process will bring the Executive Branch to a consensus as to importance of USGS Geomagnetism Program and completion of MT conductivity survey.¹¹

CONCLUSIONS

Please recommend following Report language:

The Committee welcomes Executive Branch initiative to update 2015 National Space Weather Strategy, looks forward to outputs from that effort, and urges that the USGS Geomagnetism Program be preserved—and strengthened as appropriate.

Please plus up the NSF budget of an appropriate Directorate sufficiently to fund completion of the EarthScope MT Earth conductivity survey of CONUS.

Respectfully submitted, David Jonas Bardin

PREPARED STATEMENT OF DEMAND PROGRESS ACTION

Dear Chairman Moran, Ranking Member Shaheen, and Members of the Senate Commerce, Justice, and Science, and Related Agencies Appropriations subcommittee:

Thank you for the opportunity to submit testimony on improving transparency and accountability at the Department of Justice. My testimony is focused on congressional and public access to information about two sets of government documents: (1) final opinions promulgated by the Office of Legal Counsel at the Department of Justice, and (2) lobbying disclosure forms collected pursuant to the Foreign Agents Registration Act.

PROVIDING TO CONGRESS AN INDEX OF CURRENT DOJ OFFICE OF LEGAL COUNSEL OPINIONS

Opinions by the Justice Department’s Office of Legal Counsel often have the effect of law within the executive branch, but many opinions with legal effect and precedential value have been withheld from Congress and the public despite the Justice Department’s “proactive disclosure” policy. Indeed, no one outside the executive branch knows how many opinions are currently in effect. In addition, the OLC has at times reached legal conclusions that are at variance with the understanding of the law held by Congress or interpretations that would be rendered by the Courts—but the OLC did not enlighten Congress regarding the difference of opinion.

We believe it is essential that Congress and the public have notice of the existence of legal interpretations contained in final OLC opinions so that our system of checks and balances can operate effectively. This is consonant with a letter signed by a bipartisan group of 19 senior former DOJ officials in 2006 that declared “OLC should publicly disclose its written legal opinions in a timely manner, absent strong reasons for delay or nondisclosure.”¹

⁷ See Finn & Love, *Proposed elimination of USGS Geomagnetism Program* (June 3, 2017); available at <https://geohazards.usgs.gov/pipermail/geomag-data/2017-June/000026.html>.

⁸ See <https://geomag.usgs.gov/monitoring/operations.php>.

⁹ See Love & Finn (2017) (*Real-time geomagnetic monitoring for space weather-related applications: Opportunities and challenges* Space Weather, 15, doi:10.1002/2017SW001665).

¹⁰ Federal Register/Vol. 83, No. 77/Friday, April 20, 2018/Notices, pages 17526–7.

¹¹ See Space Weather Enterprise Forum, 27 June 2017, Session 4, transcript at 5–7, available at https://swfound.org/media/205939/swef_2017_4.pdf

¹ See “Guidelines for the President’s Legal Advisors,” the American Constitution Society (May 2006), available at http://www.acslaw.org/files/Microsoft%20Word%20-%202011_Johnsen_OLC.pdf.

We recommend that the General Provisions account of the portion of the CJS Appropriations bill concerning the Department of Justice include the following legislative language that would require: a report detailing the total number of final OLC opinions in effect, the opinion's subject line, the date it was finalized or updated, the agency that requested it, and the creation of an unclassified summary. The definition of what constitutes a final OLC opinion is drafted narrowly to cover only promulgations of executive branch policy that have been put into effect.

Bill language:

The Attorney General shall publicly report to Congress within 180 days and contemporaneously thereafter—

- (A) The number of final OLC opinions in effect;
- (B) A list of final OLC opinions in effect that includes for each opinion—
 - (a) An unclassified summary;
 - (b) The subject line, subject to classified redaction;
 - (c) The date finalized/updated;
 - (d) The agency/entity requesting it;
 - (e) Whether it is newly issued, updated, or withdrawn.
- (C) A final Office of Legal Counsel opinion is a document in written or electronic form that expresses the opinion of the Attorney General on questions of law or final opinions made in the resolution of inter-agency disputes, rendered in accordance with 28 USC § 511–513, and—
 - (1) The Attorney General or his/her designee determines that it is final; or
 - (2) Government officials or contractors follow its guidance; or
 - (3) It is relied upon to formulate legal guidance; or
 - (4) It is cited directly/indirectly in another Office of Legal Counsel opinion.

IMPROVED DISCLOSURE OF FOREIGN AGENT FILINGS UNDER THE FOREIGN AGENTS
REGISTRATION ACT (FARA)

Reports by Foreign Agents on their lobbying are important, but they are gathered and published by the Justice Department's FARA Unit in difficult-to-use formats. The use of modern technology and techniques, long embraced by other components in government, would improve the FARA Unit's ability to ensure compliance with the law and improve congressional and public ability to scrutinize the filings. There is a decade-long effort to encourage the Department of Justice to modernize its practices, but it has failed to do so.² In light of agency inaction we believe it is appropriate for Congress to step in.

We recommend that the General Provisions account of the portion of the CJS Appropriations bill concerning the Department of Justice include the following report language. In summary, it requests a public consultation and report on (1) requiring filings by foreign agents under FARA to be in an electronic and structured format, and (2) the publication of those report in a bulk, structured data format for public reuse. This would help transform FARA from a paper exercise into something that helps effectuate the purposes behind the Foreign Agents Registration Act of tracking information about agents of foreign governments.

Report language:

Review of Reports from Foreign Lobbyists: The Attorney General of the United States shall review the United States Department of Justice's implementation of the Foreign Agent Registration Act, which should include a review of the recent DOJ Inspector General Report on FARA and consultation with public stakeholders, and within 6 months of enactment of this act issue a report to Congress that is publicly available and addresses (1) the feasibility and steps necessary to require all filings by foreign agents to be made in an electronic, structured data format where the information can flow into a machine processable digital format; (2) the publication by the FARA Unit of filing information to the public in bulk in a structured data format so it can be searched, sorted, and downloaded by the public.

Thank you again for the opportunity to submit this testimony. I would welcome the opportunity to answer any questions you might have. My email is daniel@demandprogress.org.

[This statement was submitted by Daniel Schuman, Policy Director.]

²See Civil Society Comments to the FARA Unit (April 7, 2017), available at https://s3.amazonaws.com/demandprogress/letters/2017-04-07_Civil_Society_Comments_on_FARA.pdf

PREPARED STATEMENT OF LYDIA DENNETT, PROJECT ON GOVERNMENT OVERSIGHT,
AND DANIEL SCHUMAN, DEMAND PROGRESS ACTION

The activities of foreign lobbyists, as collected and recorded by the Department of Justice (DOJ) under the Foreign Agents Registration Act (FARA), are the subject of sustained public and congressional interest. FARA is intended to provide transparency into how foreign governments attempt to influence U.S. policies on everything from foreign aid to multi-billion-dollar arms deals. But when the Department of Justice does not uncover when lobbyists for foreign governments fail to register or properly disclose their activities, the public and even Congress can be left in the dark about how our laws are shaped and influenced. We believe the agency's interpretation of the law must be publicly clarified so Congress can grapple with the underlying issues behind foreign lobbyist disclosure.

To address these issues, we respectfully request that the Committee include the following provisions in its committee report language:

1. A request that FARA advisory opinions be provided to the Committee and the general public;
2. A request that the Department of Justice provide to the Committee and the general public its official guidance on how it interprets the law;
3. Additional items for inclusion in the National Security Division's strategic plan for enforcement of FARA, including a date for when that report must be completed and provided to the Committee and released to the public.

We note the House of Representatives proposed an increase in funding in the fiscal year 2019 budget for the National Security Division to address improper foreign influence issues. We also acknowledge the House Appropriations Committee report language noting that the National Security Division is developing a strategic plan for FARA. While we believe this is a step in the right direction, we encourage this subcommittee to prompt the Justice Department to publicly clarify its interpretation of the law.

RECOMMENDATIONS

1. Congressional and Public Access to FARA Advisory Opinions

The Justice Department issues advisory opinions that describe the agency's "present enforcement intentions" concerning the Foreign Agents Registration Act. Specifically, the guidance concerns whether the law requires a present or prospective agent of a foreign principal to register or disclose information. A few summaries of these advisory opinions are published online. Unfortunately, the few publicly available advisory opinion summaries fail to provide clarity on the more nuanced aspects of the law.

We recommend the Justice Department *proactively* publish the full advisory opinions except to the extent it would identify the requester. This is consistent with the suggestions of the DOJ Inspector General (IG) as well as a DOJ statement that it is willing to release certain reports pursuant to FOIA requests. This should not be burdensome since the FARA unit received only 14 requests for advisory opinions between 2013 and 2016.

In 2016, the DOJ IG recommended the Justice Department consider publishing advisory opinions online with personal information redacted. "We believe the FARA advisory opinions may be a worthwhile informational resource, and recommend [the Justice Department's National Security Division] consider whether there is value in making them publicly available," the report stated.

The same year, the Justice Department stated it would release advisory opinions that have led to a FARA registration pursuant to Freedom of Information Act requests. However, FOIA requests are time-consuming, and the agency should operate under a presumption of openness.

Instead of requiring those interested to formally request these documents, the Justice Department should proactively post them online. Proactive disclosure is a best practice and a common one. For example, the DOJ has published advisory opinions to clarify its interpretation of the Foreign Corrupt Practices Act since 1993.

We recommend the following report language:

The National Security Division is requested to provide to the Committee and publish online all Foreign Agent Registration Act advisory opinions for individuals and entities that subsequently registered or disclosed information under FARA, subject to the redactions permissible under FOIA. In addition, the NSD is requested to provide to the Committee and the public all other advisory opinions after redacting information that would identify potential registrants or otherwise would be withheld under FOIA.

2. Clarify Registration Requirements Under FARA

The Justice Department should release any existing official guidance on FARA that explains its interpretation of the law. There are significant portions of FARA that remain undefined or poorly worded, and disclosure of how the DOJ interprets the law would provide Congress and the public with greater understanding.

For example:

- FARA registrants are required to file with the Department any “informational materials” they intend to send to two or more people. We do not know how the Department interprets the phrase “informational materials.”
- An agent of a foreign principal is defined as “a person any of whose activities are directly or indirectly supervised . . . *in major part* by a foreign principal” (emphasis added). We do not know how the Department interprets the phrase “in major part.”
- Lobbyists who are working solely on behalf of a foreign commercial interest, rather than a foreign government or political party, may register under the far less strict Lobbying Disclosure Act and be exempt from FARA requirements. This exemption does not apply if the “principal beneficiary” of the work is a foreign government or political party.” We do not know how the Department interprets the phrase “principal beneficiary.”

We recommend the following report language:

The National Security Division is requested to provide to the Committee and publish online all official guidance currently in effect that interprets or further defines terms used in the Foreign Agents Registration Act.

3. The National Security Division’s Strategic Plan

The House report acknowledges that the National Security Division is drafting a strategic plan on FARA. However, the DOJ has been in perpetual review of FARA for more than a decade, which has had the effect of forestalling action. We believe you should establish a deadline by which the plan is to be released to the Committee and the public. In addition, the plan should include the following:

- An assessment of whether the FARA unit should conduct a cost-benefit analysis of the fee structure to determine whether fee requirements should be changed;
- Whether civil fines should be available to the DOJ to increase compliance; and
- A plan to improve the FARA website so that it works properly in accordance with recommendations made by civil society in this letter.

CONCLUSION

Thank you for the opportunity to submit our testimony regarding FARA. We would welcome the opportunity to discuss this further. For more information, please contact Lydia Dennett at the Project On Government Oversight at ldennett@pogo.org.

PREPARED STATEMENT OF MEGAN DONAHUE ON BEHALF OF THE AMERICAN ASTRONOMICAL SOCIETY

On behalf of over 7,000 members of the American Astronomical Society (AAS), I submit this statement to first thank Chairman Culberson, Ranking Member Serrano, and the entire Commerce, Justice, and Science subcommittee for your strong support of the astronomical sciences (astrophysics, planetary science, and solar physics). Astronomical science in the United States would not be as cutting edge and dynamic as it is today without your leadership, and we are deeply appreciative. I also write to ask for your continued support of NASA and NSF as you write the fiscal year 2019 appropriations legislation. We ask that your fiscal year 2019 subcommittee bill include at least \$8.45 billion for the National Science Foundation (NSF) and at least \$21.7 billion for the National Aeronautics and Space Administration (NASA).

As you know, our community sets its priorities via a consensus “decadal survey” process under the aegis of the National Academies. The decadal surveys’ overriding priority has been a balanced program of grants and facilities to optimize return on taxpayer investment: balance across discipline and mission size, between competed and strategic programs, and between facilities and investigator grants. The fiscal year 2019 funding levels in our request will allow both NASA and NSF to continue to support a synergistic program of ground- and space-based facilities to advance the astronomical sciences that funds the top community priorities, ensuring that the U.S. remains the clear world leader in discovery research.

NATIONAL SCIENCE FOUNDATION

We appreciate Congress' long-standing support for the construction of new cutting-edge astronomical telescopes, now including the Daniel K. Inouye Solar Telescope (DKIST) and the Large Synoptic Survey Telescope (LSST). As both of these promising facilities near the end of construction, our community is looking forward to using them to make breakthroughs in our understanding of the sun and space weather, near earth objects and our solar system, and the nature of the universe. Our enthusiasm is tempered by the fact that the research and facility operations budget for astrophysics has remained flat for a number of years, leaving no flexibility to absorb new facility operations without significant cuts to research grants, which are already at historically low success rates. This means that the broad U.S. astronomical community will not reap the full scientific benefit of the taxpayer investment in these new facilities, leaving the door open for our colleagues in Europe and elsewhere to skim much of the scientific cream off the top.

Therefore, we ask that you seize the opportunity presented by the budget deal to provide a much-needed, substantial investment in NSF with at least \$8.45 billion for this critical basic research agency in fiscal year 2019.

Such an investment in Nation's science and technology efforts rise to the call from the National Science Board (NSB) for a "fearless commitment . . . [in] this unprecedented time in human history, when we have the tools, know-how, and understanding to tackle daunting challenges and solve problems that have long defied solution." Full, fearless commitment to both to NSF's disciplinary directorates and the new opportunities in the Big Ideas would enable a complementary approach. Research performed within disciplines lays the foundation for inter- and multi-disciplinary innovation, while the Big Ideas empower NSF to cross academic disciplines to drive discovery in burgeoning fields at the intersections of knowledge areas. Big Ideas like "Windows on the Universe"—which brings together disciplines to forge ahead in the exciting new era of multi-messenger astrophysics—are thus an opportunity to grow Federal science investment to enhance our science and technology efforts. The Mid-Scale Research Infrastructure Big Idea would develop an agile process for funding experimental research capabilities in the mid-scale range across NSF's science portfolio; the need for such a process to meet the mid-scale gap was prioritized by both the astrophysics and heliophysics decadal surveys, the need for which was demonstrated by the \$10 billion in mid-scale instrumentation identified by NSF's recent Request for Information (RFI). The Astronomy (AST) division began to address that need with the launch of the Mid-Scale Innovations Program (MSIP)—a top priority of the astrophysics and heliophysics decadal surveys—but flat budgets and increasing facilities operations costs have stunted the growth MSIP was meant to advance. Further flat—or even just modestly increased—top lines for NSF would mean diverting most of the funds from AST to a Foundation-wide mid-scale program proposed at a fraction of the need identified in the NSF-wide RFI. An infusion of funds into NSF would instead jumpstart U.S. astronomy and the Nation's scientific enterprise at large at this critical time.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

A balanced, ambitious investment in all of the space science disciplines is essential to NASA's mission as an exploration agency. Scientific exploration of space, from the edges of the Earth's atmosphere to the edges of the universe, lays intellectual and technical groundwork for the human exploration of space, both inspiring and training a new generation of explorers daily. We therefore request at least \$6.5 billion for the Science Mission Directorate (SMD).

We are particularly alarmed at the administration's draconian 15 percent proposed reduction to the Astrophysics Division and the apparent disregard for the findings of multiple National Academies reports of the value of strategic missions in a balanced scientific portfolio. We strongly oppose the cancellation of the top decadal priority space mission, WFIRST, and note that one of the proposed substitutes—a "probe class" mission line—has not yet been recommended by a decadal survey committee. We request at least \$1.46 billion for the Astrophysics Division, allowing restoration of WFIRST, full funding for mission operations, and additional investment in research grants without negatively impacting the rest of the balanced program. To stay on time and on budget, we request an appropriation of at least \$350 million for WFIRST. For the Planetary Science Division, we request an appropriation of at least \$2.34 billion that enables an fiscal year 2022 launch for the Europa Clipper mission as a decadal priority and statutory mandate. We ask that any funding for the administration's proposed new lunar and planetary defense activities be provided only above and beyond our Planetary Division and SMD requests until and unless these activities are prioritized as part of a balanced program in a future

decadal survey. In the Heliophysics Division, we request at least \$723 million, to continue full execution of the Diversify, Realize, Integrate, Venture, and Educate (DRIVE) initiative, the top heliophysics decadal priority, consistent with your subcommittees' past support.

Beyond the decadal prioritization process, other National Academy studies, senior and portfolio reviews, standing advisory committee studies, town hall meetings, and mid-decade adjustments to the decadal surveys are also fundamental components in the effective funding, management, and oversight of the Federal research enterprise. These processes leverage the combined effort and expertise of the community to maximize the scientific return of public and private investments in the astronomical sciences. These community processes are particularly beneficial during times of highly constrained budgets. Efforts that go outside these long-standing advisory processes in an attempt to benefit or harm specific projects or alter priorities are counterproductive and damage the scientific endeavor as a whole. The current House Appropriations language would disadvantage the Stratospheric Observatory for Infrared Astronomy (SOFIA), keeping the project from properly preparing for or participating in a Senior Review. The SOFIA contract specifically defines the prime mission as 5 years, to be distinguished from the nominal operation lifespan of 20 years.

Finally, we are grateful for the subcommittees' continued support for STEM education, outreach, and broadening participation programs at NASA's Office of Education and key NSF programs across the Education and Human Resources directorate. We urge you to again support these critical efforts in fiscal year 2019, as the administration again proposed to eliminate or dramatically reduce them. These offices play a critical role in inspiring and training a STEM-literate workforce that innovates across industries and disciplines, which is essential to both agencies' missions.

Thank you for the opportunity to offer our recommendations on behalf of the astronomical community. The AAS looks forward to continuing to work with you on ensuring American leadership in the astronomical sciences. Please do not hesitate to contact me, or our Director of Public Policy, Dr. Joel Parriott, at joel.parriott@aaas.org, with any questions or concerns.

[This statement was submitted by Megan Donahue, President-Elect of the American Astronomical Society and Professor of Physics and Astronomy, Michigan State University.]

PREPARED STATEMENT OF THE ENTOMOLOGICAL SOCIETY OF AMERICA

The Entomological Society of America (ESA) respectfully submits this statement for the official record in support of funding for the National Science Foundation (NSF). ESA requests a robust fiscal year 2019 appropriation of \$8.45 billion for NSF, including strong support for the Directorate for Biological Sciences (BIO).

Research in basic biological sciences, including entomology, provides the fundamental discoveries that advance knowledge and facilitate the development of new technologies and strategies for addressing societal challenges related to economic growth, national security, and human health. Basic research on the biology of insects has provided fundamental insights across all areas of biology, including cell and molecular biology, genomics, physiology, ecology, behavior, and evolution. In turn, these insights have been applied toward meeting challenges in a wide range of fields, including conservation biology, habitat management, livestock production, and pest control.

Insects have also long played an essential role as model organisms for understanding basic biological processes across all organisms, including humans. Insects are often ideal laboratory experimental subjects because they are generally small and inexpensive to obtain, they complete development rapidly, and they can be maintained without the special facilities required for vertebrate animals. The common fruit fly, *Drosophila melanogaster*, for example, has been the subject of NSF-funded research that has profoundly transformed the understanding of human health in countless ways; in 1995, NSF-funded studies elucidating the genetic control of embryo development in this insect was recognized with the Nobel Prize in Medicine or Physiology.

NSF is the only Federal agency that supports basic research across all scientific and engineering disciplines, outside of the medical sciences. Each year, the foundation supports an estimated 300,000 researchers, scientific trainees, teachers, and students, primarily through competitive grants to approximately 2,000 colleges, universities, and other institutions in all 50 States. NSF also plays a critical role in training the next generation of scientists and engineers, ensuring that the United

States will remain globally competitive in the future. For example, the NSF Graduate Research Fellowship Program selects and supports science and engineering graduate students demonstrating exceptional potential to succeed in science, technology, engineering, and mathematics (STEM) careers.

Through activities within its BIO Directorate, NSF advances the frontiers of knowledge about complex biological systems at multiple scales, from molecules and cells to organisms and ecosystems. In addition, the directorate contributes to the support of essential research resources, including biological collections and field stations. NSF BIO is also the Nation's primary funder of fundamental research on biodiversity, ecology, and environmental biology.

One NSF BIO-supported project that illustrates the broad reach of basic entomological research is focused on fundamental insect physiology. The investigators are testing a hypothesis about the mechanisms insects use to transport blood, nutrients, and gases throughout their bodies.¹ Their research on these transport processes will inform our understanding of insects' success as agricultural pests and disease carriers as well as our ability to mitigate those traits. Additionally, a deeper knowledge of these transport systems will also provide insights into those possessed by other animals and impact the design of new mechanical systems.

NSF BIO also supports the development of technologies that directly impact economic sectors that are highly dependent on entomology. NSF recently awarded funding for a Small Business Innovation Research (SBIR) Phase I project aimed at ensuring healthier honeybee populations through data analysis and modeling.² Specifically, the project seeks to build newer and more robust algorithms capable of autonomously analyzing data generated by networked sensors placed in beehives. The information derived from the resultant data sets could then be used to develop models capable of predicting the infiltration of pests and disease in hives before it actually occurs. Ultimately, the successful commercialization of this technology could revolutionize an entire agricultural sector that has suffered significantly because of honeybee colony collapse.

In addition to funding research, NSF BIO plays a critical role in the curation, maintenance, and enhancement of physical biological collections. These collections and their associated data sets serve a variety of purposes, and while they are particularly important to the field of entomology, their value to the broader scientific enterprise cannot be overstated. In particular, physical collections enable the rapid identification and mitigation of costly invasive pests that affect agriculture, forestry, and human and animal health. This is only achievable because such collections are continuously being updated to reflect environmental changes, evolutionary developments, and shifting migratory patterns of invasive species around the world.

Accordingly, NSF is funding a series of workshops designed to provide hands-on training in collections curation and management, with a particular emphasis on students and early-career researchers.³ This first-of-its-kind program will help ensure the long-term availability of a workforce capable of maintaining these vital collections well into the future.

While collections-focused awards like that mentioned above are encouraging, ESA is concerned by the overall downward trend of Federal funding for biological collections. Recent advancements in imaging, digitization, and data collection and storage technologies have caused some to question the necessity of continued support for existing biological collections. This uncertainty has previously prompted the suspension of the NSF Collections in Support of Biological Research (CSBR), which supports scientifically valuable collections that contribute to domestic homeland security, public health, agricultural sector and food security, and environmental sustainability. ESA recognizes that technological development is spurring substantive discussion about the future of biological collections, but given their continuing relevance and broad application, ESA firmly supports continued Federal investment in these collections.

Given NSF's critical role in supporting fundamental research and education across science and engineering disciplines, ESA supports an overall fiscal year 2019 NSF budget of \$8.45 billion. ESA requests robust support for the NSF BIO Directorate, which funds important research studies and biological collections, enabling discoveries in the entomological sciences to contribute to understanding environ-

¹Socha, John; Harrison, Jon; Miller, Laura; and Pendar, Hodjat. A New Hypothesis for Cardio-respiratory Mechanics in Insects. Award Number: 1558052

²Symes, Ellie. SBIR Phase I: Data Analytics on Honeybee Hives Using IoT Sensor Data. Award Number: 1746862

³Song, Hojun and Shockley, Floyd. Towards a Sustainable Management of Insect Collections in the U.S. through the Entomological Collections Management Workshop. Award Number: 1640919

mental and evolutionary biology, physiological and developmental systems, and molecular and cellular mechanisms.

ESA, headquartered in Annapolis, Maryland, is the largest organization in the world serving the professional and scientific needs of entomologists and individuals in related disciplines. As the largest and one of the oldest insect science organizations in the world, ESA has over 7,000 members affiliated with educational institutions, health agencies, private industry, and government. Members are researchers, teachers, extension service personnel, administrators, marketing representatives, research technicians, consultants, students, pest management professionals, and hobbyists.

Thank you for the opportunity to offer the Entomological Society of America's support for NSF research programs. For more information about the Entomological Society of America, please see <http://www.entsoc.org/>.

[This statement was submitted by Michael Parrella, President.]

PREPARED STATEMENT OF THE FEDERATION OF AMERICAN SOCIETIES FOR
EXPERIMENTAL BIOLOGY

The Federation of American Societies for Experimental Biology (FASEB) respectfully requests a fiscal year 2019 appropriation of at least \$8.45 billion for the National Science Foundation.

FASEB, a federation of 30 scientific societies, represents 130,000 life scientists and engineers, making it the largest coalition of biomedical research associations in the United States. Our mission is to advance health and welfare by promoting progress and education in the biological and biomedical sciences.

With its broad mandate to support fundamental research across all fields of science, technology, engineering, and mathematics, the National Science Foundation (NSF) is the cornerstone of our Nation's scientific enterprise.¹ NSF investments in discovery-based research at institutions nationwide generate new knowledge, which in turn leads to transformative innovations that enhance quality of life.

Web browsers, modern weather forecasting, and magnetic resonance imaging (MRI) are just a few of the tangible benefits enabled by NSF-funded research.^{2,3}

Many of these advances result from NSF's relationship to mission-oriented scientific agencies such as the National Institutes of Health. For example, in the biological sciences, NSF supports research that expands our understanding of life at multiple scales of time and space, from molecules to ecosystems.³

This knowledge is then applied to advance medicine, enhance agriculture, stimulate new bioenergy technologies, and safeguard our planet's health. NSF is also uniquely positioned to support interdisciplinary collaboration, research facilities, and scientific resources—which no other agency provides.

NSF has a complementary, and critical, educational mission. The Foundation's graduate and postdoctoral fellowships and other educational programs underwrite the training of thousands of young scientists and engineers. This investment ensures a technical and scientific workforce capable of pursuing research and leading the innovative, dynamic industries of the future.

Even as the demand for scientific research has dramatically grown, the NSF budget has remained flat in real terms for 15 years (Figure 1). The Federal Government must renew its commitment to fundamental, discovery-based science.⁴ Providing NSF with a budget of \$8.45 billion (\$683 million above its fiscal year 2018 funding level⁵) would support about 700 additional research grants, enabling researchers to seize new scientific opportunities.

¹ <https://www.nsf.gov/about>

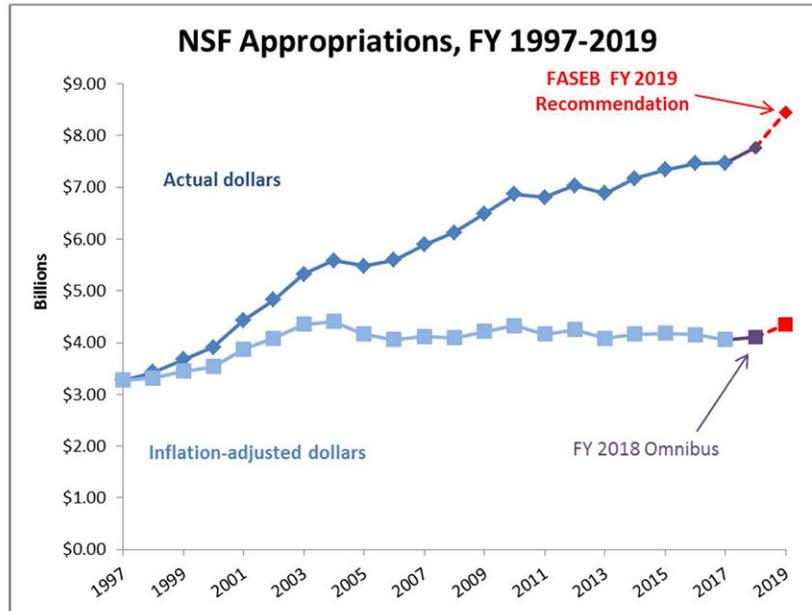
² *Transforming the World Through Science*. National Science Foundation, Alexandria, VA

³ *NSF Sensational 60*. National Science Foundation, Alexandria, VA

⁴ *Innovation: An American Imperative*

⁵ H.R. 1625—Consolidated Appropriations Act, 2018

Figure 1: NSF Appropriations



PREPARED STATEMENT OF THE FRIENDS OF NOAA COALITION

As supporters, stakeholders, employees, and partners of the National Oceanic and Atmospheric Administration (NOAA), Friends of NOAA would like to thank you for your work in completing the fiscal year 2018 appropriations process and providing a 3 percent funding increase for NOAA. Thank you for recognizing the world-class economic, safety, and public health benefits NOAA contributes to our country and its citizens. We look forward to working with you in supporting and championing the agency through fiscal year 2019 and beyond.

As such, Friends of NOAA strongly supports funding the agency at \$6.2 billion in fiscal year 2019. As recommended by groups such as the Innovation Imperative, NOAA should receive at least a 4 percent annual funding increase to maintain strong and competitive science and innovation. Robust and predictable science funding is critical for our Nation to remain a world leader in atmospheric and oceanic science, research, and technology.

From the heartland to the coasts, NOAA provides services that millions of Americans rely on every day. More than half of all Americans live along our coasts, one out of every 45 jobs are in ocean-dependent industries, and the insured value of coastal property now exceeds \$13 trillion. These jobs, properties, and communities rely on NOAA data to maintain a healthy coast.

Moreover, one third of the U.S. economy—or about \$3 trillion—is sensitive to weather and climate, and the Department of Commerce estimates the annual value of daily weather forecasts at \$31.5 billion. When planning for drought, flood, tornadoes, blizzards, hurricanes, and beyond, NOAA is responsible for improving accuracy, monitoring, and warning time to save lives and money.

NOAA is the United States' oldest scientific agency, and its mission is rooted in a history of science, service, and stewardship. From the depths of the ocean to the reaches of space, NOAA supports our nation's economy, security, public health, and innovation. The following items are just a few examples of the countless benefits NOAA provides to the Nation and its citizens.

TIMELY AND ACCURATE NATIONAL WEATHER SERVICE FORECASTS AND WARNINGS

Weather, water, and climate events are responsible for an average of approximately 650 deaths, \$15 billion in damage, and 90 percent of presidentially-declared disasters each year. Additionally, the U.S. GDP fluctuates 3–6 percent each year due to weather variability, which means that millions of people, businesses, and communities rely on National Weather Service (NWS) products every day. Sufficient funding for NWS will support building a “Weather Ready Nation” and the National Water Center, which help to build community resilience in the face of growing vulnerability to extreme weather events by increasing warning times, improving forecast communication, and providing decision support to emergency managers.

More specifically, strong support for NOAA will allow the agency to continue developing the next generation of flooding and drought forecasts. Continued funding is also required for NOAA to maintain its NEXRAD Weather Radars and Automated Surface Observing Systems, which are essential for critical tornado and severe weather warnings and in avoiding data gaps. Finally, strong funding for NOAA will be necessary to implement the *Weather Research and Forecast Innovation Act of 2017* and to carry out the initiatives, goals, and policies outlined in the law.

ENVIRONMENTAL DATA TO REDUCE RISK

NOAA provides the essential data and information that people need to understand and prepare for climate variability and change. Long-term environmental data is essential to reducing risks and liabilities for our Nation’s households, industries, and ecosystems. Drought forecasts alone are worth up to \$8 billion per year to the farming, transportation, tourism, and energy sectors. Environmental risk also poses a national security issue. Studies have shown that a three-foot sea level rise would threaten 128 U.S. military bases, which would be forced to invest significant sums simply to remain operational.

Strong investments in NOAA are critical to support the long-term environmental monitoring and analysis that public and private stakeholders use to save time, money, and lives. Furthermore, robust funding is essential for updating NOAA’s computing capacity and will also allow the agency to expand forecast outlooks to three to four weeks, which do not currently exist.

MAINTENANCE AND SUSTAINABILITY OF HEALTHY OCEANS AND COASTS

NOAA’s work in understanding our oceans and coasts is essential to our economic, ecological, and public health. A healthy ocean has drawn almost half of all Americans to live on the coasts—and coastal counties alone contribute nearly \$7.9 trillion annually to the GDP. Sustained ocean research and observations are critical for managing harmful algal blooms, understanding how ocean acidification is already impacting shellfish and other marine industries, and responding to coastal emergencies like the Deepwater Horizon oil spill. As these types of issues continue to affect local economies, NOAA and other Federal agencies play a key role in supporting State and regional partnerships such as those underway in the Northeast and Mid-Atlantic to improve ocean management.

NOAA requires strong Federal funding to continue to ensure the existence of clean beaches, healthy oceans, and sustainable coastal communities. With consistent support, NOAA can close critical gaps in ocean science to spur economic growth and support informed public and private sector decisionmaking that is essential to our economy and environment. For example, establishment and funding of programs like the National Ocean and Coastal Security Fund present an important opportunity build on past efforts in enhancing regional resilience to ocean challenges.

INFORMED AND PRODUCTIVE FISHERY MANAGEMENT

Fishery stock assessments and data collection are essential for providing managers the information they need to sustain fishing opportunities while preventing overfishing. NOAA has rebuilt 41 stocks since 2000, resulting in overfishing numbers dropping to an all-time low in 2014. Rebuilding all overfished stocks and harvesting them at their maximum sustainable yields will generate \$31 billion in sales impacts and support 500,000 jobs.

Investment in NOAA is vital to the implementation of catch limits that maintain productive fisheries, secure fishing opportunities, and support the economic vitality of coastal communities. Strong funding will allow the agency to combat global and domestic illegal, unreported, unregulated fishing; monitor endangered marine species; and provide crucial disaster assistance to fisheries.

INNOVATIVE AND CUTTING-EDGE GEOSTATIONARY AND POLAR SATELLITE SYSTEMS

All levels of government, public, industry, and military rely on NOAA satellites for weather forecasting, storm tracking, and long-term Earth observations that protect lives and infrastructure. Strong support for the agency will allow NOAA to maintain current launch and development schedules of the GOES-R Satellite Series, JPSS, and Polar Follow On to ensure continuity of data and the ability to forecast 3–5 days out.

Robust funding for NOAA also translates into the continuation of exploring the potential of commercial data use in NOAA's modeling and forecasting, completing the development of COSMIC-2A ground stations, and enhancing NOAA's capabilities in space weather forecasting and imaging as DSCOVR reaches the end of its projected mission life in 2022. Stable funding is essential for efficient data retrieval, for minimizing total cost to taxpayers, and for ensuring that launch dates are not delayed, which would leave millions of Americans without detailed severe weather information they rely on every day.

WORLD CLASS RESEARCH AND DEVELOPMENT

NOAA research has led to new technologies and scientific advances that have increased our understanding of the planet and improved our lives. NOAA research also engages students—the next generation's scientists—from around the country, helping to expand the agency's capacity and prepare for the future. Continuing this cutting-edge work, will require a vibrant extramural research, observing, outreach, and education component as well as the comprehensive modernization of all of NOAA's observation and monitoring operational systems, including its oceanographic fleet of vessels, fleet of aircraft, suite of in-situ ocean and coastal sensors, and remote capabilities.

Without adequate investment, for example, the NOAA fleet will decline by 50 percent, with half of its vessels set to retire in the next 10–12 years. In addition, strong funding for NOAA will allow the agency to more efficiently transition the most promising research into operations, applications, and commercialization, as well as expand regional research to help manage climate risks and support climate assessment efforts.

Friends of NOAA urges Congress to support a robust budget for NOAA. Our weather, climate, and ocean systems don't work independently of one another, and our understanding of these systems can't either. From satellites and weather operations, to fisheries and coastal management, every facet of NOAA serves a purpose essential to the Nation. Therefore, we strongly encourage you to continue to support NOAA, and continue to recognize the agency's role in our economy, national security, and environmental resiliency by funding NOAA at \$6.2 billion in fiscal year 2019.

Thank you for your consideration of this request.

Sincerely,

THE FRIENDS OF NOAA COALITION

[This statement was submitted by Carissa Bunge, Senior Specialist.]

PREPARED STATEMENT OF THE GEOLOGICAL SOCIETY OF AMERICA

SUMMARY

The Geological Society of America (GSA) supports strong and sustained investments in geoscience research and education at the National Science Foundation (NSF) and National Aeronautics and Space Administration (NASA). We thank Congress for the investments made in fiscal year 2018 and encourage a path of sustainable growth forward. We encourage Congress to appropriate \$8.45 billion for NSF in fiscal year 2019 and fully support geoscience research at the agency without restriction. We request \$6.5 billion in fiscal year 2019 to fund NASA's Science Mission Directorate with increased funding for the Earth Science and Planetary Science Divisions. Investment in NSF and NASA is necessary to secure America's future economic leadership, both through the discoveries made and the talent developed through their programs. Earth and space science at these two agencies plays a vital role in American prosperity and security through understanding and documenting mineral and energy resources that underpin economic growth; researching and monitoring potential natural hazards that threaten U.S. and international security; and determining and assessing water quality and availability.

The Geological Society of America (GSA) is a global professional society with a growing membership of more than 26,000 individuals in 115 countries. GSA provides access to elements that are essential to the professional growth of earth scientists at all levels of expertise and from all sectors: academic, government, business, and industry. The Society unites thousands of earth scientists from every corner of the globe in a common purpose to study the mysteries of our planet (and beyond) and share scientific findings.

NATIONAL SCIENCE FOUNDATION

The Geological Society of America (GSA) appreciates the increase to the National Science Foundation (NSF) budget in the fiscal year 2018 omnibus and thanks the Committee for recognizing the important role that the agency plays in our country's global competitiveness. We urge Congress to provide NSF at least \$8.45 billion in fiscal year 2019.

Sustained increases beyond inflation are necessary to regain America's science and technology leadership and to enable the discoveries that lead to future innovations and industries. According to the *2018 Science and Engineering Indicators Report*, the U.S. investment in R&D of \$497 billion was closely followed by China at \$409 billion. If current trends continue, the National Science Board expects China to surpass the U.S. in R&D investments by the end of this year. Increases in funding will allow NSF to continue to fund its core basic research in addition to growing investments in its Ten Big Ideas. These ideas are designed to identify areas of future investment and position the U.S. on the cutting edge of global science and engineering leadership.

Geoscience research is a critical component of the overall science and technology enterprise and should be funded without restriction. NSF's Directorate for Geosciences is the largest Federal supporter of basic geoscience research at universities. NSF's programs in geoscience research and graduate and undergraduate student support contribute significantly to the education and training of the workforce. A recent report by the American Geosciences Institute, *Status of Recent Geoscience Graduates 2017*, illustrates the diversity of careers supported by geoscience research. For example, the report found that the majority of master's degree graduates found jobs in the oil and gas industry and government, while environmental services, such as environmental consulting and remediation of water and soil, hired the highest percentage of bachelor's degree graduates. Other industries hiring geoscientists include manufacturing, trade, construction, information technology services, mining, and agriculture.

Increased investments in NSF's geoscience portfolio are necessary to address such issues as natural hazards, energy and minerals, water resources, and education; geoscience is a key contributor to groundbreaking research across disciplines at NSF. Specific needs include:

—On December 20, 2017, President Trump signed an executive order entitled *A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals*, that finds,

“The United States is heavily reliant on imports of certain mineral commodities that are vital to the Nation's security and economic prosperity. This dependency of the United States on foreign sources creates a strategic vulnerability for both its economy and military to adverse foreign government action, natural disaster, and other events that can disrupt supply of these key minerals.”

NSF's Division of Earth Sciences supports research on the structure, composition, and evolution of the Earth and the processes that govern the formation and behavior of the Earth's materials. This research contributes to a better understanding of the natural distribution of mineral and energy resources.

—The quality and quantity of surface water and groundwater have a direct impact on the wellbeing of societies and ecosystems, as evidenced by flooding and drought impacts experienced across the U.S. during the past year. NSF's research addresses major gaps in our understanding of water availability, quality, and dynamics, including the impact of both a changing climate and human activity on the water system.

—The Division of Atmospheric and Geospace Sciences provides critical infrastructure and research funding for understanding our planet, including weather and precipitation variability and atmospheric and space weather hazards. Earth and space observations provide data necessary to predict severe space weather events, which affect the electric power grid, satellite communications and information, and space-based position, navigation, and timing systems.

- The National Research Council report *Sea Change: 2015–2025 Decadal Survey of Ocean Sciences* highlights research questions to guide NSF investment. The report identifies questions that will help make informed decisions, including: How can risk be better characterized and the ability to forecast geohazards like megaequakes, tsunamis, undersea landslides, and volcanic eruptions be improved? What are the rates, mechanisms, impacts, and geographic variability of sea level change? How different will marine food webs be at mid-century? In the next 100 years?
- Natural hazards—including earthquakes, tsunamis, volcanic eruptions, wildfires, and landslides—are a major cause of fatalities and economic losses. Recent natural disasters provide unmistakable evidence that the United States remains vulnerable to staggering losses. An improved scientific understanding of geologic hazards will reduce future losses by informing effective planning and mitigation. We urge Congress to support NSF investments in fundamental Earth science research and facilities that underpin innovations in natural hazards monitoring and warning systems.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

GSA requests request \$6.5 billion to fund NASA’s Science Mission Directorate (SMD) and increased funding for the Earth Science and Planetary Science Divisions. Increased funding will be critical to implement the recommendations of the National Academy of Sciences’ *Earth Science and Applications from Space (ESAS) Decadal Survey* report released earlier this year. The report notes,

“Earth science and applications are a key part of the nation’s information infrastructure, warranting a U.S. program of Earth observations from space that is robust, resilient, and appropriately balanced.”

The data and observations from Earth observing missions and research are a tremendously important resource for natural resource exploration and land use planning, as well as assessing water resources, natural disaster impacts, and global agriculture production. GSA supports interagency efforts to ensure the future viability of Landsat satellites as well as funding to increase the capabilities and uses of multi-spacecraft constellations of small scientific satellites.

We appreciate congressional support in fiscal year 2018 for Earth Science Missions, and request that Congress continue their funding in fiscal year 2019. These missions will advance science frontiers and provide critical data for society. For example, PACE will help us monitor the duration and impact of harmful algae blooms and CLARREO Pathfinder will enable industry and military decision-makers to more accurately assess natural hazards, such as flooding.

Planetary research is directly linked to Earth science research and cuts in either program will hinder the other. To support missions to better understand the workings of the entire solar system, planetary scientists engage in both terrestrial field studies and Earth observation to examine geologic features and processes that are common on other planets, such as impact structures, volcanic constructs, tectonic structures, and glacial and fluvial deposits and landforms. In addition, geochemical planetary research studies include investigations of extraterrestrial materials now on Earth, including lunar samples, meteorites, cosmic dust particles, and, most recently, particles returned from comets and asteroids. We appreciate past congressional support for this area and urge you to continue to increase this important area to support priority areas identified in the *Planetary Science Decadal Survey*.

SUPPORT NEEDED TO EDUCATE FUTURE INNOVATIONS AND INNOVATORS

Earth science research and education are fundamental to training the next generation of Earth science professionals. *Status of the Geoscience Workforce Report 2016* found an expected deficit of approximately 90,000 geoscientists by 2024.

Increased NSF and NASA investments in Earth science education are necessary to meet these workforce needs and develop an informed, science-literate electorate. Earth scientists will be essential to meeting the environmental and resource challenges of the twenty-first century. NSF’s Education and Human Resources Directorate researches and improves the way we teach science and provides research and fellowship opportunities for students to encourage them to continue in the sciences. Similarly, NASA’s educational programs have inspired and led many into science careers. GSA fully supports these efforts, as well as programs to make the geoscience workforce more diverse.

Please contact GSA Director for Geoscience Policy Kasey White at kwhite@geosociety.org for additional information or to learn more about the Geological Society of America—including GSA Position Statements on water resources,

planetary research, energy and mineral resources, natural hazards, climate change, and public investment in Earth science research.

[This statement was submitted by Kasey White, Director for Geoscience Policy.]

PREPARED STATEMENT OF THE GREAT LAKES INDIAN FISH AND WILDLIFE
COMMISSION (GLIFWC)

AGENCY INVOLVED: Department of Justice

PROGRAM INVOLVED: COPS Tribal Resources Grant Program (TRGP) Hiring and Equipment/Training Program under the Coordinated Tribal Assistance Solicitation (CTAS)

SUMMARY OF GLIFWC'S FISCAL YEAR 2019 TESTIMONY: GLIFWC supports sustained funding for the TRGP at no less than the fiscal year 2018 enacted funding level. This program has enabled GLIFWC to solidify its communications, training, and equipment requirements, essential to ensuring the safety of GLIFWC officers and their role in the proper functioning of interjurisdictional emergency mutual assistance networks in the treaty ceded territories.



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, restoring and protecting ceded territory natural resources and their habitats.

For over 34 years, Congress and various Administrations have funded GLIFWC through the BIA, the 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 and Education Assistance Act, the Clean Water Act, and other legislation; and (d) various court decisions, including a

1999 U.S. Supreme Court case, that affirmed the treaty rights of GLIFWC's member Tribes. 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 of that program is that effective detection and deterrence of illegal activities, as well as education of the regulated constituents, are best accomplished if the officers work within the Tribal communities they primarily serve. The officers are based in reservation communities 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. To help develop mutual trust between GLIFWC officers and Tribal communities, officers provide outdoor skills workshops and safety classes (hunter, boater, snowmobile, ATV) to over 1,100 Tribal youth in grades 4–8 annually. GLIFWC's officers also actively participate in summer and winter youth outdoor activity camps, kids fishing events, workshops on canoe safety and rice stick carving, and seminars on trapping and archery/bow safety.

GLIFWC's member Tribes realize it is critical to build relationships between Tribal youth and law enforcement officers as a means of combatting gang recruitment and drug/alcohol abuse in reservation communities. GLIFWC is continuing to take a pro-active approach to support these efforts by obtaining fiscal year 2013 DOJ funding to hire a Youth Outreach Officer. This Officer is working to improve and expand youth outdoor recreation activities in partnership with other GLIFWC officers. The program's goal is to build and expand these relationships to help prevent violations of Tribal off-reservation codes, improve public safety and promote an outdoor lifestyle as an alternative to a lifestyle characterized by youth gangs¹ and substance abuse.² The availability of the Youth Outreach Officer has enabled GLIFWC, in partnership with the U.S. Forest Service, to grow participation in Camp Onji-Akiing (From the Earth). The camp began with just 9 Tribal students in grades 5–8 and by 2017 expanded to 55 Tribal students in grades 5–8, 8 Tribal Junior Counselors (i.e. high school students) and 1 Tribal Junior Director (i.e. high school graduate enrolled in college).

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 authorities from other jurisdictions 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 interjurisdictional legal training that is 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, and to 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. In fact, the role of GLIFWC's officers in these networks was further legitimized in 2007 by the passage of Wisconsin Act 27, which affords GLIFWC wardens the same statutory safeguards and protections that are afforded to their DNR counterparts. GLIFWC wardens now have access to the criminal history database and other information to identify whom they are encountering in the field so that they can determine whether they are about to face a fugitive or some other dangerous individual.

¹The American Indian and Alaska Native (AI/AN) youth population is more affected by gang involvement than any other racial population. 15 percent of AI/AN youth are involved with gangs compared to 8 percent of Latino youth and 6 percent of African American youth nationally. (National Council on Crime and Delinquency: Glesmann, C., Krisberg, B.A., & Marchionna, S., 2009).

²22.9 percent of American Indian and Alaska Native (AI/AN) youth aged 12 and older report alcohol use, 18.4 percent report binge drinking and 16.0 percent report substance dependence or abuse. In the same group, 35.8 percent report tobacco use and 12.5 percent report illicit drug use. (2010 National Survey on Drug Use and Health: Summary of National Findings).

GLIFWC's participation in mutual assistance networks located throughout a 60,000 square mile region increases public safety in an effective and cost efficient manner. In 2017, GLIFWC officers utilized prior DOJ funded training and equipment to respond to:

- 16 incidents where GLIFWC officers responded to emergency backup requests from other law enforcement agencies including: (1) a barricaded suspect who had shot an officer and three civilians (Marathon County Sheriff's Department, Wisconsin); (2) a shots fired incident (Michigan State Police, Bruce's Crossing, Michigan); (3) an officer involved shooting (City of Ashland, Wisconsin); (4) a tactical response to a suicidal suspect with a knife threatening people at a residence (Rhineland, Wisconsin); (5) location of wanted suspect (Ashland County Sheriff's Department, Wisconsin); (6) an officer involved shooting (Ashland County, Wisconsin);
- 12 accidents including two on I-75 in Michigan within 2 hours of each other;
- 5 search and rescue operations including a fishermen stranded on shore after their boat had taken on water (Willow Flowage, Wisconsin) and a lost boater encountering rough water (Lake Gogebic, Michigan);
- 2 medical calls including with one requiring CPR and an AED to resuscitate a male until an ambulance arrived and transportation of a child with a severe allergic reaction from the Ottawa National Forest to paramedics for ambulance transport to a hospital; and
- 1 interagency body recovery operation involving two deceased fishermen (Flambeau Flowage, Wisconsin).

Increased Versatility and Improving Public Safety: In addition to supporting GLIFWC participation in mutual assistance networks, DOJ training and equipment proved critical in building partnerships to improve public safety on Lake Superior and addressing a recent flood.

Lake Superior Ghost Net Removal and Search and Rescue: Ghost nets are commercial fishing nets that have been damaged due to Lake Superior's strong storms or vandalism and have sunk to the bottom of a lake. These lost gill nets can pose navigation hazards and damage equipment. In 2015, GLIFWC utilized DOJ Tribal COPS funding to purchase equipment to address this public safety concern and in 2016 removed around 8,000 feet of ghost nets from Lake Superior and in 2017 GLIFWC removed around 8,700 feet of ghost nets. GLIFWC also formed a partnership with Wisconsin Sea Grant and the Apostle Islands Sport Fishermen's Association, and obtained funding from the Marine Debris Program to sponsor a series of public workshops to educate commercial and Tribal anglers on best net-management practices, build community relationships and further expand GLIFWC's Community Policing outreach efforts. In addition, GLIFWC's DOJ funded airboat was used in 2017 to search and locate lost kayakers in the Apostle Island National Park, (Wisconsin) and provide emergency response and safety support for the *Book Across the Bay* 10 kilometer cross-country ski race (Ashland, Wisconsin). GLIFWC officers also used their DOJ funded training to assist the U.S. Coast Guard in recovering a boat that had become stranded on pilings in Chequamegon Bay.

Bad River Flood: Thunderstorms over four days in July of 2016 resulted in flood waters breaking records with a rise of 27.28 feet. The flooding caused the destruction of roads, bridges, community facilities, trails and recreation areas. More than 46 homes within reservation boundaries were affected by flooding and ten were totally destroyed. The flooding cut off the reservation from regular routes to food, water, and medical supplies. An Incident Command Center was set up by a GLIFWC Officer and supported by additional GLIFWC law enforcement staff to address public safety needs as they arose including establishing road blocks, emergency transport, communications, and search and rescue activities. DOJ funded equipment (i.e. a Command trailer, communications systems, boats, ATVs, first aid kits, etc.) and training expanded GLIFWC's capacity to respond to this emergency.

LOOKING TO THE FUTURE: In 2017, a GLIFWC officer, performing a routine investigation during a deer shining incident, discovered a case that the suspect had dropped out of their vehicle. The case contained a medical rubber band, syringes, and a substance in a plastic bag. The officer turned the paraphernalia over to county deputies who were on scene and the suspect was placed under arrest.

Unfortunately, member Tribes have not escaped the opioid and methamphetamine crisis gripping much of the United States. Wisconsin has experienced a 335 percent growth in neonatal abstinence syndrome (NAS) from 2006 to 2014 from 2.0 to 8.7

per 1,000 live births³ and counties with reservation communities have the highest per capita NAS rates in the State. In 2017, GLIFWC officers participated in training with Wisconsin Native American Drug and Gang Initiative (NADGI) Task Force and BIA funded Tribal Justice Support Division VAWA/Opioid training in an effort to stay current on developing issues. fiscal year 2019 DOJ funding will be needed to assist officers in the identification of opioid users, safely searching suspects (i.e. given increased needle use), and how to effectively administer Naloxone in reservation communities.

[This statement was submitted by Michael J. Isham Jr., Executive Administrator.]

PREPARED STATEMENT OF JAMES H.W. HAIN, ASSOCIATED SCIENTISTS AT WOODS HOLE

By way of introduction, I am a career scientist in Woods Hole, Massachusetts, and the editor of *Right Whale News*.

My input is restricted to the appropriations and planning for recovery and conservation of the endangered North Atlantic right whale, *Eubalaena glacialis*, a species for which NOAA/NMFS has responsibility.

This item appears in the budget as National Marine Fisheries Service; Operations, Research, and Facilities; Protected Resources Science and Management; and Marine Mammals, Sea Turtles and Other Species.

I request that North Atlantic Right Whales be explicitly mentioned in the document language. Similar to what now exists for Prescott Grants.

For nearly two decades, the species appeared to be recovering at a slow but acceptable rate (2½ percent). Beginning about 2011, this changed. Currently there is concern among scientists and managers about an apparent population decline, a shift in habitats, and a reduced calf production.

There is a need for quality science and management to recover and conserve the species for this and future generations. At the same time, there are limited resources.

Based on past years, the resources include about \$8 million in congressionally appropriated funds.

At issue is the use of those funds.

A theme to my comments is that in recent years there has been a “drift” in the actions of the NMFS. Discussions, decisions, funding priorities, and funding have been increasingly internal to the agency. (There is the perception of “self-interest.”) The non-government right whale community, where a great deal of the history and expertise is located, is shunted to the side and marginalized. This is unhealthy for the tasks at hand.

Of the congressionally appropriated right whale funds, at several levels, the agency “taxes” the funds for miscellaneous administrative costs, etc. With funds in short supply, funds are diverted from the task at hand and necessary research does not occur.

I wish to offer several recommendations for consideration:

- The guiding principles of transparency, accountability, and stakeholder involvement should be vigorously re-visited, and placed at the forefront of any actions going forward. This would include an open accounting of how right whale monies are/will be spent (see for example the report in the October 2012 *Right Whale News*, attached).
- The non-government right whale community (stakeholders) should be included in the budget and planning discussions.
- The budget language should include the re-instatement of the Right Whale Competitive Grants Program (discontinued several years ago). This would provide for greater inclusion of non-government researchers and projects, including innovative methodologies, citizen science programs, and use of resources with attractive cost-benefit ratios. This should be a robust program component and on the order of \$1.5M in size.
- The budget language should include provision for external, inclusive, independent review of recovery plans, the research permit process, implementation teams, and monitoring plans. The agency operates to a different standard than the rest of the right whale community. Our proposals and work are scrutinized

³When opioids or other substances are used during pregnancy, the infant may be born with withdrawal from substances taken by the mother. This condition, termed neonatal abstinence syndrome (NAS), is associated with physiologic and behavioral consequences, such as low birth weight, feeding difficulties and respiratory problems. Select Opioid-Related Morbidity and Mortality, Data for Wisconsin, November 2016, WI Dep. of Health Services.

and vetted. On the other hand, the agency actions on these topics are predominantly “internal.”

As a suggestion, the language in the bill might look something like:

North Atlantic right whales.—Within funding provided for Marine Mammals, Sea Turtles, and Other Species, the agreement (1) encourages NOAA/NMFS to provide a breakout accounting for right whale funds expended in fiscal year 2018 and planned for fiscal year 2019 (example appended), (2) encourages establishment of an independent working group to provide review of recovery plans, the research permit process, implementation teams, and monitoring plans, and (3) encourages NOAA/NMFS to re-institute the Right Whale Competitive Grants Program (discontinued several years ago). This grants program would provide for greater inclusion of non-government researchers and projects, including innovative methodologies, citizen science programs, and use of resources with attractive cost-benefit ratios. This should be a robust program component and on the order of \$1.5M in size.

The NMFS has good programs, and many dedicated and capable staff. However, there is room for improvement. Under the appropriations process, the Congress should exercise its oversight role and bring improved checks-and-balances to the conservation of endangered North Atlantic right whales.

I am happy to discuss any further details. Thank you.

Attachment. An example of reporting/accounting for congressionally appropriated right whale funds. (From *Right Whale News*, October 2012)

Table 1. The NMFS/NOAA right whale spending report for fiscal year 2012 funds. Dollar amounts are expressed in thousands (i.e., the Total in row 1 is \$7,904,000).

Key: NEC=Northeast Fisheries Science Center, NER=Northeast Regional Office, SEC=Southeast Fisheries Science Center, SER=Southeast Regional Office, F/PR=Office of Protected Resources, Headquarters, and GC/CS=General Counsel.

	NEC	NER	SEC	SER	F/PR	NOAA	Total
	.....	.....	.....	.....	.....	GC/CS	
Total Received	2,505	2295	674	1,732	482	216	7,904
Disentanglement Contingency	0	30	0	10	0	0	40
Aerial surveys	236 ¹						
(non-state cooperative funded) ...	(80 ²)	0	0	166	0	0	402
NMFS salaries ³ (Full time equivalents and contracts)	1,473	1,065	254	264	303	187	3,546
Shipping Industry Liaison, Fishery Liaison, Critical Habitat Technical Support (contracts)	0	0	0	103	0	0	103
Take Reduction Team travel support and vertical line model development	0	250	0	0	0	0	250
Habitat studies	(21 ²)	0	0	0	0	0	(21 ²)
State cooperative funding (including funds for aerial surveys, habitat research, disentanglement, recovery implementation, and enforcement)	0	650	0	1,146	0	0	1,796
Vessel strike reduction	0	0	0	0	174 (75 ²)	0	174 (75 ²)
Whale detection technologies	0 (491 ²)	0	403	0	0	0	491 (512 ²)

Table 1. The NMFS/NOAA right whale spending report for fiscal year 2012 funds. Dollar amounts are expressed in thousands (i.e., the Total in row 1 is \$7,904,000).—Continued

Key: NEC=Northeast Fisheries Science Center, NER=Northeast Regional Office, SEC=Southeast Fisheries Science Center, SER=Southeast Regional Office, F/PR=Office of Protected Resources, Headquarters, and GC/CS=General Counsel.

	NEC	NER	SEC	SER	F/PR	NOAA	Total
Sightings database/Photo-ID catalog	363	.....	.....	.....	.....	.....	363
Travel and Misc. Administrative costs	433	300	17	43	5	29	827

¹ Aircraft fees and contract labor for surveys only

² Right whale funding from other sources and not paid for from NMFS right whale funds.

³ Includes salaries, benefits, awards and additional administrative cost.

PREPARED STATEMENT OF THE HUMAN FACTORS AND ERGONOMICS SOCIETY

On behalf of the Human Factors and Ergonomics Society (HFES), we are pleased to provide this written testimony to the Senate Appropriations Subcommittee on Commerce, Justice, and Science, and Related Agencies for the official record. HFES urges the subcommittee to provide \$8.45 billion for the National Science Foundation (NSF) and \$21.7 billion for the National Aeronautics and Space Administration (NASA) in the fiscal year 2018 appropriations process.

HFES and its members believe strongly that investment in scientific research serves as an important driver for innovation and the economy, national security, and for maintaining American global competitiveness. We thank the subcommittee for its longtime recognition of the value of scientific and engineering research and its contribution to innovation in the United States.

THE VALUE OF HUMAN FACTORS AND ERGONOMICS SCIENCE

HFES is a multidisciplinary professional association with over 4,500 individual members worldwide, comprised of scientists and practitioners, all with a common interest in enhancing the performance, effectiveness and safety of systems with which humans interact through the design of those systems' user interfaces to optimally fit humans' physical and cognitive capabilities.

For over 50 years, the U.S. Federal Government has funded scientists and engineers to explore and better understand the relationship between humans, technology, and the environment. Originally stemming from urgent needs to improve the performance of humans using complex systems such as aircraft during World War II, the field of human factors and ergonomics (HF/E) works to develop safe, effective, and practical human use of technology. HF/E does this by developing scientific approaches for understanding this complex interface, also known as "human-systems integration." Today, HF/E is applied to fields as diverse as transportation, architecture, environmental design, consumer products, electronics and computers, energy systems, medical devices, manufacturing, office automation, organizational design and management, aging, farming, health, sports and recreation, oil field operations, mining, forensics, and education.

With increasing reliance by Federal agencies and the private sector on technology-aided decisionmaking, HF/E is vital to effectively achieving our national objectives. While a large proportion of HF/E research exists at the intersection of science and practice—that is, HF/E is often viewed more at the "applied" end of the science continuum—the field also contributes to advancing "fundamental" scientific understanding of the interface between human decisionmaking, engineering, design, technology, and the world around us through research funded by NSF. The reach of HF/E is profound, touching nearly all aspects of human life from the healthcare sector, to the ways we travel, to the hand-held devices we use every day.

HUMAN FACTORS AND ERGONOMICS AT THE NATIONAL SCIENCE FOUNDATION

HFES and its members believe strongly that Federal investment in NSF will have a direct and positive impact on the U.S. economy, national security, and the health and well-being of Americans. It is for these reasons that HFES supports robust funding for the Foundation to encourage further advancements in the fields of technology, education, defense, and healthcare, among others. HFES also supports the

Foundation's dedication to its "10 Big Ideas,"¹ including *Future of Work at the Human-Technology Frontier (FW-HTF)*, which seeks to address and improve human-technology interactions as workplaces integrate and adapt to artificial intelligence, automation, machine learning, and beyond. In the past, NSF funding for HF/E basic research has strengthened interdisciplinary partnerships allowing for a multilateral approach to technology research and development, including the human and user perspectives. The benefits of this research are not confined to one field but rather span across a range of disciplines to increase understanding of the way humans interact with technology, as well as with each other.

In particular, NSF funds HF/E research to:

- Better understand and improve the effectiveness of how individuals, groups, organizations, and society make decisions.²
- Improve understanding of the relationship between science and engineering, technology, and society, in order to advance the adoption and use of technology.³
- Gain a better understanding of how humans and computers interact to ensure the development of new devices or environments that empower the user.⁴
- Inform decisionmaking in engineering design, control, and optimization to improve individual engineering components and entire systems.⁵

HUMAN FACTORS AND ERGONOMICS AT THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

HF/E is a critical enabler of NASA science, aeronautics, and human spaceflight missions. Through the Human Research Program,⁶ NASA and external HF/E practitioners conduct research on the design and procedures that influence most, if not all, aspects of astronaut and mission control performance. This crucial role is necessary for the Agency to ensure safety and efficiency in complex systems with narrow risk parameters.

The practical applications of HF/E will only become more pronounced as NASA looks to expand the horizon of human exploration. With the United States planning to send humans beyond Earth orbit, unique challenges will arise that necessitate an increased reliance on HF/E research. Long duration missions with the potential for delayed Earth communications will require systems and procedures designed to guarantee safe operation of autonomous systems. This and other issues were highlighted in the *National Aeronautics and Space Administration Transition Authorization Act of 2017*,⁷ wherein Congress required NASA to take into consideration HF/E research outcomes in the mandated *Human Exploration Roadmap*.

CONCLUSION

Given NSF's critical role in supporting fundamental research and education across science and engineering disciplines, HFES supports an overall fiscal year 2019 NSF budget of \$8.45 billion and a NASA budget of \$21.7 billion. This investment funds important research studies, enabling an evidence-base, methodology, and measurements for improving organizational function, performance, and design across sectors and disciplines.

On behalf of HFES, we would like to thank you for the opportunity to provide this testimony. Please do not hesitate to contact us should you have any questions about HFES or HF/E research. HFES truly appreciates the subcommittee's long history of support for scientific research and innovation.

[This statement was submitted by Valerie Rice, President, and Julie Freeman, Interim Executive Director.]

¹National Science Foundation-proposed "10 Big Ideas" (https://www.nsf.gov/about/congress/reports/nsf_big_ideas.pdf?dm_i=1ZJN,4FGWL,E2900Q,GB891,1).

²Decision, Risk & Management Sciences (DRMS) Program (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5423).

³Science, Technology, and Society (STS) Program (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5324&org=SES&from=home).

⁴Human Centered Computing (HCC) Program (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503302&org=IIS&from=home).

⁵Systems Engineering and Design Cluster (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13473&org=CMMI&from=home).

⁶NASA Human Research Program (<https://www.nasa.gov/hrp>)

⁷National Aeronautics and Space Administration Transition Authorization Act of 2017, Sec. 432(b)(3)(J) (<https://www.congress.gov/115/bills/s442/BILLS-115s442enr.pdf>).

PREPARED STATEMENT OF THE INSTITUTE OF MAKERS OF EXPLOSIVES

INTEREST OF THE IME

The Institute of Makers of Explosives (IME) is a nonprofit association founded over a century ago to provide accurate information and comprehensive recommendations concerning the safety and security of commercial explosive materials. Our mission is to safeguard employees, users, the public and the environment, and to encourage the adoption of uniform safety and security rules and regulations in the manufacture, transportation, storage, handling, use and disposal of the explosive materials used in blasting, oil and gas extraction, and other essential operations. IME represents U.S. manufacturers, distributors and transporters of commercial explosive materials and oxidizers as well as other companies that provide related services. The majority of IME members are "small businesses" as determined by the U.S. Small Business Administration.

Millions of metric tons of high explosives, blasting agents, and oxidizers are consumed annually in the United States. These materials are essential to the U.S. economy. Energy production, construction, mining, quarrying, demolition, and other specialized applications begin with the use of commercial explosives. IME member companies and their affiliates produce nearly all of the explosives used in these industries. Commercial explosives are used in every State and are distributed worldwide. The ability to manufacture, distribute, and use these products safely and securely is critical to our industry.

Commercial explosives are pervasively regulated by a myriad of Federal and State agencies. The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) plays a predominant role in ensuring that explosives are manufactured, identified, tracked, and stored in a safe and secure manner and received only by authorized persons. IME shares ATF's focus on safety and security, and it is from that perspective that we offer the following comments.

IMESA FR AND REGULATION MODERNIZATION

Current ATF explosive storage regulations as well as U.S. Coast Guard permitting factors for explosives cargoes are not based on modern explosives, modern storage and cargo systems, current science, and the operational practices that have evolved over the past century. Instead they are based on outdated quantity distance tables, and specifically, ATF applies the American Table of Distances (ATD) which was developed by IME from a review of accidents at the turn of the nineteenth century. The ATD does not minimize risks to the public, it simply sets a distance where the public survived accidents in the late 19th century. While it has served the Nation well, in today's environment, explosives are less sensitive and land, necessary to meet the over-conservative standards of the ATD, is more scarce. Therefore, the United States should use available technology and develop a quantitative risk methodology that is grounded in research and testing which can minimize the risk to the public, remove unrealistic conservatism, and establish a consistent methodology for industry and government.

Recognizing the opportunity, IME spent over a decade developing a scientifically-based computer model for assessing the risk from a variety of commercial explosives activities called the Institute of Makers of Explosives Safety Analysis for Risk (IMESA FR).¹ This quantitative risk assessment program allows establishment of a tolerable risk standard that will provide a definitive level of risk that industry and other Federal entities will be able to understand and be able to use as a bright-line when developing projects. In plain language, IMESA FR will help minimize risk to employees and the public in today's environment.

IME is committed to ensuring that regulators and users of IMESA FR have the highest level of confidence that the program is designed to the necessary specifications and performs as such. To this end, the National Center for Explosives Training and Research (NCETR) has partnered with IME on efforts to further validate IMESA FR data and ensure transparency of the scientific process by participating in testing and supporting an independent IMESA FR Science Panel. With a goal of transparency for governments, the IMESA FR Science Panel is composed of rep-

¹ IMESA FR was built on the Department of Defense Explosives Safety Board's software model, SAFER. The DDESB currently uses SAFER and table-of-distances methods to approve or disapprove Department of Defense explosives activities. Not only can IMESA FR determine the amount of risk presented, but it can also determine what factors drive the overall risk and what actions would lower risk, if necessary. The probability of events for the activities were based on the last 20 years of experience in the U.S. and Canada and can be adjusted to account for different explosive sensitivities, additional security threats, and other factors that increase or decrease the base value.

representatives from ATF, Department of Homeland Security, the Canadian Explosives Research Laboratory, academia, consultants, and industry. The IMESAFR Science Panel has the ability to “look under the hood” of the program so regulators can be confident that the science is accurate and validated by testing and studies.

As we reported last year, ATF approved the first variance from the American Table of Distances (ATD) based on risk assessment using IMESAFR in 2015. Since that time the Bureau is becoming more confident with the program and have issued a half dozen more variances. Similarly, the U.S. Coast Guard has policies that allow use of quantitative risk assessment at ports and have issued at least one waiver based on IMESAFR.

For the reasons stated above, IME urges the subcommittee to provide additional resources to ATF to allow them to conduct further validation and testing in order to develop or reaffirm policies that allow the use of such models to meet regulatory mandates. Additional resources are required to produce the testing, data collection, analysis, review, and regulatory framework necessary to validate the program to ensure wide acceptance and confidence. ATF would then have the capability to test and evaluate energetic materials, explosives, and storage systems and develop new technologies. Ultimately, this capability would serve to reduce risk to the public while reducing regulatory burden and increasing industry investment in U.S. production and explosives export—all of which will benefit the Nation.

ATF’S EXPLOSIVES REGULATORY PROGRAM

IME understands the difficult decisions that ATF and the Federal Government face when allocating scarce resources. We also understand the other important work and responsibilities that ATF is assigned. Nevertheless, the members of IME, their employees and customers rely on a properly funded and staffed regulatory program. The success of ATF’s explosives programs in preventing the misappropriation of commercial explosives should not be seen as an opportunity to reallocate funding, but, rather, as confirmation that a base level of funding is necessary for ATF to fulfill its mission. ATF must retain a cadre of trained personnel to perform these vital services. The commerce of explosives is so closely regulated that failure to provide adequate personnel and resources can be detrimental to our industry, our customers, our employees, and the industrial sector of the U.S. economy.

ATF is the primary Federal law enforcement agency that regulates the explosives industry—licensing and permitting businesses and individuals to engage in manufacturing, importing, or dealing in explosives, or receiving or transporting explosives materials.² By law, ATF must inspect an estimated 10,000 explosives licensees and permittees at least once every 3 years. ATF’s workload also involves ensuring the completion of background checks for employee possessors of explosives and responsible persons.

We would be remiss, however, if we did not take this opportunity to implore ATF to recognize its regulatory responsibility to “answer the mail” and provide timely responses to requests for variances, classifications, determinations and policy interpretations which are vital to the safety and security of the industry. Due to the Bureau’s role as the primary regulator of explosives in the United States, IME further requests that ATF continue to participate in relevant industry and government forums that impact the industry, including both relevant U.S. and international conferences and meetings. For example, IME is disappointed ATF chose not to participate in the International Group of Experts on the Explosion Risks of Unstable Substances (IGUS), subcommittee on Explosives, Propellants and Pyrotechnics (EPP) meeting that occurred this month because they deemed it not mission critical despite the lengthy agenda of commercial explosives regulatory topics.

In regard to vetting, IME has previously recommended that ATF harmonize its vetting and clearance procedures with those used by other Federal programs. Doing so would allow ATF’s vetting program to be reciprocally recognized by these programs and save time and resources of the agency and the individuals being vetted. In 2015, the Department of Homeland Security moved to accept ATF’s vetting program, but that was due to congressional action, not necessarily DHS confidence with the vetting process. Nevertheless, since concerns remain we encourage the Committee to require ATF to determine what resources or changes in procedure it would take to harmonize ATF’s vetting standards and procedures with those used by other agencies and to improve the timeliness of vetting programs.

² Fiscal year 2019 ATF Congressional Budget Submission, page 23.

ATF-INDUSTRY PARTNERSHIP

United States Bomb Data Center

The U.S. Bomb Data Center (USBDC) is responsible for collecting and storing explosives-related incident data, to include information on thousands of explosives incidents investigated by ATF and other Federal, State, and local law enforcement agencies. While this data helps government entities to share investigative leads, perform trend analysis, and compare incidents for similarities and crime methodologies, USBDC data also helps the industry in efforts to identify any potential weaknesses or reaffirm the effectiveness of safety and security practices, and to update industry standards accordingly.

As we stated in prior years, IME appreciates USBDC reinstating the issuance of the Explosives Incident Report (EIR) and including more detailed information. The data helps confirm the success of industry best practices and the effectiveness of ATF regulations. Recently, IME reviewed 20 years of available ATF EIRs, and the use of commercial explosives used in domestic criminal events has remained around or below 2 percent throughout that time period. In 2015, that number was .7 percent. In 2015, thefts of commercial explosives dipped to a historic low of 8 total reported thefts. To put this in context, in the same year, over 5 billion pounds of commercial explosives were consumed in the United States. This is clearly evidence of the success of IME safety and security best practices coupled with ATF's sound regulatory structure.

National Center for Explosives Training and Research

IME would like to commend ATF for its work at the National Center for Explosives Training and Research (NCETR), including training, testing and research, which is critically important for the safety and security of explosive materials. As stated above, IME should allocate the necessary funding to NCETR to allow them to conduct further validation and testing in order to develop or reaffirm policies that modernize ATF's regulatory program.

INDUSTRY STANDARDS

IME holds in high regard the statutory obligation that ATF take into account industry's standards of safety and security when issuing rules and requirements. We continue to fulfill this obligation through our development of industry best practices for safety and security, membership in relevant standard-setting organizations, and active participation in industry and government forums. IME is nearly finished compiling a series of recommendations that will align the regulations with the industry best practices which we believe will enhance safety and security which will be formally presented to ATF for review and incorporation into regulations. We hope that ATF will cooperate in this exercise to modernize regulations.

CONCLUSION

ATF plays a critical role in helping the explosives industry achieve and maintain a strong safety and security record. Even though explosives may be dangerous materials when in the wrong hands, the manufacture and distribution of explosives is accomplished with a remarkable degree of safety and security. The use of explosives is essential to sustain the economy, and the explosives industry and the general public are dependent on ATF. The Bureau must have adequate resources to fulfill its mission and keep the American public safe.

[This statement was submitted by John Boling, Vice President of Government Affairs.]

 PREPARED STATEMENT OF INSTITUTES IN SUPPORT OF THE NATIONAL SCIENCE
 FOUNDATION AND ITS INVESTMENT

The institutions listed at the end of this statement are pleased to submit to the subcommittee this statement in which we collectively argue that the investment in research and education made via the National Science Foundation (NSF) is essential to the long-term security of the Nation. In particular the support provided by NSF for geoscience research, infrastructure, and education is vital if our Nation is to address critical security issues related to national defense, economic competitiveness, and public health and safety. The entities lending their name to this statement recommend that the Congress provide NSF with an appropriation of \$8.45 billion for fiscal year 2019. This is consistent with recommendations contained in the Dear Colleague Letters led by Rep. G.K. Butterfield and Rep. David B. McKinley in the

House and Senator Markey and others in the Senate, along with the Coalition for National Science Funding, the Association of American Universities, and the Association of Public and Land-grant Universities. Funding at this level will start to reverse the trend of the last 20 years that has left the United States on the verge of falling behind our international competitors.

Growth in the annual investment in American science by NSF is critical to support innovation, which is critical for national security, economic competitiveness, improvements in living standards, and support for public and societal well-being. Research and development (R&D) is a major driver of innovation, and R&D expenditures reflect a nation's commitment to expanding capabilities in Science & Engineering (S&E), which in turn drives innovation. On January 18, the National Science Board released the biennial *Science and Engineering Indicators 2018*. The report finds that the world's nations are continuing to accelerate the growth of their technology-intensive economies. It documents how the S&E landscape—historically concentrated in the U.S., Europe, and Japan—is rapidly shifting as China and other countries continue to increase their R&D investments. It makes clear that while the U.S. remains the global leader by many S&E measures, China has continued its rapid rise in the rankings.

Investments in research and education are essential for maintaining technological innovations and advancements that will help our society and a global population survive in a rapidly changing world. Investing in research returns economic prosperity many times over. If the U.S. is to meet the environmental and economic challenges facing this country, we must make the necessary investments in our research and education enterprise.

RESEARCH AND NATIONAL SECURITY

In response to questions for the record from the Senate Armed Services Committee in early 2017, U.S. Secretary of Defense James Mattis said, “. . . climate change is a challenge that requires a broader, whole-of-government response. If confirmed, I will ensure that the Department of Defense plays its appropriate role within such a response by addressing national security aspects.” In making that statement, Secretary Mattis joined a long list of defense, national security, and intelligence leaders that have recognized the significant and unprecedented national and homeland security risks posed by the climate issue such as sea level rise and increased storm surges, which could inundate coastal military and civilian infrastructure. Drastic changes in food, water, and energy availability also increase the likelihood of instability and state failure across the globe. The gravity of these risks has been affirmed by a number of senior defense and intelligence leaders in the current administration, in addition to Secretary of Defense Mattis. This list includes Vice Chairman of the Joint Chiefs of Staff, General Paul Selva; Secretary of the Navy, Richard Spencer; Assistant Secretary of Defense for Energy, Installations and Environment, Lucian Niemeyer; Chief of the National Guard Bureau, General Joseph Lengyel; Assistant Secretary of the Army for Civil Works, R. D. James; and Director of National Intelligence, Dan Coats. This issue was most recently addressed at the April 12, 2018 hearing before the House Appropriations Subcommittee on Military Construction and Veterans Affairs in an exchange between subcommittee Members and Assistant Secretary of Defense (Energy, Installations, and Environment) Lucian Niemeyer.

In summer 2017, the first ship to traverse the Arctic Northern Sea Route without assistance from ice-breaking vessels completed its journey. That transformational moment drives home both the opportunity and the imperative for the United States, a Nation with an important Arctic presence, to ready itself for the new Arctic. The Arctic is warming at twice the rate of the rest of the Earth with far-reaching consequences for Arctic residents. Arctic change will fundamentally alter climate, weather and ecosystems globally in ways that we do not yet understand but that will have profound impacts on the world's economy and security. Rapid loss of Arctic sea ice and other changes will also bring new access to the Arctic's natural resources such as fossil fuels, minerals, and new fisheries, and this new access is already attracting international attention from industry and nations seeking new resources. NSF proposes, via its “Big Ideas” initiative called Navigating the New Arctic (NAA), to establish an observing network of mobile and fixed platforms and tools across the Arctic to document these rapid biological, physical, chemical and social changes, leveraging participation by other Federal agencies. Current Arctic observations are sparse and inadequate for enabling discovery or simulation of the processes underlying Arctic system change or to assess their environmental and economic impacts on the broader Earth system. Among Federal agencies, NSF is unique in its ability to fund bottom-up research driven by the U.S. academic research community across

the physical, biological, social, engineering and computational sciences. Arctic research also offers greater opportunity for the next generation of Arctic researchers.

NSF has issued a Dear Colleague Letter in fiscal year 2018 inviting research proposals related to the NNA focusing on: establishment of observational research sites, observational platforms, or networks of sites to document key aspects of the changing Arctic; studies to understand and forecast changes in biogeochemical, geophysical, ecological and social processes occurring in the new Arctic; studies of feedbacks between the design and engineering of urban and rural civil infrastructure and changes in natural ecosystems such as thawing permafrost and sea ice retreat and social systems such as increasing marine commerce; and studies that advance STEM education through Arctic research activities.

GEOSCIENCE RESEARCH—VITAL FOR ECONOMIC SECURITY AND PUBLIC SAFETY

A series of articles that appeared in *Pacific Standard* identify other ramifications stemming from changes to our environment. Potential health risks are estimated to rise significantly because of higher temperatures and complications from natural disasters. An additional 250,000 people are projected to die every year between 2030 and 2050 as a result of these health risks, according to the World Health Organization. Malnutrition could affect nearly half a million adults globally by 2050 as a result of food and nutrition scarcity. The economies of the States in the South, Midwest, and mid-Atlantic are expected to suffer from predicted gross domestic product losses of up to 28 percent because of the effects of greenhouse-gas emissions on field production. Marine fisheries globally, which have been estimated to support the livelihoods of 10 to 12 percent of the world's population, are projected to show decreased yields and profits. Islands, inhabited by hundreds of residents, such as the Tangier Islands in the Chesapeake Bay, could be entirely consumed by rising sea levels by 2050, or sooner.

The Federal Government has a responsibility to meet these future challenges. To fulfill this responsibility, one important step the Nation should take is to enhance its investment in basic research and related infrastructure through NSF, with a particular focus on the geosciences and related areas. This investment will help to create the new knowledge and technological capabilities—along with the educated and trained workforce to use these new tools—to address these challenges and seize the strategic opportunities presented by such efforts. Investing in basic research related to the geosciences will not just support national security efforts, it will also contribute to the development of new knowledge and technologies that will contribute to the Nation's economic competitiveness and public safety.

In minerals development, NSF-funded research on magma systems in Antarctica led to a genetic ore deposit model that was vital to the discovery of the significant Nokomis copper-nickel-platinum group element deposit in northern Minnesota. The Nokomis deposit contains estimated metal resources of approximately 10 billion pounds of copper, 3.1 billion pounds of nickel, 165 million pounds of cobalt, 4 million ounces of platinum, 9 million ounces of palladium, and 2 million ounces of gold. Meanwhile, geoscientists have created large, high-quality synthetic diamonds and determined how to manipulate their toughness, hardness, and color. Synthetic diamonds are significantly harder than real diamonds, making them suitable for industrial applications, such as the production of cutting tools and faster computer processors. They are also 30 percent cheaper than natural diamonds, which can cost upwards of \$2,000 per carat.

Researchers have shown that geodetic networks can help to provide earthquake and tsunami early warnings that can save lives and limit damage. NSF/GEO operates and maintains the largest geodetic network for research in the United States and supports extended networks in the Americas and Caribbean. Besides understanding earth processes in the crust, ice, snow and atmosphere, these observing networks are critical for hurricane, severe weather, space weather, fire, floods, earthquakes, volcanoes, landslides and tsunamis monitoring. With the growth of other GPS-like constellations, the Global Navigation Satellite System (GNSS) ensures that these ground-based geodetic networks will gather more data from more satellites and will improve/enhance surveying, engineering, navigation (especially self-driving cars and the like), precision agriculture and timing (e.g. for financial markets).

Along the U.S. coast, storm surge is often the greatest threat to life and property from a hurricane. NSF-funded researchers are quantifying how future tropical storm surges may impact U.S. coastal properties, using past patterns of coastal sea-level change. From 1990 to 2008, population density increased by 32 percent in Gulf coastal counties, 17 percent in Atlantic coastal counties, and 16 percent in Hawaii, according to the U.S. Census Bureau. In 2011, 45 percent of our Nation's GDP was

generated in the Coastal Shoreline Counties along the oceans and Great Lakes. A storm surge of 23 feet has the ability to inundate 67 percent of interstate highways, 57 percent of arterial roads, almost half of rail miles, 29 airports, and virtually all ports in the Gulf Coast area. Information on coastal property risk is vital to owners, insurers, and government.

Rare violent storms on the Sun—the source of space weather—have the potential to knock out the entire electrical power grid, possibly for months, resulting in trillions of dollars of damage and bringing chaos to much of the country. NSF's investment in understanding, modeling, and observing space weather systems are developing predictive models to forecast and mitigate this catastrophic possibility.

CONCLUDING THOUGHTS

Each day NSF-supported advancements such as those highlighted above make our lives better and safer. NSF provides financial support for our Nation's brightest minds to aid them in their endeavors to address challenging problems. Funding for the NSF results in investments that lead to the development of a competitive and resourceful workforce that will ensure our national security and enable our country to maintain and strengthen its leadership in science and technology. Therefore, we respectfully request your support to ensure that NSF receives at least \$8.45 billion for fiscal year 2019. This level of funding will help ensure that future generations of Americans are prepared to help our Nation remain a world economic leader.

Thank you for the opportunity to offer these recommendations.

Consortium for Ocean Leadership	Department of Earth & Planetary
National Association of Marine	Sciences, The Johns Hopkins
Laboratories	University
Lamont-Doherty Earth Observatory,	Southeastern Universities Research
Columbia University	Association
University Corporation for Atmospheric	University of North Carolina Wilmington
Research	Dauphin Island Sea Lab
Woods Hole Oceanographic Institution	Metropolitan State University of Denver
Scripps Institution of Oceanography	Cleantech San Diego
Stanford University	CODAR Ocean Sensors
Incorporated Research Institutions for	Del Mar Oceanographic
Seismology	Kinematics
UNAVCO	Ocean Aero, Inc.
University of Oregon	Rowe Technologies Inc.
Oregon Institute of Marine Biology	SeaView Systems, Inc.
George Mason University	Guam-EPSCoR, University of Guam
University of Pittsburgh	Michigan Technological University
Institute for Global Environmental	University of Delaware
Strategies	International Ocean Science &
Florida State University	Technology Industry Association
Annis Water Resources Institute—Grand	Florida Atlantic University—Harbor
Valley State University	Branch Oceanographic Institute
Bermuda Institute of Ocean Sciences	University of Wisconsin—Madison
(Bermuda and New York)	Department of Ocean, Earth &
Friday Harbor Laboratories, College of	Atmospheric Sciences, Old Dominion
the Environment, University of	University
Washington	University of Massachusetts Dartmouth
Global Science Associates	Stony Brook University
NC State University, Center for Marine	Gulf of Mexico University Research
Sciences & Technology	Collaborative
Moss Landing Marine Laboratories	Office of Research, Rutgers University
California State University Council on	American Anthropological Association
Ocean Affairs, Science & Technology	Hatfield Marine Science Center, Oregon
School of Ocean and Earth Science and	State University
Technology, University of Hawaii at	National Ground Water Association
Manoa	Belle W. Baruch Institute for Marine
American Society of Agronomy	and Coastal Sciences
Crop Science Society of America	Florida Atlantic University—Geosciences
Soil Science Society of America	Department.
Institute at Brown for Environment and	University of South Florida—College of
Society, Brown University	Marine Science
American Association of Geographers	University of New Hampshire
Penn State University	Skidaway Institute of Oceanography,
	University of Georgia

Research!America	Council on Undergraduate Research,
The Weather Coalition	Geosciences Division
University of Hawaii	Marine Science Research Institute,
Geological Society of America	Jacksonville University
University of California System	Colorado School of Mines
Great Lakes WATER Institute,	BMT
University of Wisconsin-Milwaukee	Delawarde Inc.
Louisiana State University	Grassy Bar Oyster Company, Inc.
Virginia Commonwealth University	Sea-Bird Scientific
Association of Public & Land-grant	Gnostech, Inc
Universities	Assure Controls, Inc.
American Geosciences Institute	Catalina Offshore Products
University of California, Davis	National Council for Science and the
University of Kansas	Environment
University of Florida	Sanibel-Captiva Conservation
Coastal and Estuarine Research	Foundation Marine Laboratory
Federation	University of Washington
North Carolina Agricultural and	Sitka Sound Science Center
Technical University	Kewalo Marine Laboratory, University of
University of California San Diego	Hawaii at Manoa
American Geophysical Union	Institute of Water and Environment,
College of Earth, Ocean & Atmospheric	Florida International University
Sciences, Oregon State University	University of Denver
University of Colorado Boulder	University of California, Irvine
American Astronomical Society	University of Maryland, Baltimore
University of Iowa	County
University of California, Los Angeles	Aquaai Corporation
Virginia Institute of Marine Science	FlyWire Cameras

PREPARED STATEMENT OF THE JAMESTOWN S'KLALLAM TRIBE

On behalf of the Jamestown S'Klallam Tribe, I am pleased to submit this written testimony on our funding priorities and requests for the fiscal year 2019 Department of Justice and Department of Commerce Budgets. Our Budget Request endorses the requests and recommendations of the Northwest Indian Fisheries Commission and the National Congress of American Indians. The provision of public safety and justice is a core element of any government and critical for a well-functioning market economy. Public Safety is an integral part of the strength of our Tribal Governments and well-being of our Indian communities. Strong Tribal Justice Systems also benefit States and surrounding communities and is essential for conducting business on Indian lands.

TRIBAL SPECIFIC—DEPARTMENT OF JUSTICE/DEPARTMENT OF COMMERCE

1. Provide Recurring Base Funding for Tribal Justice Programs
2. Hold Indian Country Harmless from Budgetary Reductions, Rescissions, and Sequestration
3. Data Collection to Support Funding Requests

REGIONAL REQUESTS AND RECOMMENDATIONS—DEPARTMENT OF COMMERCE (Support the fiscal year 2019 request of the Pacific Salmon Commission)

1. Provide \$110 million for the Pacific Coastal Salmon Recovery Fund (NOAA/NMFS)
2. Provide \$18.3 million for the Pacific Salmon treaty, including the additional \$5.5 million for the 2008 Chinook Salmon Agreement (NOAA/NMFS)
3. Provide \$20.3 million for the Mitchell Act Hatchery Program (NOAA/NMFS)

NATIONAL REQUESTS AND RECOMMENDATIONS—DEPARTMENT OF JUSTICE

1. Fully Fund the Tribal Law and Order Act (TLOA)
2. Fully Fund Violence Against Women Act (VAWA)
3. Office of Justice Programs (OJP)—Create a Ten Percent (10 percent) Tribal Set-Aside for Tribes

4. Victims of Crime Act Funding—Provide a 5 percent (5 percent) set aside
5. Fund COPS Program—\$52 million

TRIBAL SPECIFIC REQUESTS

1. *Provide Recurring Base Funding for Tribal Justice Programs*

Stable funding at sufficient levels is essential for viable and effective Tribal justice institutions. Grant funding is, at best, a short term investment that is used to support the ongoing and critical Tribal justice needs. Although we appreciate the intent of the Department in developing the CTAS to streamline the grant process and provide Tribes a tool for quick access and reference to funding that is specifically available to Tribes, competitive grants do not work well as the main funding source. The time limitation leads to instability, the administrative burden on Tribes remains excessive, the lack of flexibility creates challenges to addressing justice needs, funding is insufficient, and the CTAS application process is highly competitive, tedious, and complex and there are many restrictions imposed on how Tribes may use the funds. Base funding coupled with more flexibility would allow for more effective and efficient use of the Federal dollar and stronger Tribal justice systems.

2. *Hold Indian Country Programs Harmless from Budgetary Reductions, Rescissions and Sequestration*

Decades of unfulfilled Federal obligations has devastated Tribal communities who continue to face persistent shortfalls and overwhelming unfulfilled Federal obligations. Sequestration, reductions and rescissions further exasperate an already precarious budget situation undermining the Tribes ability to maximize program operations and their ability to provide basic services to our citizens. In addition, many of these reductions are permanent rescissions and the cumulative effect over the years has critically impacted Tribal communities. Until Tribes attain exclusive taxing jurisdiction within their Tribal lands, Federal support remains critical to ensure the delivery of essential governmental services to our Tribal citizens. The Federal trust obligation must be honored and vital programs and services for Tribes must be sustained and held harmless in any budgetary deal enacted to reduce the national deficit.

3. *Improve Data Collection to Support Tribal Funding Requests*

Data is critical to support Tribal policy goals, implementation of programs and services, managing impacts of the Federal investment and community planning for program success. Accurate data can capture the community needs and guide Tribal investments resulting in efficient and effective use of resources and strong Tribal economies. However, there is a lack of available data and data gathering throughout the Federal agencies. OMB and the Agencies should work together with Tribes to develop uniform measures that track Federal spending for Native American programs and services and that capture the unfulfilled Federal obligations.

REGIONAL REQUESTS AND RECOMMENDATIONS

1. *\$110 million for the Pacific Coastal Salmon Recovery Fund (NOAA/NMFS).*—The fiscal year 2017 appropriations provided a total of \$65.0 million. These funds have decreased from the peak of \$110.0 million in fiscal year 2002. The Tribes' overall goal in the PCSRF program is to restore wild salmon populations while the key objective is to protect and restore important habitat in Puget Sound and along the Washington coast. These funds support policy and technical capacities within Tribal resources management to plan, implement, and monitor recovery activities.

2. *\$18.3 million for the Pacific Salmon Treaty—The U.S. Section estimates that this funding is needed to implement national commitments created by the Treaty (NOAA/NMFS).*—The Pacific Salmon Commission (PSC) establishes fishery regimes, develops management recommendations, assesses each country's performance and compliance with the treaty, and is the forum for all entities to work towards reaching an agreement on mutual fisheries issues.

3. *\$20.3 million for the Mitchell Act Hatchery Program (NOAA/NMFS).*—Funding is provided for the operation and maintenance of hatcheries that release between 50 and 60 million juvenile salmon and steelhead in Oregon and Washington. This program has historically provided fish production for Tribal treaty and non-Tribal commercial and recreational fisheries in the Columbia River, and also contributes to ocean fisheries from Northern California to Southeast Alaska.

NATIONAL REQUESTS AND RECOMMENDATIONS DEPARTMENT OF JUSTICE

1. *Fully Fund the Tribal Law and Order Act (TLOA)*

The Tribal Law and Order Act was an important step in empowering Tribes to better address the unique public safety challenges and reduce the prevalence of violent crime in Indian country. However, effective implementation of TLOA is contingent upon adequate Federal funding. Funding is needed to implement the comprehensive and improved measures that were enacted to address the public safety crisis in Tribal communities. The entire Tribal justice system is dependent on this funding to carry out law enforcement, court, and detention functions, and to provide rehabilitation and preventive services. Tribal justice systems are the cornerstone that paves the way for economic development and Tribal self-sufficiency.

2. *Fully Fund Violence Against Women Act (VAWA) Including \$5 million for VAWA Special Domestic Violence Criminal Jurisdiction*

The Office on Violence Against Women provides funding for Tribes to assist victims of domestic violence. Funding for Tribal governments is derived from other OVW Programs and combined into a single source called the “Grants to Tribal Governments Program”. Therefore, it is imperative to Tribes that these other programs receive full funding so the Tribal grant program will, in turn, receive full funding. The root cause of these high rates of violence was a justice system that forced Tribal governments to rely on distant Federal, and in some cases, State officials to investigate and prosecute incidences of domestic violence committed by non-Natives against Native women. The statistics on violence against Native women show that outside law enforcement has proven ineffective in addressing these crimes of violence. Between 2005 and 2007, U.S. Attorneys declined to prosecute nearly 52 percent of violent crimes that occurred in Indian country; and 67 percent of cases declined were sexual abuse related cases. It is unconscionable to force Tribes to submit to a system of justice that declines to prosecute over half the criminal cases brought before it and leaves our Native women without judicial recourse. On some reservations, Native women are murdered at a rate that is 10 times the national average. The bill authorized \$5 million for Tribes to implement VAWA and, in 2016; \$2.5 million was appropriated for Tribes to implement the new provisions.

3. *Office of Justice Programs (OJP)—Provide a 10 percent Tribal Set-Aside for all (OJP) Programs and Allow for Greater Flexibility*

The Office of Justice Program (OJP) provides funding to Tribes to address public safety and criminal justice needs in Indian communities. We are advocating for a 10 percent Tribal set-aside to allow for a more flexible grant structure for Tribes to complement the Coordinated Tribal Assistance Solicitation (CTAS) grant. Although Congress and the administration have taken steps in recent years to try and address some of these concerns through the passage of the Tribal Law and Order Act (TLOA) of 2010 and the Reauthorization of the Violence Against Women Act (VAWA) of 2013, significant funding is needed in order to implement these new authorities to address the crisis level need in Indian country and elevate the safety and wellness of our Tribal citizens and communities. Tribal court systems are evolving to meet the increasing demands of Tribal communities and ensure that Tribal citizens are provided with adequate legal representation and protection. Under TLOA and VAWA Tribal courts are required to expand judicial services and meet certain costly thresholds, including, providing public defenders, recording criminal proceedings, and retaining legally trained and licensed Tribal judges. Without adequate funding for Tribal court systems, decisions to arrest, prosecute and detain will be based on financial restraints rather than in the best interest of public safety. Stable funding for Tribal courts is a prerequisite to ensure a safe, healthy and thriving Tribal community.

4. *Increase the Funding Caps and Create a Permanent Five Percent (5 percent) Tribal Set-Aside for Victims of Crime Act Funding*

We commend Congress for providing a 3 percent set aside for Tribes in the Victim of Crimes Fund in the fiscal year 2018 budget and request that a similar Tribal set aside is included in the fiscal year 2019 appropriations. Congress created the Crime Victims Fund in 1984 with the idea that money collected from those who commit crimes should be used to assist those that have been victimized. Each year, the fund is financed by the collection of funds, penalties and bond forfeitures from defendants convicted of Federal crimes. It is important to note that the fund receives no tax payer dollars. DOJ disburses funds to States and other entities. Crime victimization rates on Tribal lands have been estimated as much as 250 percent higher than the national rate and the rate of murder of American Indian/Alaska Native women on

some reservations are 1000 percent higher than the national average. Tribal governments, like State governments, are responsible for addressing the needs of victims in their communities. Despite the devastating rates of victimization in Tribal communities, Indian Tribes have largely been left out of the fund. Indian Tribes are only able to access these dollars through State pass through grants or very limited short term competitive DOJ grants. However, many States do not provide funds to Tribes for victim services and the vast majority of Tribes are unable to access these funds at all. Tribes are again requesting a Tribal set-aside of 5 percent of the VOCA funds.

5. Fund the COPS Program—\$52 million

The COPS Office provides funding to Tribes for law enforcement officers. The funding can also be used for training, equipment, vehicle, and technology. There is a great need for additional law enforcement officers throughout Indian country but limited resources has led to inadequate funding for justice systems, specifically, in the area of hiring, retention and training of law enforcement officers. It is imperative for the safety of Tribal citizens and surrounding communities that a significant increase in funding is allocated for Tribal law enforcement officers and programs.

I would like to extend my thanks to the subcommittee for an opportunity to submit testimony on the fiscal year 2019 Appropriations for DOJ and DOC.

[This statement was submitted by the Hon. W. Ron Allen, Tribal Chairman/CEO.]

PREPARED STATEMENT OF THE JOINT OCEAN COMMISSION INITIATIVE

Chairman Moran, Ranking Member Shaheen, and other distinguished Members of the subcommittee on Commerce, Justice, Science, and Related Agencies, we thank you for the opportunity to submit written testimony regarding the fiscal year 2019 Commerce, Justice, Science, and Related Agencies appropriations bill. We also thank you for the comprehensive funding that you provided to ocean priorities in the fiscal year 2018 Omnibus. We recognize the difficulty of allocating resources in these challenging fiscal times and laud your decision to support key ocean accounts in the Omnibus. We were especially encouraged to see \$30 million appropriated to the National Ocean and Coastal Security Fund.

While we are deeply appreciative of fiscal year 2018 appropriations for ocean priorities, we remain concerned about the administration's substantial proposed cuts to ocean and coastal programs across the government. If enacted, these cuts would undermine our investments and compromise our ability to promote economic development, safeguard our citizens, and responsibly balance the many uses of our oceans and coasts.

The Joint Ocean Commission Initiative (Joint Initiative) is a collaborative, bipartisan effort to catalyze action and monitor progress toward meaningful ocean policy reform. We believe that a continued commitment to protecting base funding and core programs at NOAA, NSF, and NASA is an investment that will save lives, protect our national security, grow our economy, and preserve the health of our oceans and coasts. America's oceans and coasts provide fundamental goods and services, including food, minerals, transportation, medicines, tourism, and recreational opportunities. Coastal counties, which produce almost half of America's GDP, are directly dependent on the resources of the oceans and the Great Lakes. Moreover, ocean and coastal environments are often the first line of defense when it comes to protecting American communities from severe weather events and providing natural resources to sustain economies.

Based on the need for significant and sustained investment to invigorate public-private partnerships and energize national, regional, State, and local initiatives, we strongly support increasing NOAA's overall budget to a minimum of \$6.2 billion, NSF's overall budget to a minimum of \$8.45 billion, and NASA Earth Science's budget to a minimum of \$2.03 billion. We believe the recommendations articulated in this testimony represent a modest investment relative to the growing needs of oceans and coastal communities, as the benefits they confer significantly outweigh the costs. The Joint Initiative is highly appreciative of the progress your subcommittee has made in providing resources to essential ocean and coastal accounts, and we urge you to continue supporting these priorities.

RESEARCH, EXPLORATION, AND OBSERVATION

A critical component of America's economic, military, and diplomatic power lies in its ocean science enterprise. In recent years, foreign nations, including China, have made significant investments in their ocean science and research capabilities. Meanwhile, the U.S. continues to face a serious shortage of fiscal support for ocean

science, research, education, exploration, monitoring, and observation enterprises. This shortage becomes ever more alarming as severe storm and flooding events increasingly threaten our Nation. We strongly urge this subcommittee to protect vital ocean science and research capabilities.

We ask that your committee continue to support enhanced capabilities for observation and monitoring by allocating \$520 million to NOAA's Office of Oceanic and Atmospheric Research (OAR) and \$45 million to NOAA's Sustained Ocean Observations and Monitoring Program. The safety and security of our country depends on timely and accurate information delivery. Observation and monitoring programs, as well as other scientific and data programs, are integral to NOAA's ability to accurately forecast weather. They are central for NOAA's protection and management of America's coastal and ocean resources and for the U.S. military's navigation and extreme weather preparedness. Moreover, the National Sea Grant College Program works to better understand, conserve, and utilize America's coastal resources, making it critical to coastal States, communities, and economies. These programs are also crucial for Americans themselves, as they enable communities and businesses to plan for and respond to extreme weather events, including flooding and drought.

In addition, we recommend allocating \$8.45 billion for the NSF, including at least \$1.4 billion for the Geosciences Directorate and the Office of Polar Programs. The Geosciences Directorate includes the Division of Ocean Science. NSF's investment in the geosciences has spurred innovations, addressed salient national and global challenges, galvanized new economic sectors, generated countless jobs, and led to the development and implementation of advanced technologies. We also recommend you allocate \$2.03 billion in funding for NASA's Earth Science Division. NASA improves national capabilities to predict climate, weather, and natural hazards and better manage national resources.

Finally, we appreciate the subcommittee's long-standing support of ocean exploration at NOAA and recommend allocating \$40 million for the Ocean Exploration program to maintain the pace, scope, and efficiency of exploration. NOAA's Ocean Exploration program has a long history of bipartisan support. The program has greatly contributed to our knowledge of the ocean, in large part by utilizing essential supporting infrastructure including ships, moorings, buoys, and autonomous underwater vehicles, as well as computational and data management hardware.

It is essential that Congress provide the operational and maintenance support necessary to keep research, monitoring, and exploration infrastructure functioning, and to facilitate its modernization. In combination with remote sensing, ocean observation infrastructure has helped to establish and maintain the long-term in-situ data sets that are essential to safeguarding U.S. assets and understanding changes in physical, chemical, and biological processes. These data sets have generated vital tools including Arctic surveys that enabled the U.S. to argue for an extension of our Exclusive Economic Zone; baseline characterization of the Deepwater Horizon site; discovery of new gas hydrates; and new fishery habitat maps.

RESILIENCE AND SECURITY

The 2017 calendar year saw a record number of hurricanes and tropical storms which devastated communities across the country and generated over \$200 billion in damage, helping make it the costliest year for natural disasters in U.S. history. Unfortunately, changing ocean conditions will likely continue to increase the severity of storms and the frequency of flooding events. Changing weather and charged geopolitical relationships heighten the already serious need for ocean and coastal security. Ocean and coastal communities must be safeguarded and made more resilient.

Congress took a pioneering first step with the fiscal year 2018 Omnibus by authorizing \$30 million for the National Ocean and Coastal Security Fund (NOCSF), doubling what was previously available through the NOAA Regional Coastal Resilience Grants program. The Fund supports work to better understand and utilize the oceans, coasts, and Great Lakes, and ensures the continuation of the ecological, economic, social, security, and recreational services these resources provide. As early as 2004, the Joint Initiative's predecessors, the Pew Oceans Commission and the U.S. Commission on Ocean Policy, called for a fund dedicated to the management and conservation of our marine resources. The NOCSF builds on that important legacy by providing dedicated funding for ocean priorities. We ask this subcommittee to further support this essential fund by allocating \$40 million to the NOCSF in fiscal year 2019. A portion of this funding should continue to support critical partnerships that encourage collaboration and data sharing on the regional scale.

NOAA's National Ocean Service (NOS) is also critical for sustained resilience and security. We strongly recommend that NOS receive an allocation of \$570 million. In

particular, we appreciate the administration's 27 percent increase in the fiscal year 2019 Request for the U.S. Integrated Ocean Observing System, which provides new tools and forecasts to improve safety, enhance the economy, and protect our environment. NOS funding supports economy boosting programs that ensure safe and efficient transportation and commerce, preparedness and risk reduction, and stewardship, recreation, and tourism. For example, NOAA PORTS, provides real time oceanographic data to promote safe and efficient navigation at commercial ports, generating \$300 million in benefits. In addition, NOAA's Office of Coastal Management delivers the science and environmental intelligence communities need to address storm preparedness, erosion, development, habitat loss, sea level rise, public access, and threats to water quality. The NOS is also responsible for administering the Office of National Marine Sanctuaries and a range of restoration projects that dramatically enhance the resilience of coastal communities and ocean environments. For example, a section of re-nourished beach at the McFaddin National Wildlife Refuge in Texas withstood relentless pounding in 2017 from Tropical Storm Cindy and Hurricane Harvey, when many nearby locations did not. It is also worth noting that these investments pay serious economic dividends: National Marine Sanctuaries generate approximately \$8 billion annually for local economies and NOAA's restoration projects create an average of 17 jobs for every \$1 million invested.

Every dollar invested in strengthening coastal communities against storm surge mitigates four dollars in losses. We ask the subcommittee to support the NOCSF and the NOS to bolster the Nation's economic and environmental resilience and security.

OCEAN ACIDIFICATION

Ocean acidification is evident along every shoreline and is having major impacts on economies worldwide. By changing the chemistry of seawater, ocean acidification endangers shellfish, corals, and other marine life that form calcium shells or skeletons and disrupts marine food webs. In the United States, ocean acidification poses a fundamental risk to our fisheries and aquaculture industries. Left unresolved, ocean acidification will exact a substantial toll on the world's economies and diminish our capacity to nourish growing populations. We strongly urge you to allocate a minimum of \$30 million for NOAA's Integrated Ocean Acidification program. Funding the Integrated Ocean Acidification program at elevated levels will support critical research, monitoring, education, and outreach and will help develop a better understanding of the causes, impacts, and scale of ocean acidification. It will also support programs that identify and implement interventions that address ocean acidification and help protect our Nation's fisheries and aquaculture.

SUSTAINABLE FISHERIES

Fishing is a cornerstone of the ocean economy and an important aspect of American history and culture. Since 1976, we have seen tremendous progress toward creating and maintaining sustainable fisheries domestically and internationally. Much of this progress can be credited to your subcommittee's commitment to scientifically-sound fishery management and the tireless efforts of U.S. fishermen, regional fishery management councils, State commissions, scientists, and managers.

However, American fisheries are currently facing unprecedented challenges including changing ocean conditions, impacts from land-based activities, shifts in historic stock distributions, increasingly complex data requirements, and a rapidly growing recreational fishing sector. NOAA Fisheries requires elevated funding to address these numerous challenges. For example, better science and real-time data can improve the quality of management decisions and provide regional management councils with more tools to assess the current status of fish stocks. To protect America's fisheries and the jobs that rely on them, we recommend allocating \$1 billion to the National Marine Fisheries Service to fully implement the Magnuson-Stevens Fishery Conservation and Management Act. This should include the ability to improve the coastal infrastructure on which fisheries depend and address threats that changing conditions pose. We also urge you to support initiatives to spread sustainable fishery management globally.

CONCLUDING REMARKS

The Joint Initiative greatly appreciates your commitment to stretching scarce resources to address the challenges of our maritime Nation. We thank you for the robust funding allotted to ocean priorities in fiscal year 2018 and acknowledge the bold and forward-looking decision to fund the National Ocean and Coastal and Security Fund. We will continue to track progress on key ocean and coastal programs and accounts in fiscal year 2019 and beyond. Thank you for considering our requests

as the subcommittee continues the fiscal year 2019 appropriations process. The Joint Initiative appreciates your attention to this matter and stands ready to assist you in advancing positive and lasting changes in the way we manage our Nation's oceans and coasts.

JOINT INITIATIVE CO-CHAIRS AND LEADERSHIP COUNCIL MEMBERS

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PREPARED STATEMENT OF MENTOR: THE NATIONAL MENTORING PARTNERSHIP

On behalf of MENTOR: The National Mentoring Partnership (MENTOR), our network of affiliates, and youth mentoring programs throughout the country, I thank Chairman Culberson and Ranking Member Serrano for the opportunity to provide testimony in support of a critical Federal investment in America's young people. My testimony will focus on the Youth Mentoring Program housed in the Office of Juvenile Justice and Delinquency Prevention (OJJDP) at the Department of Justice (DOJ). MENTOR and our partners are calling on your committee to build on your increased investment in the Youth Mentoring Program in fiscal year 2018 with a further increase of at least \$100 million in fiscal year 2019. This investment will make it possible for quality mentoring organizations to better meet the mentoring needs of many of our Nation's most at-risk youth.

MENTOR is the unifying national champion for expanding quality youth mentoring relationships and connecting volunteers to mentoring opportunities in their local communities. In a time when 1 in 3 young people are growing up without a mentor, MENTOR seeks to close this "mentoring gap" and ensure our Nation's young people have the caring adult support they need to succeed at school, in community, and in the workforce. We seek to leverage resources and provide the tools and expertise that local programs—whether in schools, non-profits, faith-based institutions, or the private sector—require to provide high-quality mentoring for young people who need it most, build greater awareness of the value of mentors, and positively inform public policy in order to bring support and opportunity to young people in need.

I write this testimony on behalf of the thousands of mentoring programs and millions of volunteer adult mentors that serve our communities each day, as well as the millions of young people in the United States still waiting to find the supportive caring adults they need to thrive. I would also like to thank the Senate Commerce, Justice and Science Subcommittee for its strong history of supporting these critical Federal funds for evidence-based mentoring and demonstrating leadership in expanding pathways for young people.

THE BENEFITS OF QUALITY YOUTH MENTORING

Youth mentoring is a simple, yet powerful concept: a caring adult provides guidance, support and encouragement to help a young person achieve success in life. Research confirms that quality evidence-based mentoring relationships have powerful positive effects on young people in a variety of personal, academic, and professional situations. Mentoring is a strategic intervention and prevention-based strategy that helps foster positive outcomes for young people from all backgrounds and Zip codes. Mentoring is proven to play an important role in the following areas of support for young people:

Reducing Unsafe or Risky Behaviors: Mentors provide young people with consistent support as they encounter the daily challenges of navigating their lives. Mentors serve to help young people make healthy decisions and stay away from high-risk behaviors. Young people who meet regularly with their mentors are 46 percent less likely than their peers to start using illegal drugs and 27 percent less likely to start drinking. Mentors also provide guidance to positive be-

haviors that could support growth and development in a young person. Young adults who face an opportunity gap but have a mentor are 81 percent more likely to participate regularly in sports or extracurricular activities than those who do not.

Workforce Development: Mentoring helps develop the future workplace talent pipeline by preparing young people for careers through exposure and 21st century skill building. One study estimates that the human potential lost as a result of the educational achievement gap is the economic equivalent of a permanent national recession. There are far too many young people who have not had access to the opportunities that having a mentor opens to professional and career development. Mentoring helps young people set career goals and take the steps to accomplish those goals. Through their mentors, young people are also introduced to resources and organizations they may not be familiar with, providing them with new networks as well as methods to find jobs and internships.

Educational Achievement: According to the Department of Education, during the 2013–14 school year, over 6.8 million students (14 percent of all students) were chronically absent. Students who are chronically absent are more likely to fall behind academically, particularly in reading, more likely to have increased behavioral issues and more likely to drop out of school. Young people who are chronically absent benefit exponentially from having a mentor to aid regular attendance and provide the young person academic and emotional support. Students who meet regularly with their mentors are 52 percent less likely than their peers to skip a day of school and 37 percent less likely to skip a class. Mentoring provides young people with an important support that helps develop positive attitudes towards school and reduce recurring behavior problems. Young adults who face an opportunity gap but have a mentor are 55 percent more likely to be enrolled in college than those who did not have a mentor.

Social Emotional Development and Mental Health: Mentoring provides young people with improved communications with their families and other caring adult relationships. A recent study showed that the strongest benefit from mentoring, and most consistent across risk groups, was a reduction in depressive symptoms. Mentoring promotes positive social attitudes and relationships. Mentored youth trust their parents and guardians more and communicate better. These benefits serve as building blocks for engagement in positive activities, increased school participation and improved attitudes.

Youth Mentoring ultimately provides much-needed social support, increased positive relationships with and perceptions of adults, life skills training, and access to social capital to young people who are in need of support leading them to positive and productive futures.

CLOSING THE MENTORING GAP

While mentoring is an effective evidence-based intervention and prevention strategy for at-risk and high-risk young people, mentoring organizations across the Nation still face barriers in providing high-quality mentoring services. Thousands of young people remain on waitlists at organizations because of limited resources and funding for programs. Many programs also lack the training and technical assistance that could bolster their mentoring programs to better support young people and specifically high-risk young people. These two issues combined have provided many obstacles for mentoring programs, but with the critical support of both private and public funds mentoring organizations have been able to serve more young people.

One of the ways that mentoring programs have succeeded in decreasing waitlists is through support from the Youth Mentoring Program. The program focuses on prevention and interventions for at-risk youth and helps mentoring programs as they work to close the mentoring gap. These funds go directly to providing support for some of our highest risk young people, who without these kinds of interventions could likely become involved in negative behaviors and activities causing harm to themselves, their communities, and which take an economic toll. In a 2016 study conducted by MENTOR it was found that 51 percent of mentoring programs have a budget of under \$50,000 and 75 percent of programs have a budget of under \$100,000. Mentoring programs work far beyond their financial capacity to serve young people, but with additional resources their reach expands exponentially and the quality of their services can strengthen through improved training and technical assistance. The individual cost per mentored youth has remained relatively steady over the past 20 years, however costs for high-risk groups of young people including those with mental health needs, teen parents or victims of commercial sexual exploitation, for example, require more resources and expertise, increasing the cost per

youth in order to fully address their unique needs. Mentoring programs utilize Federal support in part to better serve the large number of young people who could benefit most from evidence-based mentoring.

Mentoring programs are able to safely serve young people when they are fully trained on the most up to date mentoring evidence and training. In 2015, through funds from the Youth Mentoring Program, The National Mentoring Resource Center (NMRC) was created to improve the quality and effectiveness of mentoring by supporting youth mentoring practitioners. MENTOR runs the National Mentoring Resource Center and provides free mentoring tools, program and training materials and no-cost, evidence-based technical assistance to mentoring programs, school districts, non-profits and faith-based institutions across the Nation. This important resource has bolstered the ability of mentoring programs to serve young people from vulnerable populations including young people at-risk of entering the juvenile justice system, youth in foster care and victims of commercial sex trafficking.

Research on youth mentoring demonstrates that, at a minimum, for every dollar invested in quality mentoring programs there is a return of at least three dollars. This positive return on investment reflects projected increases in lifetime earnings gained by leading at-risk youth down the path towards becoming productive adults. It also derives from dollars saved through reduced risky behaviors in young people, decreased school absence, high school graduation rates, and lowered risk of youth involvement in unsafe and costly behaviors. Public opinion has also reflected both the need for more mentoring and support for public investment to better meet this need. In a recent nationally representative survey conducted by Pacific Market Research—across geography, political persuasion, faith, age, and income—two-thirds of Americans consider it highly important for young people to have mentors, but this same population estimates that only a quarter of youth have the mentors they need. Nearly nine in ten adults feel that more mentoring is needed in our country—with more than eight in ten supporting the use of government funds to grow mentoring opportunities.

Unfortunately, the Youth Mentoring Program is now the only remaining Federal grant exclusively dedicated to providing funds for evidence-based mentoring. Youth Mentoring Program funds have been awarded to national, multi-State and collaborative mentoring projects and programs who serve suburban, rural and urban populations. The flexibility of the grant has allowed organizations to use these funds to specifically tailor programs to their community's unique needs. This provides local control and specialized concentration on results that work best for each young person and their communities. These funds are simply invaluable in the ways that they affect youth development, educational achievement and safe communities.

Without adequate resources and funding mentoring programs and ultimately America's young people do not have access to the caring adults they need to develop healthy, safe and productive lives. This request in support of at least \$100 million for the Youth Mentoring Program will allow more young people to have access to the important social, professional, and academic opportunities we hope to provide for all America's youth. The Youth Mentoring Program demonstrates a sound and an effective investment in evidence-based programs that works and will have definitive and measureable impact on closing the mentoring gap in America.

Thank you again for this opportunity to provide testimony on this critical Federal resource supporting young people.

[This statement was submitted by David Shapiro, Chief Executive Officer.]

PREPARED STATEMENT OF THE MIDWEST INNOCENCE PROJECT & INNOCENCE NETWORK

On behalf of the Midwest Innocence Project and the Innocence Network, a coalition of 56 local innocence organizations working to exonerate the innocent and prevent wrongful convictions nationwide, thank you for the subcommittee's critical funding increases and strong support for innocence and forensic science research programs in fiscal year 2018. Thank you also for allowing me to submit written testimony for the record as you consider budget requests for fiscal year 2019. I urge you to robustly fund the following programs at the Department of Justice and the National Institute of Standards and Technology at the Department of Commerce. fiscal year 2019 funding requests include:

—\$5 million for the Wrongful Conviction Review Program at the Department of Justice (DoJ), Bureau of Justice Assistance (*the Wrongful Conviction Review Program is part of the Capital Litigation Improvement Program*);

- \$10 million for the Kirk Bloodsworth Post-Conviction DNA Testing Program at the DoJ, National Institute of Justice (NIJ);
- \$30 million for the Coverdell Forensic Sciences Improvement Grant Program at NIJ;
- \$4.2 million to support forensic science standards setting activities at the National Institute of Standards and Technology (NIST);
- \$15 million for NIST to support forensic science research and measurement science.

These innocence and forensic science programs increase the accuracy and fairness of the criminal justice system, provide the strongest possible forensic science tools to justice system stakeholders, and generate greater public safety for our Nation.

National Registry of Exonerations data show that the number of exonerations has significantly increased since Federal innocence programs—the Bloodsworth Post-Conviction DNA Testing and Wrongful Convictions Review programs—began to receive funding in 2008 and 2009, respectively. This dramatic increase in the number of exonerations is in part a result of the Federal decision to invest in these programs to help ensure the accuracy and integrity of the criminal justice system. In the 20 years prior to the initiation of innocence program funding (from 1989 to 2008), the rate of exonerations was much lower. In 2016, the number of exonerations was at its highest with 171 exonerations. These effective program outcomes show the power and need to invest in Federal innocence and forensic science programs.

The Midwest Innocence Project has had incredible success in Kansas where our work has resulted in the exoneration of three clients in the past 3 years. One of those clients, Floyd Bledsoe, served 16 years in a Kansas prison before a Jefferson County judge vacated his convictions in December 2015 based in part on new DNA testing evidence. Floyd was convicted of first-degree murder, aggravated kidnapping, and aggravated indecent liberties for the shooting death of his 14-year-old sister-in-law. The DNA test results led to the identification of the actual perpetrator, Floyd's brother, and a co-conspirator in disposing of the body, Floyd's father. In 2017, Richard Jones and Lamonte McIntyre were both exonerated by non-DNA evidence after the Midwest Innocence Project and our partners proved that investigators used improper practices when investigating the cases, resulting in their wrongful convictions. Richard served over 18 years for aggravated assault during a purse snatching he did not commit because of improper eyewitness identification practices. Lamonte served over 23 years for double-homicide that occurred when he was just 17 due to the misconduct of both the investigating detective and the prosecutor. These examples demonstrate the long, complex, and resource intensive process often required to overturn a wrongful conviction, and inspire us to identify, remediate and prevent other wrongful convictions.

However, freeing innocent individuals and preventing wrongful convictions through reform greatly benefits public safety. Every time DNA identifies a wrongful conviction, it enables the identification of the person who actually committed the crime. Such true perpetrators have been identified in approximately half of the over 350 DNA exoneration cases. Unfortunately, many of these individuals went on to commit additional crimes while an innocent person was convicted and incarcerated in their place.

To date over 350 individuals in the United States have been exonerated through DNA testing, including 20 who served time on death row. These innocents served an average of 14 years in prison before exoneration and release. However, the value of Federal innocence and forensic science programs is not to just these exonerated individuals. It is important to fund these critical programs because reforms and procedures that help to prevent wrongful convictions enhance the accuracy of criminal investigations, strengthen criminal prosecutions, and result in a stronger, fairer system of justice that provides true justice to victims of crime.

WRONGFUL CONVICTION REVIEW PROGRAM

We know that wrongful convictions occur in cases where DNA evidence is not sufficient or even available to prove innocence. The National Registry of Exonerations currently lists almost 2,200 exonerations since 1989—over 350 of which were based primarily on DNA. The Wrongful Conviction Review Program provides critical support to ensure that experts are available to navigate the complex landscape of post-conviction litigation, as well as oversee the thousands of volunteer hours local innocence organizations leverage to help investigate these complex cases and support the significant legal work they require. Indeed, the Wrongful Conviction Review Program has contributed to 30 exonerations over the past 3 years.

The Wrongful Conviction Review Program provides funding to local innocence organizations so that they may provide this type of expert, high quality, and efficient

representation for innocent individuals. The program's goals are both to alleviate burdens placed on the criminal justice system through costly and prolonged post-conviction litigation and to identify, whenever possible, the person who actually committed the crime. To help continue this important work, we urge you to provide \$5 million for the Wrongful Conviction Review Program in fiscal year 2019 (the Wrongful Conviction Review Program is part of the Capital Litigation Improvement Program.)

THE BLOODSWORTH POST-CONVICTION DNA TESTING PROGRAM

The Bloodsworth Post-Conviction DNA Testing Program supports States and localities that want to pursue post-conviction DNA testing in appropriate cases. The program does not directly fund the work of local innocence organizations, but instead focuses on State and local applicants, including law enforcement agencies, crime laboratories, and a host of others—often in collaboration with each other, as well as with local innocence organizations. For example, a Bloodsworth grant to Arizona allowed the State's Attorney General's Office to partner with the Arizona Justice Project to create the Post-Conviction DNA Testing Project. This effort canvassed the Arizona inmate population, reviewed cases, located evidence, and filed joint requests with the court to have evidence released for DNA testing. In addition to identifying the innocent, Arizona Attorney General Terry Goddard noted that the "grant enable[d] [his] office to support local prosecutors and ensure that those who have committed violent crimes are identified and behind bars."¹

The Bloodsworth program is a powerful investment for States seeking to free innocent individuals and identify the individuals who actually committed the crimes. The program has resulted in the exonerations of 44 wrongfully convicted persons in 14 States. The person who actually committed the crime was identified in 13 of those cases. For example, Virginian Thomas Haynesworth, who was wrongfully incarcerated for 27 years, was freed thanks to Bloodsworth-funded DNA testing that also revealed the person who actually committed the crime. The culpable person in that case went on to terrorize the community by attacking twelve women, with most of the attacks and rapes occurring while Mr. Haynesworth was wrongfully incarcerated. Given the importance of this program to both innocent individuals and public safety, we urge you to provide \$10 million to continue the work of the Bloodsworth Post-Conviction DNA Testing Program in fiscal year 2019.

THE COVERDELL PROGRAM

Recognizing the need for independent government investigations in the wake of allegations of forensic negligence or misconduct, Congress created the forensic oversight provisions of the Coverdell Program, a crucial step toward ensuring the integrity of and improving public confidence in forensic evidence. Specifically, in the Justice for All Act, Congress required that:

[t]o request a grant under this subchapter, a State or unit of local government shall submit to the Attorney General . . . a certification that a government entity exists and an appropriate process is in place to conduct independent external investigations into allegations of serious negligence or misconduct substantially affecting the integrity of the forensic results committed by employees or contractors of any forensic laboratory system, medical examiner's office, coroner's office, law enforcement storage facility, or medical facility in the State that will receive a portion of the grant amount.²

The Coverdell Program provides State and local crime laboratories and medical examiner offices with much needed Federal funding to carry out their work both efficiently and effectively. As forensic science budgets find themselves severely stretched in many States and localities as a result of the opioid epidemic, and as Federal bodies recommend the implementation of new policies, standards, and guidelines, the Coverdell funds are critical to ensure that crime labs can function both efficiently and effectively. As the program supports both the capacity of crime labs to process forensic evidence and the essential function of ensuring the integrity of forensic investigations in the wake of serious allegations of negligence or misconduct, we urge you to provide \$30 million for the Coverdell Program in fiscal year 2019.

¹Arizona receives Federal DNA grant, <http://community.law.asu.edu/news/19167/Arizona-receives-Federal-DNA-grant.htm> (last visited Mar. 13, 2012).

²42 U.S.C. § 3797k(4) (emphasis added).

FORENSIC SCIENCE IMPROVEMENT

To continue the critical work to improve forensic science, and help prevent wrongful convictions, we urge you to provide the following amounts in fiscal year 2019 for forensic science improvements, including:

- \$4.2 million directed to NIST to support forensic science technical standards development, including \$3 million to support the Organization of Scientific Area Committees (OSAC) and \$1.2 million to support technical merit evaluations.
- \$15 million for the National Institute of Standards and Technology (NIST) at the Department of Commerce to support forensic science research and measurement science.

As the Federal entity that is both perfectly positioned and institutionally constituted to conduct measurement science and foundational research in support of forensic science, NIST's work will improve the validity and reliability of forensic evidence, a need cited by the National Academy of Sciences 2009 report, *Strengthening Forensic Science in the United States: A Path Forward*.³ NIST's reputation for innovation will result in technological solutions to advance forensic science applications and achieve a tremendous cost savings by reducing court costs posed by litigating scientific evidence.

The OSAC is seen by many as the most significant Federal forensic science initiative in recent years. State and local forensic scientists, who conduct the vast majority of forensic science casework, are in strong support and are significantly involved in this effort. In order for a standard to qualify for the registry that the OSAC maintains, it must demonstrate that it is technically sound. Some forensic science methods have not yet received an evaluation of their technical merit and NIST needs further support to conduct these vital reviews. At a time when public safety and national security are some of our Nation's top priorities, it is imperative that Congress invest in scientific tools that support these endeavors. The forensic science activities and research at NIST will help to greatly improve forensic disciplines and propel forensic science toward greater accuracy and reliability.

CONCLUSION

Thank you for working to ensure the accuracy, integrity, and reliability of our Nation's criminal justice system. We urge you to fully fund the Wrongful Conviction Review; Bloodsworth; Coverdell; and NIST forensic science programs. If you have questions, please contact Jenny Collier, Federal Policy Advisor to the Innocence Project, at jcollier@colliercollective.org.

[This statement was submitted by Tricia Bushnell.]

PREPARED STATEMENT OF THE MONTEREY BAY AQUARIUM

The Monterey Bay Aquarium is pleased to submit this statement to the subcommittee in support of funding for the National Oceanic and Atmospheric Administration (NOAA) as it develops the fiscal year 2019 Commerce-Justice-Science Appropriations Act.

The mission of the Monterey Bay Aquarium is to inspire conservation of the ocean. We carry out this mission by providing an unparalleled educational experience that connects over 2 million visitors per year to some of the most striking species and ecosystems on our planet. The Aquarium uses innovative exhibits and educational programs to demonstrate the connection between the ocean and our human existence—from the air we breathe to the weather patterns and resources that drive our multi-billion dollar blue economy.

In recent years, we identified strategic conservation priorities to address some of the most pressing challenges to ocean health, including plastic pollution, protecting wildlife and ecosystems, sustainable fisheries and aquaculture, climate change and partnerships. Science underpins our approach to ocean conservation challenges, and we seek a collaborative approach that encourages partnerships with the private sector, governments, academia and other stakeholders.

The Aquarium recognizes NOAA for its critical role as a lead science agency and information provider that supports a millions of American businesses, citizens and our public safety every day of the year. NOAA's research, services and programs position America for success by providing essential information and tools that shape the way we live today and help us to predict conditions for the future. The Aquar-

³National Research Council. *Strengthening Forensic Science in the United States: A Path Forward*. Washington, DC: The National Academies Press, 2009. doi:10.17226/12589, p. 22–23.

ium applauds the Senate Subcommittee's leadership in support of NOAA in the fiscal year 2018 omnibus legislation, including balanced investments across ocean and atmospheric programs. In addition, we appreciate the subcommittee's support for priority programs, including eliminating illegal, unreported and unregulated (IUU) fishing, marine debris and NOAA Education. As we turn to fiscal year 2019, we urge the subcommittee to continue to support this balanced and strategic approach, and to at least maintain fiscal year 2018 funding levels across NOAA's portfolio.

The Aquarium has identified several high-impact and strategic investments within NOAA that underpin efforts to better understand and manage ocean resources. We urge the subcommittee to fully support these programs as it develops the fiscal year 2019 appropriations bill:

Illegal, Unreported, and Unregulated (IUU) Fishing/Seafood Traceability.—Global losses attributable to IUU fishing are estimated to be between \$10 and \$23 billion annually, and has links to other forms of criminal activity, as well as slavery and human rights abuses. IUU fishing also undermines economic opportunities for legitimate fishermen in the U.S. and has global implications for national security and food security.

In recent years, Congress passed several bills that authorized and funded Federal programs to fight IUU fishing. These bills passed with broad bipartisan support, highlighting the importance of these activities to American businesses, consumers and the public. The fiscal year 2018 omnibus bill included \$3.8 million for IUU programs, providing critical support to implement the new U.S. Seafood Import Monitoring Program (SIMP) and increased inspection and enforcement activities. In addition, the bill included an important provision requiring NOAA to add shrimp and abalone to the U.S. Seafood Import Monitoring Program by the end of 2018. Shrimp is the top seafood import by volume and value, and inclusion of this species in SIMP will provide new transparency within foreign supply chains that have been implicated in IUU fishing and human rights abuses. However, the fiscal year 2018 funding will expire in September 2018 and additional funding will be required to conduct outreach to industry, ensure consistent regulations and implement the new provisions in 2019.

The Aquarium urges the subcommittee to provide at least an additional \$5 million specifically for activities to address IUU fishing in fiscal year 2019. The funding will ensure strong implementation of the Seafood Import Monitoring Program in 2019, including the addition of shrimp and abalone into SIMP, as well as improved international enforcement and port security responsibilities under the SAFE Ports Act. These funds will improve the ability of the Federal Government to identify, inspect and enforce against imported IUU products coming into U.S. commerce and will enhance efforts to incentivize foreign compliance with international laws.

Bycatch Reduction and Highly Migratory Species.—NOAA Fisheries (NMFS) supports research on technologies that reduce bycatch and bycatch mortality. Reducing bycatch can save fishing jobs by preventing fishery closures due to interactions with endangered species or attainment of strict bycatch quotas. This funding supports the Bycatch Reduction Engineering Program (BREP) external competitive grants program, which supports innovative gear designs and fishing techniques to minimize bycatch. We recommend the subcommittee include at least \$2.5 million for bycatch reduction competitive grants to non-Federal researchers for the development and implementation of practical bycatch solutions. The grants support research and collaborative projects with U.S. fishermen to develop improved fishing practices and innovative gear technologies.

In addition, we note the importance of robust funding for research and management of highly migratory species, including Pacific bluefin tuna and shark species managed under international agreements. We urge the subcommittee to include funding to address highly migratory fisheries research and management, including funding for the Pacific Fishery Management Council and NOAA's Southwest Fishery Science Center. This funding should ensure parity for highly migratory fisheries research and management among the Atlantic and Pacific regions.

Marine Aquaculture.—The U.S. imports over 90 percent of its seafood, about half of which is farmed. While aquaculture globally has grown dramatically over the past 30 years, U.S. production remains low. As demand for seafood continues to rise, aquaculture presents an opportunity to meet this demand, create jobs and support sustainable development that can achieve a high environmental standard. We request that the subcommittee to fully fund NOAA's marine aquaculture programs at least at fiscal year 2018 levels within NOAA Fisheries and in the Office of Oceanic and Atmospheric Research (OAR) through the Sea Grant Program.

Marine Debris.—Our ocean is at increasing risk from growing levels of plastic pollution. Studies estimate that an average of eight million metric tons of plastic enter the global ocean each year. Unless we curb the flow, this number is expected to dou-

ble by 2025—posing a risk to water quality, wildlife and human health. Ocean plastic pollution is an issue that is especially relevant to our millions of visitors and to Californians in general, many of whom have cleaned up local beaches and reduced the use of plastic bags in grocery stores.

NOAA's Marine Debris program offers competitive grants for aquariums and others to work with Federal, State, and local partners on marine debris education and reduction projects. The Monterey Bay Aquarium has received \$52,306 from this program for our Ocean Plastic Pollution Summit for Teachers. Over 100 pre-K to 12th grade teachers from throughout California have participated in the Summit and follow-up activities, learning how to use the issue of ocean plastic pollution to engage their students in marine conservation and science. We request continued support for the NOAA Marine Debris Program of at least \$8 million in fiscal year 2019.

National Marine Sanctuaries and National Monuments.—NOAA's Office of National Marine Sanctuaries serves as the trustee for a network of underwater parks encompassing more than 600,000 square miles of marine and Great Lakes waters. The network includes a system of 13 national marine sanctuaries, as well as Papahānaumokuākea and Rose Atoll marine national monuments. Few places on the planet can compete with the diversity of the National Marine Sanctuary System, which protects America's most iconic natural and cultural marine resources. The system works with diverse partners and stakeholders to promote responsible, sustainable ocean uses that ensure the health of our most valued ocean places.

America's underwater national treasures conserve some of the Nation's most critical natural, historic and cultural resources such as the USS Monitor, Midway Island, sacred heritage sites for Native Americans, and some of the largest and oldest corals in the world. They are home to millions of species, preserve more than 300 shipwrecks and promote public access for exploration and world-class outdoor recreation for future generations. They generate \$8 billion annually in local economies and support numerous jobs and businesses in the fishing, tourism, recreation, and scientific research sectors. Sanctuary visitor centers, vessels and facilities are key assets for communities—they attract millions of visitors to the coasts every year. In addition, they stimulate public-private partnerships on emerging technologies, new research and hands-on educational learning opportunities. We request the subcommittee fund the National Marine Sanctuaries program with sufficient funding to support the current national marine sanctuaries as well as Papahānaumokuākea, Rose Atoll and New England Coral Canyons marine national monuments.

NOAA Office of Education.—The Aquarium provides a wide variety of educational experiences for students, teachers, and families all designed to inspire ocean conservation. We support local schools by hosting field trips and hands-on learning experiences for students, as well as offering professional development activities for teachers. Our programs dovetail with NOAA's educational programs that support the national effort to educate and train our workforce for the future. We urge the subcommittee to reject the administration's plan to terminate NOAA education programs and request funding at least at the following levels: \$8 million for the Environmental Literacy Grants Program (including ocean education grants) and \$12 million for the Bay, Watershed, Education and Training Program.

Marine Mammal Commission.—The Marine Mammal Commission (MMC) is an independent government body established by Congress to advance the conservation of marine mammals and their environment. Aquariums play a critical role in marine mammal conservation through broad-based public education and outreach activities, cutting-edge research projects and advocacy for strong policies to protect our oceans. We request that the subcommittee reject the administration's proposal to terminate the MMC and at least maintain funding at \$3.4 million.

John H. Prescott Marine Mammal Rescue Assistance Grant Program.—The Prescott Program provides an important source of grant funding and cooperative agreements to recover stranded marine mammals and turtles. The program covers a variety of activities related to marine mammal strandings, including recovery and treatment (i.e., rehabilitation), data collection from living or dead animals, facility upgrades, operational costs, staffing and training. We call on the subcommittee to reject the administration's proposal to terminate the Prescott Program and request funding of at least \$4 million.

The Aquarium fully appreciates the extreme budget constraints confronting the Congress and the Executive Branch, and the intense scrutiny that must be applied to all Federal programs. Nevertheless, we believe ocean conservation and science programs are an investment in the future health, well-being, and economic competitiveness of our Nation. Thank you for your consideration of these requests for the fiscal year 2019 budget and we look forward to working with you to ensure strong support for these important ocean research and conservation programs.

[This statement was submitted by Ms. Margaret Spring, Vice President of Conservation & Science and Chief Conservation Officer.]

PREPARED STATEMENT OF THE NATIONAL ASSOCIATION OF LATINO ELECTED AND APPOINTED OFFICIALS

On behalf of the National Association of Latino Elected and Appointed Officials (NALEO) Educational Fund, I respectfully request your support for a \$4.735 billion appropriation for the Census Bureau in fiscal year 2019. We urge the committee to recommend this funding level to ensure that the Bureau can effectively complete the activities needed to prepare for a sound 2020 Census.

NALEO Educational Fund is the Nation's leading nonprofit organization that facilitates the full participation of Latinos in the American political process, from citizenship to public service. Our Board members and constituency encompass the Nation's more than 6,600 Latino elected and appointed officials, and include Republicans, Democrats and Independents.

NALEO Educational Fund is a national leader in Census outreach, community education and policy development. Our organization has decades of experience working closely with its Latino elected official constituency, other government officials and partner organizations to promote public policies to achieve the most accurate count possible of the Nation's population. NALEO Educational Fund has been a member of the U.S. Census Bureau's national advisory committees since 2000, and currently sits on the Bureau's National Advisory Committee on Racial, Ethnic and Other Populations. NALEO Educational Fund is also the co-chair of the Leadership Conference on Civil and Human Rights' Census Task Force, and of the National Hispanic Leadership Agenda's Census Task Force.

The 2020 Census cannot be successful without a complete count of the Latino community. Latinos are the second largest population group in the Nation, comprising 17.6 percent of our Nation's residents, and 26 percent of children under the age of five. The Census Bureau estimates that the 2010 Census may have missed 1.5 percent of the entire Latino population, and research suggests this included nearly 400,000 Latino children under the age of five. Undercounting Latinos in Census 2020 would severely diminish the accuracy and value of statistical data critical to sustaining our Nation's democracy and economic progress.

Conducting a credible decennial Census requires the most significant peacetime mobilization of resources that our Federal Government undertakes. For 2020, the Census Bureau's task is particularly daunting because the agency has committed to using new approaches for data collection. It is modernizing its procedures by collecting responses over the Internet. It is also using administrative records for address canvassing, and is seriously considering using these records to obtain demographic information on non-responding households. The Bureau needs to test these approaches for effectiveness and efficiency before deployment.

The Bureau will also need to sustain intensive efforts to protect the confidentiality of information provided over the Internet as cyber-security threats continually evolve. The agency can neither shortchange nor delay its efforts to put in place the reliable and secure IT backbone that it needs to conduct a modern 2020 Census, and to achieve cost-savings in its future surveys.

Moreover, in the Nation's current political and social climate, there is growing mistrust and fear of government, and the Census Bureau must begin in fiscal year 2019 to build relationships throughout the country with "trusted messengers" capable of motivating people to participate in the Census. The Bureau must also place advertising and create outreach materials that address Americans' concerns about cybersecurity, and the potential government misuse of Census information. This outreach must also highlight key motivators for Census participation.

The Secretary of Commerce's last-minute decision to add an untested and unnecessary citizenship question to the Census 2020 questionnaire will exacerbate the challenges facing the Bureau by deterring the participation of Latinos and other hard-to-count populations. The Bureau's own research has revealed widespread and unprecedented fear among respondents to other surveys; they are reluctant to participate fully and provide accurate information. The Bureau will need a particularly

robust and effective communications and partnership campaign which emphasizes the safeguards that protect the confidentiality of Census data. If the Bureau fails to proactively connect with trusted messengers and hard-to-count communities, it will be forced to spend exponentially more than it plans in fiscal year 2020 to reach non-responding households through extra mailings and visits: at least \$55 million more for each additional 1 percent of households that do not respond to initial mailings, up from an earlier estimate of \$45 million.

In spite of the challenging environment it faces, and in part because of funding restraints, the Bureau has dramatically reduced the number of local Area Census Offices (ACOs) it intends to open for Census 2020. In Census 2010, the Bureau opened nearly 500 ACOs, including one in every congressional district. In contrast, as of this writing, the Bureau intends to open only 248 for Census 2020. These offices are invaluable for building a trusted local community presence for the Bureau, particularly when staffed with individuals who have the cultural competency and linguistic skills to reach hard-to-count communities. These offices are also on the “frontlines” of census operations, and can troubleshoot when problems or challenges arise during enumeration activities.

Because its work is cyclical, and intensifies every decade as the year ending in -0 approaches, the Census Bureau needs significantly increased appropriations in the fiscal years ending in -9 and -0 as compared to its budget in preceding years. Congress has never failed to meet the Bureau’s fluctuating needs in the most critical years for decennial Census preparations, so our Nation has not had to consider the devastating impact a failed Census would have on our Nation’s democracy, prosperity and well-being. We are now compelled to face this prospect by the administration’s woefully inadequate appropriations request for the Bureau for fiscal year 2019, which is well below the amount that the Department of Commerce projected it would need to ensure the success and preservation of some cost-savings in the conduct of the 2020 Census.

Failure to provide at least \$4.735 billion for the Census Bureau in fiscal year 2019 would shortchange important activities, including the creation of a contingency fund recommended by Secretary Wilbur Ross; the full implementation of a robust communications campaign; the hiring of a number of community partnership specialists comparable to the number employed in advance of the 2010 Census; and the opening of 52 additional ACOs. Funding for contingencies would guarantee that no corners are cut in IT systems development—an effort that has experienced cost overruns—and would equip the Bureau to implement rapid staffing and other changes that might become necessary, should aspects of the operational plan prove unworkable because they were never validated and finalized.

NALEO Educational Fund urges you to appropriate \$4.735 billion to the Census Bureau in fiscal year 2019, in recognition that funding thoughtful preparation for the decennial Census best ensures the efficiency and accuracy of this critically important undertaking. Without adequate funding to realize its plans for modernization and to navigate a challenging social environment, the Census Bureau’s efforts to conduct a credible and accurate 2020 Census are in acute jeopardy. Without accurate data, Latinos and all Americans cannot realize our potential economic, political, and social success. Stewardship of an effective Census is one of the first duties assigned in the Constitution to the Federal Government, as well as one of the most fundamental to our democratic character.

We are grateful for your attention to these matters, and for the opportunity to submit testimony in support of full funding for the Census Bureau.

[This statement was submitted by Arturo Vargas, Executive Director, NALEO Educational Fund.]

PREPARED STATEMENT FOR THE RECORD FROM
 THE NATIONAL ASSOCIATION OF MARINE LABORATORIES
 THE IOOS ASSOCIATION
 THE NATIONAL ESTUARINE RESEARCH RESERVE ASSOCIATION
 THE COASTAL STATES ORGANIZATION
 THE SEA GRANT ASSOCIATION
 THE NATIONAL MARINE SANCTUARY FOUNDATION

IN SUPPORT OF FISCAL YEAR 2019 APPROPRIATIONS FOR THE NATION'S OCEAN, COASTAL,
 AND GREAT LAKES RESEARCH, EDUCATION, CONSERVATION, AND RESOURCE MANAGE-
 MENT ENTERPRISE

Mr. Chairman and Members of the subcommittee, this joint statement is submitted on behalf of the non-profit organizations listed above who share a deep and overriding concern for and frequently partner together to strengthen the health of the Nation's oceans, coasts, and Great Lakes. We refer to ourselves as an ad hoc Coastal Roundtable and meet periodically to share mutual concerns, discuss and undertake joint programmatic initiatives, and exchange information and best practices.

This subcommittee is uniquely responsible for the health of the ocean, coastal, and Great Lakes enterprise through your oversight and resource decisionmaking responsibilities related to NOAA, NSF, NASA, and other agencies. That enterprise is a critical part of the security of the Nation as it relates to economic, environmental, national, homeland, energy, conservation resources, and food security issues. In fiscal year 2019 the administration has proposed the elimination of most of the funding for this subcommittee's extramural support for ocean, coastal, and Great Lakes research, conservation, observing, and education programs. We urge the subcommittee to strengthen the support for ocean and coastal programs consistent with the new spending levels in the Bipartisan Budget Act of 2018.

For centuries, our oceans and coasts have sustained lives and livelihoods, divulged ancient and unforeseen treasures, stirred our dreams of remarkable new discoveries, and thrilled us to discover and observe the extraordinary marine life below the surface. But never in history have we had the immense opportunities now beckoning from the sea. On the horizon is a new ocean/coastal economy, an exciting frontier that offers great promise for making our Nation safer, healthier, and more prosperous. This new economy is a knowledge-based economy, looking to the ocean and coastal enterprise not for extraction of material goods but for data, observations, and information to address societal challenges and inspire their solutions. This economy is entrepreneurial and environmentally responsible, collaborative, and competitive.

A recent report from the Center for the Blue Economy reported that the ocean economy generated a larger share of U.S. economic activity than farming, food products, oil and gas extraction, and forest products. Employment supported by this part of the economy is almost as large as the employment of all of these industries combined. The Great Lakes alone generated nearly \$5 trillion in economic activity or about 30 percent of combined U.S. and Canadian economic output. Finally, the U.S. marine transportation system is an essential driver of the U.S. economy and its impact is felt well beyond the coast and reaches into the heartland of the Nation. America's seaports are crucial generators of economic development and well-paying jobs, both regionally and nationally, that is felt throughout all supply chains that use the ports.

The ocean and our coasts are invaluable for humanitarian, environmental, and health reasons. The oceans are a primary source of food for over one billion people, a globally significant regulator of the earth's climate, the basic source of water for the hydrologic cycle, a cleaning agent that absorbs carbon dioxide and generates oxygen, and home to thousands of flora and fauna. The ocean has been a source of new drugs to treat certain cancers. Blue-green algae, commonly found in Caribbean mangroves, are used to treat small-cell lung cancer and certain sponges produce chemical substances that can be used to treat cancer and manage pain. A wide gulf often separates science from the people who need research results to protect and support them. However, the new ocean economy puts science and predictive capabilities to work in a way that can fill critical, fast-rising needs across sectors. All of the organizations that have lent their names to this statement stand in strong support for the ocean, coastal and Great Lakes research, conservation, observing, and education programs managed by NOAA's National Ocean Service and Office of Oceanic and Atmospheric Research. Specifically, we are referring to:

The National Sea Grant College Program and Marine Aquaculture	The National Marine Sanctuary System Coastal Zone Management and Services
The Ocean, Coastal, and Great Lakes Cooperative Institutes	Coastal Management Grants
The Integrated Ocean Observing System	The Digital Coast Program
The National Estuarine Research Reserve System	Coastal Resilience
	Coastal Science and Assessment
	NOAA Education

Sea Grant is a unique program within NOAA that sends 95 percent of its appropriated funds to coastal States through a competitive process to address issues that are identified as critical by public and private sector constituents and coastal communities throughout the United States. Sea Grant fosters cost-effective partnerships among State universities, State and local governments, NOAA, and coastal communities and businesses, leveraging nearly \$3 for every \$1 appropriated by Congress. In 2016, the Sea Grant program helped generate an estimated \$611 million in economic impacts, created or sustained over 7,000 jobs, provided 33 State-level programs with funding that assisted 494 communities with technical assistance on sustainable development practices, worked with about 1,300 industry and private sector, local, State and regional partners, and supported the education and training of over 2,300 undergraduate and graduate students.

America's estuaries sustain coastal businesses, protect communities from flooding, keep water clean, preserve commercial fisheries, support wildlife, and provide opportunities for recreation. The National Estuarine Research Reserve System (NERRS) maintains 280 stations that track local water quality, pollution, and weather around the country. Every 15 minutes, these platforms collect data—42 million data points each year—that track hazardous spills, shellfish industry operations, storm damage and more. Reserves engage more than 36,000 volunteers and community members. Nearly 95 percent of Reserves allow for recreational fishing; 85 percent allow for hunting. Reserve programs help sustain more than 10,000 jobs, provide training to more than 13,400 people, and assist more than 2,000 decision makers and 570 businesses. Reserve programs reach more than 3,000 educators and 81,000 K–12 students receive STEM education in the outdoors. More than 100 universities and research institutions partner with Reserves on science and monitoring. These collaborations have supported approximately 350 graduate research fellows. Similar to Sea Grant, approximately 98 percent of Federal NERRS funding goes to the communities in which the Reserves are located. NERRS funding also leverages State matching funds raising \$6 million annually to supplement the Federal funding.

Coastal observing systems are used to gather real time information and turn it into useful products that support human populations, coastal economies and a healthy, sustainable environment. They provide timely, actionable information developed from reliable and user-driven science to provide insight into present and future conditions. The need for data and information about our coasts and Great Lakes to help protect lives, economies and the environment has never been greater. Flood protection, safe and efficient marine operations, fisheries, aquaculture, water quality and safe recreation require an expanded network of observing systems and enhanced analysis that will improve predictive and forecasting capabilities for all users. The Integrated Ocean Observing System (IOOS) is a Federal partnership with regional organizations that is improving our understanding of the diverse characteristics of the Nation's regions. IOOS generates and delivers quality information about the Nation's oceans, coasts and Great Lakes. IOOS increases economic efficiency and minimizes redundancy by leveraging non-Federal investments; in fact, over fifty percent of the marine data now assembled and disseminated by NOAA's National Data Buoy Center is from non-Federal sources. IOOS provides a cost-effective approach to providing the Nation with reliable information to enhance maritime commerce; improve weather and flooding forecasting; supporting fisheries, ecosystems and water quality; and enhances our ability to plan for and respond to unforeseen hazards.

The National Coastal Zone Management Program (CZM Program) is a State-Federal partnership supports the effective management, beneficial use, protection, and development of the coastal zone. Healthy coastal resources support business and conservation and long-term planning is essential for coastal areas to remain the economic drivers they are today. In fiscal year 2017, States and territories matched over \$56.9 million in investment in the CZM Program. The CZM program helps ensure that our Nation's coastal communities are able to plan for an uncertain future and help protect lives and investments on the coast. This State-Federal partnership ensures the responsible use of coastal resources by balancing the needs of economic development and conservation of natural resources while also planning for potential impacts to a State's coastal zone.

America's National Marine Sanctuary System consists of 13 national marine sanctuaries and two marine national monuments encompassing over 620,000 square miles of marine and Great Lakes waters. Sanctuaries are home to millions of species, preserve our Nation's maritime heritage, and promote public access for exploration and world-class outdoor recreation and enjoyment for future generations. They generate \$8 billion annually in local economies and support numerous jobs and businesses in the fishing, tourism, recreation, and scientific research sectors. Because of strong ties to the local communities, businesses, and organizations, every dollar of public investment in sanctuaries stimulates a greater return on investment for our communities by heavily leverage private funds and partner contributions. Sanctuary visitor centers, vessels, and facilities are key assets for communities; stimulate public-private partnerships on emerging technologies, cutting edge science, and hands on education; and attract millions of visitors to the coasts each year.

The Digital Coast Program was developed to meet the unique information needs of the coastal management community. It provides access not just to a growing body of coastal data, but also the tools, training, and information needed to make over 5 trillion points of LIDAR, 37 terabytes of imagery, and 800,000 square miles of land cover, collected from both Federal and non-Federal sources, useful for coastal managers, planners, and decision makers charged with managing the Nation's coastal resources. The products and services provided by the Digital Coast include data, information, and training for more than 4,000 coastal communities.

We urge the subcommittee to continue to support its portfolio of ocean and coastal programs and we offer the following specific programmatic recommendations:

- National Sea Grant College Program.*—\$85 million for research, education, extension, and outreach activities, including Marine Aquaculture, STEM education, and Sea Grant fellowship programs within the NOAA Operations, Research, and Facilities (ORF) account within the Office of Oceanic and Atmospheric Research.
- National Estuarine Research Reserve System.*—\$27 million in NOAA's Operations, Research and Facilities account within the National Ocean Service.
- National Estuarine Research Reserve System.*—\$1.7 million for the Procurement, Acquisition and Construction account within the National Ocean Service.
- Sanctuaries and Marine Protected Areas.*—\$57 million within the National Oceanic and Atmospheric Administration's (NOAA) Operations, Research, and Facilities (ORF) account in the National Ocean Service.
- Marine Sanctuaries Construction.*—\$8.5 million within NOAA's Procurement, Acquisition, and Construction (PAC) account in the National Ocean Service.
- Coastal Zone Management Grants.*—\$75 million within NOAA's Operations, Research, and Facilities (ORF) account, National Ocean Service (under Coastal Management Grants line).
- Coastal Resilience Grants.*—\$15 million within NOAAs Operations, Research, and Facilities account, National Ocean Service (under Coastal Management Grants line).
- Regional Integrated Ocean Observing System (IOOS).*—\$37.7 million within NOAA's Operations, Research, and Facilities account, National Ocean Service.
- Digital Coast Program.*—\$5 million within NOAA's Operations, Research, and Facilities account, National Ocean Service.

We appreciate the funding constraints and the many worthy competing claims the subcommittee must confront. Our coasts are home to 40 percent of the Nation's population. Annually our coastal counties produce more than \$7.6 trillion in goods and services, employ 53.6 million people, and pay \$3 trillion in wages. Coastal wetlands conservation measures prevented an estimated \$625 million in property damages during Hurricane Sandy. Ocean, coastal, and Great Lakes research, education, conservation, and resource management practices funded by this subcommittee are investments in the future health and well-being of our coastal communities' economies which will result in returns of improved quality of life, environment and economic resilience many times over the Federal investment.

Thank you for the opportunity to provide this unified message.

PREPARED STATEMENT OF THE NATIONAL ASSOCIATION OF MARINE LABORATORIES

IN SUPPORT OF FISCAL YEAR 2019 APPROPRIATIONS FOR THE NATION'S OCEAN, COASTAL, AND GREAT LAKES RESEARCH, EDUCATION, CONSERVATION, AND RESOURCE MANAGEMENT ENTERPRISE

Mr. Chairman and Members of the subcommittee, this subcommittee is uniquely responsible for the health of the ocean, coastal, and Great Lakes enterprise through your oversight and resource decisionmaking responsibilities related to NOAA, NSF, NASA, and other agencies. That enterprise is a critical part of the security of the Nation as it relates to economic, environmental, national, homeland, energy, conservation resources, and food security issues. In fiscal year 2019 the administration has proposed the elimination of most of the funding for this subcommittee's extramural ocean, coastal, and Great Lakes research, conservation, observing, and education programs. We urge the subcommittee to restore funding and strengthen these programs consistent with the new spending levels in the Bipartisan Budget Act of 2018.

U.S. leadership in science and technology is being challenged by our international competitors. Investing in science and technology that relates to our oceans, coasts, and Great Lakes will help sustain U.S. leadership and contribute significantly to national security, economic security, food and energy security, and the security of our natural resources. In the R&D Chapter of the fiscal year 2019 Budget Request, the administration acknowledged that "Innovation in science and technology has been a cornerstone of America's economic progress since the founding of this Nation". The National Association of Marine Laboratories (NAML) strongly urges the Nation's decision makers to significantly strengthen the Federal Government's investment in extramural, merit-based, competitive research, infrastructure, and education programs at NSF, NOAA, NASA, and other ocean, coastal, and Great Lakes related agencies to develop the knowledge, the diverse workforce, and the technological innovations needed to power the Nation's economy, create jobs, improve health, and strengthen national security.

NAML recommends expanded support for Federal agencies and programs that fund research, infrastructure, and education activities focused on:

- U.S.-based aquaculture to reduce the ever-increasing demand for foreign imports, to advance seafood security and opportunities for economic growth.
- Oceanographic and geochemical exploration and associated technology development to advance national security, commerce and domestic energy independence.
- Data collection and adaptive management strategies to increase productivity and sustainability of marine fisheries and social-economic productivity of U.S. exclusive economic zones.
- Comprehensive understanding of ecosystems which support fisheries and other social-economic drivers.
- Defining the impacts and causative factors for shifting environmental regimes to inform risk management of critical defense, transportation, civic and business infrastructure along U.S. coastlines.
- Discovery and innovation in biological, chemical, geological and physical marine sciences to support advancement of human and environment health and social-economic objectives.

THE IMPORTANCE OF OCEANS, COASTS, AND GREAT LAKES TO NATIONAL, ECONOMIC, AND ENVIRONMENTAL SECURITY

The security of the U.S. is in large part dependent on our ocean, coastal, and Great Lakes resources:

- Fourteen percent of U.S. coastal counties produce 45 percent of the Nation's gross domestic product (GDP), with close to one in 45 jobs directly dependent on the resources of the oceans and Great Lakes;
- In 2014, the ocean economy's 149,000 business establishments employed about 3.1 million people, paid \$123 billion in wages, and produced \$352 billion in goods and services. This accounted for about 2.3 percent of the Nation's employment and 2.0 percent of its gross domestic product;
- Offshore mineral extraction represents 43 percent, and tourism and recreation account for 31 percent, of the ocean economy contributions to GDP. Tourism and recreation account for 72 percent of the ocean economy jobs; and
- In summer 2017, the first ship to traverse the Arctic Northern Sea Route without assistance from ice-breaking vessels completed its journey. That transformational moment drives home both the opportunity and the imperative for

the United States, a Nation with an important Arctic presence, to ready itself for the new Arctic.

The oceans are a primary source of food for over one billion people; a globally significant regulator of the earth's weather and climate; the basic source of water for the hydrologic cycle; a cleaning agent that absorbs carbon dioxide and generates oxygen; and home to thousands of flora and fauna, many with pharmaceutical value. A wide gulf often separates science from the people who need it to protect and support their well-being.

In 2014, the ocean economy employed more people in the U.S. than the telecommunications, crop production, and building construction industries combined. Additionally, if the Nation's coastal counties were considered an individual country, they would rank number three in global GDP, behind only the U.S. and China. The Great Lakes alone generated nearly \$5 trillion in economic output or about 30 percent of combined U.S. and Canadian economic production.

The United States is the leading global importer of fish and fishery products, with 91 percent of the seafood we eat originating abroad—half of which is from aquaculture. Driven by imports, the U.S. seafood trade deficit grew to over \$14 billion in 2016. NAML laboratories are leaders in developing and supporting innovative methods that will improve and encourage sustainable U.S. aquaculture products that complement, not compete with, existing U.S. commercial fisheries.

The U.S. marine transportation system is a major driver of the U.S. economy and its impact reaches into the heartland of the Nation. America's seaports are crucial generators of economic development and well-paying jobs, regionally and nationally, throughout all supply chains that use the ports. Long-term sustainability of such critical ocean-front infrastructure in the wake of shifting—and dynamic—environmental conditions is a significant concern addressed by marine laboratories, which typically share the same geographic proximity to the water.

All the issues identified above—and more—can be addressed, in part, through a vibrant ocean science and technology enterprise. Such an enterprise is fueled by the support provided by NAML laboratories.

THE ROLE OF MARINE AND GREAT LAKES LABORATORIES IN AMERICA'S RESEARCH AND EDUCATION ENTERPRISE

NAML advocates for the importance of marine and freshwater science and education to America's health, security and productivity. NAML seeks to: champion the national value of marine and Great Lakes research, infrastructure, monitoring and observing, education, and outreach; advocate for robust merit-based Federal funding programs to address societal needs; enhance the capabilities and networking of Marine and Great Lakes laboratories to serve the Nation's coastal information needs; and contribute to the education and training of a diverse workforce for the future.

The national network of Marine and Great Lakes science laboratories are place-based national assets. Their geographic reach includes estuaries, the coastal zone, the Great Lakes and inland watersheds, all the oceans of the world including polar regions, and the sea floor. They connect scientists, students, public and civic leaders with leading edge science, environmental intelligence, and professional training that contributes to the management and stewardship of our oceans, coastal zones and Great Lakes. NAML laboratories share common mission elements and broad expertise:

- To produce and assimilate knowledge of world oceans, coastal zones, Great Lakes and watersheds;
- To train future generations of marine and freshwater scientists, resource managers, and civic leaders;
- To inspire public and civic understanding and stewardship of marine and freshwater resources; and
- To inform preservation, restoration, management and utilization of marine and freshwater resources.

The intersection of ocean, coastal zone and Great Lakes natural resources and U.S. economic activity is complex and highly interdependent. The U.S. depends on healthy marine and freshwater resources, yet many economic activities have the potential to damage these resources, putting jobs, wages and gross domestic product (as well as human health and well-being) at risk. Marine Laboratories operate at this interface of human socioeconomics and the natural aquatic world. They provide access to the full spectrum of marine and Great Lakes habitats. Often affiliated with universities, marine laboratories are research, monitoring and placed-based teaching platforms that support faculty scientists, graduate and undergraduate students, and public/civic outreach activities to promote stewardship and informed environmental and business management practices. Programs such as NSF's ocean,

earth, polar, and biological research programs, NOAA's ocean and coastal programs, Sea Grant, EPA's Wetlands, Oceans and Watersheds, and other mission agency programs rely on marine and Great Lakes laboratories to contribute access, knowledge, data, and technologies to help improve management of these natural assets and sustain their development as socioeconomic drivers.

Marine and Great Lakes science laboratories play a vital role in the decadal science priority themes identified in *Sea Change: 2015–2025 Decadal Survey of Ocean Sciences*. The report indicates that Marine and Great Lake science laboratories are *critical or important* for several of the priority questions, including studies of coastal food webs, ecosystem biodiversity, and human impacts on coastal environments. NSF support of field stations and marine laboratories provides much-needed infrastructure and capital improvements that enhance the quality of scientific research and engagement with the public. Recent efforts by NSF to promote networking and data sharing among field laboratories will provide further opportunities for research and education. *Sea Change identifies marine and Great Lakes laboratories as having a high degree of relevance towards priority research questions with lower costs than other marine infrastructure.*

We urge the subcommittee to continue to support its portfolio of ocean and coastal programs and we offer the following specific programmatic recommendations:

- National Sea Grant College Program.*—\$85 million for research, education, extension, and outreach activities, including Marine Aquaculture, STEM education, and Sea Grant fellowship programs within the NOAA Operations, Research, and Facilities (ORF) account within the Office of Oceanic and Atmospheric Research.
- National Estuarine Research Reserve System.*—\$27 million in NOAA's Operations, Research and Facilities account within the National Ocean Service.
- National Estuarine Research Reserve System.*—\$1.7 million for the Procurement, Acquisition and Construction account within the National Ocean Service.
- Sanctuaries and Marine Protected Areas.*—\$57 million within the National Oceanic and Atmospheric Administration's (NOAA) Operations, Research, and Facilities (ORF) account in the National Ocean Service.
- Marine Sanctuaries Construction.*—\$8.5 million within NOAA's Procurement, Acquisition, and Construction (PAC) account in the National Ocean Service.
- Coastal Zone Management Grants.*—\$75 million within NOAA's Operations, Research, and Facilities (ORF) account, National Ocean Service (under Coastal Management Grants line).
- Coastal Resilience Grants.*—\$15 million within NOAA's Operations, Research, and Facilities account, National Ocean Service (under Coastal Management Grants line).
- Regional Integrated Ocean Observing System (IOOS).*—\$37.7 million within NOAA's Operations, Research, and Facilities account, National Ocean Service.
- Digital Coast Program.*—\$5 million within NOAA's Operations, Research, and Facilities account, National Ocean Service.

We appreciate the funding constraints and the many worthy competing claims the subcommittee must confront. Our coasts are home to 40 percent of the Nation's population. Annually our coastal counties produce more than \$7.6 trillion in goods and services, employ 53.6 million people, and pay \$3 trillion in wages. Coastal wetlands conservation measures prevented an estimated \$625 million in property damages during Hurricane Sandy. Ocean, coastal, and Great Lakes research, education, conservation, and resource management practices funded by this subcommittee are investments in the future health and well-being of our coastal communities' economies which will result in returns of improved quality of life, environment and economic resilience many times over the Federal investment.

Thank you for the opportunity to submit these recommendations.

PREPARED STATEMENT OF THE NATIONAL COURT APPOINTED SPECIAL ADVOCATE
ASSOCIATION

FISCAL YEAR 2019 DEPARTMENT OF JUSTICE FUNDING

Chairmen Shelby and Moran, Vice Chairman Leahy, Ranking Member Shaheen, and Members of the Commerce, Justice, Science, and Related Agencies Subcommittee, thank you for the opportunity to submit remarks on the Department of Justice (DOJ) fiscal year 2019 budget including full funding of the Court Appointed Special Advocates (CASA) Program through the Office of Juvenile Justice and Delinquency Prevention (OJJDP) at the congressionally-authorized level of \$12 million.

CASA/Guardian ad Litem (GAL) advocacy is a well-established model strongly associated with improved long-term outcomes for child victims, for which the need continues to be both deeply profound and deeply devastating. With congressional support at the fully authorized level, the CASA/GAL network in 49 States and the District of Columbia will enhance and advance specialized training, tools, and resources to continue delivering vital one-on-one best-interest advocacy that addresses the complex and ever-evolving needs of traumatized children who have been victimized by one or more primary caregivers.

Emerging issues such as the commercial sexual exploitation of children and our Nation's growing opioid epidemic—for which children account for an increasing number of victims—both necessitate a greater specialization within one-on-one advocacy, with a keen and deliberate focus on progressing toward the call within the Victims of Child Abuse Act to serve every child victim. As we enrich CASA/GAL advocacy to encompass evolving direct service needs, our national network will further strengthen its capacity to serve over 280,000 child victims of abuse and neglect.

Child victimization and maltreatment by primary caregivers is distressingly on the rise, and with it, so too rises the impact on the child and society. Traumatized victims of child abuse and neglect face significant and multiple risk factors, most notably, juvenile delinquency, adult criminality, and poor educational performance that affects future employment and stability. These issues result in a hefty impact on Federal, State, and local spending—at least one-quarter of the DOJ budget is dedicated to our Nation's prison system, and at the same time, the Centers for Disease Control and Prevention (CDC) estimates the economic and social costs of child abuse and neglect to total \$124 billion nationwide per annum. Local CASA/GAL programs offer an effective service to child victims of abuse and neglect that improves outcomes, increases the efficient functioning of our court systems, and saves hundreds of millions in Federal and State taxpayer dollars annually in the process.

CASA/GAL programs are, at the heart of their operation, a highly effective leveraging of community-based resources to provide dedicated and sustained one-on-one advocacy for child victims and advise the courts of the child's best interests and needs throughout abuse and neglect proceedings. Research has shown that the presence of a caring, consistent adult in the life of a child victim is associated with improved long-term outcomes. These efforts, which focus on helping the child find a safe, permanent home where they can both heal and thrive, require thorough background screening, specialized training, and resources to promote a nationwide system of programs that adhere to and assure the highest quality of services and care for the child victim.

CASA Program funds through DOJ achieve and uphold national standard setting, assessment, accountability, and evaluation across 938 local, State, and Tribal programs to promote improved child outcomes and effective stewardship of public investments in victim advocacy. Evidence-based practices, intensive technical assistance, direct program guidance and partnerships, and national program standards and quality assurance processes all lie at the foundation of effective CASA/GAL program service delivery in communities across the Nation.

Given the nature of the CASA/GAL advocates' intensive work with child victims of abuse and neglect, standards of rigorous screening, training, supervision, and service are implemented nationwide, with congressional support, to ensure consistent quality for victims who directly benefit from having their needs and rights championed in the courtroom and in the community. Comprehensive pre-service, in-service, and issue-focused training curricula—including training in disproportionality, cultural competency, and working with older youth—ensures a cutting edge approach to victim services centered on the child thriving well into the future as a member of the community. Federal support is foundational to the solid and high-quality functioning of a national child advocacy network for victims of abuse and neglect.

As the needs of child victims of abuse and neglect grow and change, so must the specialization of one-on-one advocacy and services by CASA/GAL programs. Since the Victims of Child Abuse Act was passed, the landscape of victims' services for children has evolved significantly. Researchers and practitioners know more now than ever about trauma, and its associated impacts on child development, as well as the significant and multiple risk factors and issues faced by abused and neglected children such as mental health/post-traumatic stress disorder (PTSD), commercial sex trafficking, overmedication, and the growing effects of substance abuse and the opioid epidemic in particular. Further, we know that youth of color in particular face very significant challenges—in addition to victimization—on their path to a thriving adulthood. CASA/GAL advocates bring one-on-one attention and a dedicated focus to each of the issues that the child victim faces, but additional resources

are needed to enhance and build their knowledge base as part of a continuous advocacy development process.

These complex issues warrant adaptive and responsive training, technical assistance, and resources, while continuing on a trajectory of maintaining quality care and services within current CASA/GAL caseloads and also simultaneously building the capacity to take on additional cases when appointed by the court. National CASA Association is committed to continuous improvement of training, technical assistance, and resource delivery to strengthen and support local CASA/GAL programs and State organizations to help advocates remain at the forefront of emerging child welfare issues.

Federal support at the fully authorized level is instrumental to bridging advocacy training and best practice tools into multiple and new emerging issue areas including child sex trafficking, substance abuse and opioid-overuse, and the overmedication of child victims, for example. Advocates need to be well versed in warning signs for these issues, as well as the available services, resources, and coordination of community and court efforts in order to best address the child victim's case.

Fiscal year 2019 funding of \$12 million will be targeted to fortifying resources and training for CASA/GAL programs in the area of commercial sexual exploitation based upon existing best practices and models. In addition, this Federal funding will be used to target resources to serve over 280,000 child victims of abuse and neglect, and continue efforts toward the development of State CASA/GAL organizations in the States currently without this resource that enhances support of program service delivery in local communities. Additional projects include sustaining development of training on best practices in addressing the needs of children impacted by the opioid epidemic and other forms of substance abuse, child sex trafficking, unaccompanied children and addressing racial disproportionality in child welfare and the need for racially and culturally sensitive recruitment and matching of CASA/GAL advocates.

According to the most recent government data available, the number of child maltreatment cases has increased to nearly 700,000 per annum. This remains a significant population with equally significant and complex issues and risk factors. Without the benefit of a specially trained CASA/GAL advocate that is able to devote dedicated time and attention to the details of the case, the child victim faces a complex and cumbersome court process and foster care system that is overwhelmed, overburdened, and under-resourced. Our ability as a national network to serve every child victim of abuse and neglect is directly tied to strengthening and expanding a foundational and interwoven program of advocate training, technical assistance, standards, tools, and resources that are funded with DOJ support.

While children who are the victims of maltreatment have suffered deep layers of trauma, these experiences do not have to be their only life story. Juvenile detention and adult incarceration do not have to be the path to their future. Substance abuse, PTSD, homelessness, and joblessness do not have to be the basis of their experiences. We can change their trajectory, together, with congressional support.

Caring, dedicated, and extensively trained CASA/GAL advocates bring about positive changes in the lives of child victims. Full funding is needed to continue expanding the advocate pipeline, enhance the training, resources, and services provided to and through CASA/GAL programs, and strengthen outcomes for future members of our Nation's workforce.

We urge the subcommittee to fund the Court Appointed Special Advocates Program at our authorized level of \$12 million in fiscal year 2019 to address the overwhelming need for dedicated advocacy on behalf of child victims of abuse and neglect. Thank you for your consideration.

[This statement was submitted by Tara L. Perry, Chief Executive Officer.]

PREPARED STATEMENT OF THE NATIONAL ESTUARINE RESEARCH RESERVE
ASSOCIATION

Chairman and Members of the subcommittee, my name is Lisa Auermuller and I am the Assistant Manager of the Jacques Cousteau National Estuarine Research Reserve in New Jersey, administered by Rutgers, The State University of NJ. I submit this testimony in my capacity as President of the National Estuarine Research Reserve Association (NERRA). NERRA is a not-for-profit scientific and educational organization dedicated to the protection, understanding, and science-based management of our Nation's estuaries and coasts.

Thank you, on behalf of these special places and all of the communities they support. We appreciate the investment Congress has made in the National Estuarine Research Reserve System (NERRS) over the past 45 years. Because of your support, coastal States and communities have worked to expand the NERRS into a network

29 protected places spanning over 1.3 million acres of coastal land. Reserves are locally managed programs that communities depend on to address critical challenges like balancing economic growth and natural resource conservation. Reserves help local communities plan for extreme storms and rising sea levels, protect nursery habitats that support commercial and recreational fisheries, and prepare the next generation to be wise stewards of these precious resources in the future. This unique State-Federal partnership brings the scientific expertise and financial resources of NOAA into coastal communities across the country. Investments in the research reserves support locally implemented science-based coastal resource management, research, and education programs.

RESERVES ARE VALUED, VALUABLE, AND HIGHLY LEVERAGED

Reserves support healthy estuaries and healthy estuaries support communities nationwide. From Alaska’s Kachemak Bay to Rookery Bay in Florida, estuaries protect thousands of communities from flooding, keep water clean, sustain and create jobs, support fish and wildlife, and offer endless opportunities for outdoor recreation and water-based small businesses. Reserve programs help sustain more than 10,000 jobs, provide training to more than 13,400 people. Our national system contributes billions of dollars to the shellfish and seafood industry and tens of billions of dollars in ocean-dependent industries along our coasts. Each year, coastal wetlands, like those protected by the NERRS, provide \$26.25 billion in value by protecting U.S. communities against storms.

Every reserve leverages additional funding for their surrounding communities. In some States, this can be as much as \$1.5 million. In addition to their ability to leverage funding, reserves engage and empower people in their own communities. Over a half of million people visit reserves each year and all reserves attract volunteers that offset costs by donating approximately 82,000 hours of work every year equating to a value of \$1.9 million in services. It is well documented that people place an enormous value in living near a healthy estuary. Locally, Reserves become trusted sources of science-based information and recreation for community members to recreate with, learn from and rely on when information is needed to inform decisionmaking.

NERRA RECOMMENDATIONS

For fiscal year 2019, NERRA strongly recommends the following funding levels within the National Oceanic and Atmospheric Administration (NOAA):

NERRS Operations	\$27 million
NERRS Procurement, Acquisition, and Construction (PAC)	\$1.9 million

NERRA is deeply concerned with the Administration’s elimination of funding for the NERRS and for other programs that support coastal and ocean science and management, but we are heartened by the support from Senate and Congress. We agree that everyone benefits from the return on investment the NERRS provide. People benefit from the economic opportunities and quality of life that coastal communities and natural resources provide. To preserve the safety, economic vitality, and cultural and environmental values of the coast, we need to invest in proven programs that are delivering direct benefits. NERRA’s recommended budget will allow reserves to maintain and increase:

- Science programs that deliver guidance and solutions to issues facing local, State and national interests.
- Environmental monitoring programs that serve as a foundational element of national water and weather coastal observations.
- Science, technology, engineering and mathematics focused education programs that serve approximately 81,000 students and more than 3,000 teachers each year.
- Public access for hunting, fishing, and passive recreation on over a million acres of land and water.
- Scientific technical assistance and information to professionals in over 2500 cities and towns and 570 businesses nation-wide
- Support for students and researchers at over 100 university partners

NERRA’s fiscal year 2019 request is a \$2 million increase over current program baseline. The additional \$2 million will stimulate graduate research on coastal communities and ecosystems by employing a graduate student at each reserve. These recommendations are derived from a congressionally requested Blue Ribbon Panel that evaluated the NERRS in 2015, and identified increased site specific science and

enhanced student research opportunities as locally beneficial essential services that reserves are well positioned to implement.

Specific within the fiscal year 2019 request, is support for a graduate research fellowship program. These locally based students would help reserves answer the most pressing local management questions. Past research by graduate fellows has informed State and local decisions on how to manage fish stocks, coastal erosion, and water quality. Hosting a research fellowship at reserves will train young professionals to understand the community context of coastal science and management questions, provide them with cross disciplinary mentors, and give them experience and opportunities to engage in meaningful science. In a time where funding for advance education degrees is very tight, and science skills is needed, this program is an excellent fit for helping coastal communities and young professionals. In one specific example from the Great Lakes, colleagues from Wisconsin found that graduate research helped communities predict problems and identify solutions relating to making stream banks more resilient to the region's increasingly frequent and intense storms.

PROTECTING SPECIAL PLACES FOR SCIENCE, RECREATION, EDUCATION

The NERRS Procurement, Acquisition, and Construction (PAC) funding is designated for land conservation, through acquisition of priority lands, and essential facilities construction and upgrades. This competitive funding program is matched by State funds and is critical to maintaining the places that host NERR research, education and outreach. Reserves are destinations for tourists, natural playgrounds for children, and havens for quiet reflection for people around the country. Additionally, hunters and fishermen use these public lands for commercial and recreational uses: 27 reserves allow for recreational fishing; and, approximately 85 percent allow for recreational hunting.

Funding the acquisition of coastal land protects research, education and recreational opportunities; water quality and quantity; flood storage areas; and critical fish and wildlife habitat. Coastal and estuarine habitats are consistently ranked as having the highest need for protection by national non-profits and State assessments. These places are also under the most intense development pressure as people continue to move to the coast in search of jobs and a high quality of life. This land is expensive, and is becoming scarce. PAC's Federal investment are often the critical seed monies necessary to attract other pots of private, State, local, and nonprofit funds.

PAC funding allows reserves to be a catalyst in their communities for conservation. Of the 1.3 million acres that are currently a part of the reserve system, over 500,000 of those acres are wetlands. Wetlands provide essential services to all Americans; they are fish and bird sanctuaries, trap pollutants, store carbon, and act as sponges to reduce flooding. This ability to store flood waters enables wetlands like salt marshes to reduce a community's storm damages. These marshes reduce the risk of flood exposure by 50 percent for people within 2/3 of a mile of these areas, while also reducing property losses in upstream communities. Reserves are critical coastal areas for protecting communities against storms and floods, especially along the eastern seaboard and the Gulf of Mexico. For example, \$625 million in property damages were avoided during Hurricane Sandy due to coastal wetlands protecting property and over 1,300 miles of roads. Ten NERRs were hit by that storm, contributing to the protection provided by these habitats. While studies of the impact of 2017 storms are not completed, they did include the second (Harvey), third (Maria), and fifth (Irma) most costly storms to hit the United States.

In addition to the preservation of critical coastal lands, NERRS PAC funds also in the increase of local construction jobs.

CONCLUSION

NERRA greatly appreciates the past support the subcommittee has provided. This support is critical to sustain and increase the economic viability of coastal and estuary-based communities, businesses and industries.

With NERRA's fiscal year 2019 request of \$27 million for the NERRS Operations and \$1.9 million for NERRS PAC, the program will be able to enhance delivery of credible scientific research and translation to local coastal communities around the country.

Thank you for the opportunity to present these remarks. On behalf of NERRA, I would be happy to answer questions or provide additional information to the subcommittee.

PREPARED STATEMENT OF THE NATIONAL LEGAL AID & DEFENDER ASSOCIATION

Dear Committee Members:

Thank you for the opportunity to provide testimony as the committee considers appropriations for fiscal year 2019. We write to request that you restore funding for the John R. Justice Student Loan Repayment Program. Signed into law by President George W. Bush, the program provides an incentive for talented lawyers to become public defenders and prosecutors by providing modest but consequential financial assistance in exchange for a minimum 3 year commitment to either of these roles.

The National Legal Aid & Defender Association (NLADA), founded in 1911, is the oldest and largest national nonprofit organization whose resources are exclusively dedicated to advancing equal access to justice for all Americans. NLADA champions effective legal assistance for people who cannot afford counsel, and serves as a collective voice for both civil legal aid and indigent defense systems throughout the Nation. NLADA's membership includes more than 800 civil legal aid and public defender offices that collectively represent thousands of attorneys in all 50 States and the U.S. Territories.

Public defenders and prosecutors each play an indispensable role in protecting justice and public safety in American communities. Public defenders fulfill the constitutional right to counsel; they are essential to due process and our concept of liberty. As Senator Christopher Coons and now-Attorney General Jeff Sessions explain in a 2013 letter, "quality representation not only promotes the rule of law and safeguards constitutional rights, it also saves money by reducing pre-trial and post-trial incarceration costs".¹

The high cost of a legal education, combined with the relatively low salaries offered to new public defenders and prosecutors, can create substantial financial hardship that dissuades qualified individuals from accepting or remaining in these positions. The John R. Justice program mitigates this problem by providing up to \$10,000 in repayment assistance per year (with an aggregate maximum of \$60,000) to participating attorneys. This makes a real difference. A 2015 report by NLADA² found that more than 80 percent of participating defenders would either feel a significant financial burden or be forced to leave their position if the program did not exist. Moreover, because the program is administered by Governor-appointed State agencies, it can respond efficiently to local needs.

Funding for the program has declined dramatically since its initial \$10 million appropriation. In fiscal year 2014, Congress provided just \$4 million, but this nonetheless enabled 853 prosecutors and 706 defenders from across the country to access some level of assistance. Unfortunately, despite the health of our economy improving, this decline has continued and the Consolidated Appropriations Act of 2018 includes only \$2 million for the program.

It is time to restore our investment in our justice system and in those who work every day to deliver on its promise by providing \$10 million for the John R. Justice Student Loan Repayment Program. With caseloads routinely exceeding national standards, and particularly in rural areas, recruitment and retention of qualified attorneys remains a challenge that deeply harms the ability of courts to fairly and effectively adjudicate cases. By fully funding this program, Congress can make an important impact on the administration of justice at minimal cost.

Thank you again for the opportunity to provide comments to the committee. If you have any questions, please do not hesitate to contact me at r.joy@nlada.org.

Sincerely,



Rosalie Joy
Vice President, Defender Legal Services
National Legal Aid & Defender Association

¹ <https://www.coons.senate.gov/newsroom/press-releases/senators-coons-sessions-urge-review-of-cuts-to-Federal-defender-services>

² http://www.nlada.org/sites/default/files/pictures/NLADA_Importance_of_PSLF_0.pdf

PREPARED STATEMENT OF THE NATIONAL LEGAL AID & DEFENDER ASSOCIATION

Dear Committee Members:

We appreciate the opportunity to provide comments as the committee considers appropriations for fiscal year 2019. We write specifically regarding the Legal Services Corporation (LSC). LSC provides grants and other support to civil legal aid organizations serving low-income individuals and families in every congressional district. The committee's decision to increase the budget of LSC in fiscal year 2018 is a welcome recognition of the critical role of civil legal aid in protecting the fundamental American promise of equal justice for all. We now urge the committee to take the next step and provide the resources that are required to adequately serve every eligible client that seeks assistance from an LSC grantee.

The National Legal Aid & Defender Association (NLADA), founded in 1911, is the oldest and largest national nonprofit organization whose resources are exclusively dedicated to advancing equal access to justice for all Americans. NLADA champions effective legal assistance for people who cannot afford counsel, and serves as a collective voice for both civil legal aid and indigent defense systems throughout the Nation. NLADA's membership includes more than 800 civil legal aid and public defender offices that collectively represent thousands of attorneys in all 50 States and the U.S. Territories.

The American legal system is extraordinarily complex and is nearly impossible to navigate without the assistance of effective legal counsel, but with nearly one in five Americans living near or below the Federal poverty level, many families simply do not have the money to pay for a lawyer when facing a legal problem. These problems can have devastating outcomes with life-altering consequences, like when a victim of domestic violence is unable to secure a restraining order and safety from their abuser; or a person addicted to opioids is denied access to treatment necessary for their continued sobriety; or the family who lose their home because they were unable to renegotiate with a mortgage lender; or a veteran with a disability who is wrongly denied the benefits they earned through military service. LSC grantees prevent harmful outcomes like these, making a vital difference in the lives of Americans every day, and solving these problems before they generate social and economic costs to our communities and our taxpayers.

In June 2017, we wrote to LSC to urge them to seek \$669 million in their budget request to Congress for fiscal year 2019. This was based on data from the 2017 report *The Justice Gap: Measuring the Unmet Civil Legal Needs of Low-income Americans*, which revealed that the fiscal year 2017 appropriation level (\$385 million) enabled LSC grantees to address to some degree 59 percent of legal problems brought to them. Based on this data, a conservative estimate of the resources that would be required to adequately address all the legal problems brought to grantee organizations is \$669 million. We note that this would not be sufficient to meet all the legal needs of low-income Americans, but it would enable organizations to serve far more of those individuals who directly seek their help. The letter from NLADA to LSC, which includes a more comprehensive explanation of this estimate, can be accessed at: <http://www.nlada.org/sites/default/files/FY19LSCBUDGETNLADA.pdf>.

This should not suggest that LSC grants are solely responsible for addressing the legal needs of low-income Americans. Rather, civil legal aid organizations effectively leverage the important foundation provided by LSC grants to attract additional investment and resources from other sources. On average, LSC grants now comprise just 35 percent of the total budget of LSC grantees. Through pro bono contributions by private sector entities, the impact of these Federal dollars is extended even further. This is one reason why 251 general counsel at some of America's largest corporations have signed a letter to Congress requesting an increase in funding for LSC. In addition to explaining why a robust investment in LSC is necessary for their companies to engage in pro bono legal services, the letter describes how the "[t]he promise of equal justice for all engenders trust in our justice system", which creates a "competitive advantage" for our country's businesses. The letter can be accessed at: <http://www.nlada.org/sites/default/files/LSCFY19GC.pdf>.

Thank you again for the opportunity to provide comments to the committee. If you have any questions, please do not hesitate to contact us at d.saunders@nlada.org and d.miller@nlada.org.

Sincerely,



Don Saunders
Vice President, Civil Legal Services
National Legal Aid & Defender
Association



David Miller
Manager, Policy Initiatives
National Legal Aid & Defender
Association

PREPARED STATEMENT OF THE NATIONAL MARINE SANCTUARY FOUNDATION

Mr. Chairman and Members of the Subcommittee on Commerce, Justice, Science and Related Agencies, thank you for the opportunity to submit written testimony regarding appropriations for the Office of National Marine Sanctuaries in fiscal year 2019. As supporters, stakeholders, and partners of America's National Marine Sanctuary System, we strongly urge Congress to support the Office of National Marine Sanctuaries at no less than \$65.5 million in fiscal year 2019. The same level requested by 91 Members of Congress in their bipartisan House dear colleague letter. We respectfully request that you prioritize requests for:

- Sanctuaries and Marine Protected Areas*, within the National Oceanic and Atmospheric Administration's (NOAA) Operations, Research, and Facilities (ORF) account, at a level of \$57 million; and
- Marine Sanctuaries Construction*, within NOAA's Procurement, Acquisition, and Construction (PAC) account, at a level of \$8.5 million.

The National Marine Sanctuary Foundation, California Marine Sanctuary Foundation (CA), Cordell Marine Sanctuary Foundation (CA), Greater Farallones Association (CA), Monterey Bay National Marine Sanctuary Foundation (CA), Friends of Malloys Potomac (MD), Friends of Thunder Bay National Marine Sanctuary (MI), Gray's Reef National Marine Sanctuary Foundation (GA), Olympic Coast National Marine Sanctuary Foundation (WA), and Sanctuary Friends Foundation of the Florida Keys (FL) strongly support funding the National Marine Sanctuary System at these levels. Our organizations work together to conserve treasured places in our oceans and Great Lakes for current and future generations of Americans to enjoy. We promote citizen science, research, conservation, education, and community engagement to protect coral reefs and marine habitats, conserve places of cultural significance, and preserve our maritime history and heritage. Partnerships are critical to the National Marine Sanctuary System. Through collaboration with local communities, government, corporations, and individual donors, our organizations increase our impact.

Today, the National Marine Sanctuary Systems consists of 13 national marine sanctuaries, and NOAA ONMS co-manages two marine national monuments, totaling over 620,000 square miles. These sites conserve some of the Nation's most critical natural, historic, and cultural resources in the ocean and Great Lakes such as the USS Monitor, Midway Island, sacred heritage sites for Native Americans, and some of the largest and oldest corals in the world. They are home to millions of species, preserve more than 300 shipwrecks and our Nation's maritime heritage, and promote public access for exploration and world-class outdoor recreation and enjoyment for future generations. Sanctuary visitor centers, vessels, and facilities are key assets for communities; stimulate public-private partnerships on emerging technologies, cutting edge science, and hands-on education; and attract millions of visitors to the coasts each year.

Across all national marine sanctuaries, about \$8 billion annually is generated in local, coastal economies from diverse activities like commercial fishing, research, education and recreation-tourist activities. Over 42 million people visit sanctuaries each year. From restaurants and hotels, to aquariums and kayak operators, the success of many businesses, millions of dollars in sales and thousands of jobs, directly depend on thriving national marine sanctuaries. As a travel destination, few places on the planet can compete with the diversity of the National Marine Sanctuary System. The majority of national marine sanctuaries' waters are open to recreational activities, which also allows for considerable benefits to local economies. Public-private partnerships bring innovative approaches to conserving our natural and cultural resources. Collaborations among universities, institutions, non-profits, businesses, and enforcement entities at local, State, and national levels leverage re-

sources and build relationships to have a greater impact for communities and the economy. Below are a few examples of the value of sanctuaries to local economies:

- In Washington State, \$101.6 million was spent on recreation in the Olympic Coast National Marine Sanctuary. This spending generated, with multiplier impacts, \$128.2 million in output, \$78 million in value-added (gross regional product), and \$46.1 million in income, which supported 1,192 jobs.
- Along the California coast, \$155.6 million on average is spent annually on recreational fishing in the State’s four national marine sanctuaries. This spending supports an average of 1,400 jobs, and generates \$213.1 million in sales and output and \$74.6 million in income in local communities.
- In the Florida Keys, more than 33,000 jobs are supported by ocean recreation and tourism, accounting for 58 percent of the local economy and \$2.3 billion in annual sales.
- In Michigan, the Thunder Bay National Marine Sanctuary is the focus of its tourism attractions and local development strategy from the Sanctuary Inn to the Great Lakes Maritime Heritage Center, to the STEM education opportunities through the Alpena Community College and local high school ROV competitions, to its glass bottom boat tours to experience the shipwrecks without getting wet. Over half (58 percent) of visitors to Alpena came to visit Thunder Bay National Marine Sanctuary, which is the region’s most popular attraction, boasting nearly 100,000 visitors per year.
- In Massachusetts, over \$126 million in whale watching revenue and 600 jobs at 31 businesses resulting from less than \$2 million invested in the Stellwagen Bank National Marine Sanctuary off of Massachusetts. Virtually all of Massachusetts whale watching occurs in Stellwagen Bank National Marine Sanctuary, recently named one of the premiere whale watching locations in the world.

Balancing multiple uses on the water and engaging many constituencies in the community, sanctuaries provide a comprehensive, highly participatory approach to managing and conserving marine and Great Lakes resources. National marine sanctuaries are the blue backyards for tens of thousands of citizens and volunteers who live along the coast or in the watersheds of these treasured sites. Public participation is a hallmark of sanctuaries and underscores their dedication to civic engagement and leadership.

Every year, thousands of volunteers devote their time and effort to protect sanctuaries for future generations. They represent the best of America and what starts as one passionate citizen becomes an empowered community. Sanctuary volunteer programs are nationally recognized and awarded for their work increasing awareness, engaging the community, promoting stewardship, and providing critical information and support for science, research, education, and management. In 2017, sanctuary volunteers contributed over 130,000 hours across the system, contributing more than \$3.14 million in valuable support. In 2017, almost 8,523 volunteers supported national marine sanctuary citizen science efforts helping to answer real-world scientific questions.

In 2022, the Nation will mark the 50th anniversary of the National Marine Sanctuaries Act. As the Nation moves towards this anniversary, it is a unique opportunity to invest in America’s public waters, and the communities and businesses that depend upon them. We recognize this request is a significant increase in fiscal year 2019 but it will serve as the beginning of a deliberate and strategic ramp up to boost sustainable economic growth, business development, and community engagement centered in national marine sanctuaries.

For sanctuary Operations, Research and Facilities (ORF) funding, we urge Congress to provide \$57 million. Because sanctuaries are located offshore, public awareness and education about the sites and the resources they conserve are critical, as is technology to let Americans look “under the surface.” Therefore, of the requested increase, we are proposing \$3 million for efforts to increase public education and awareness at individual sites in the National Marine Sanctuary System and strengthen the connection between communities and their marine and Great Lakes wonders. With the 50th Anniversary of the System only 5 years away, we hope to drive visitation and growth in the blue economy through fishing, diving, ports and shipping, recreation, hospitality, and tourism. To support this effort, the proposed increase includes \$1 million to for national blue business stewardship efforts for marine sanctuaries. We are requesting \$2 million to increase support for sanctuaries to conduct cooperative research efforts to improve resources management. Similar to America’s national parks, marine sanctuaries support tourism and a robust recreational industry. Finally, the requested increase includes \$2 million to support the incremental growth that will enable sanctuaries to be responsive to the groundswell

of communities nationwide seeking to expand sites or propose and designate new ones.

Sanctuary visitor centers, vessels, and facilities are key assets for communities; stimulate public-private partnerships on emerging technologies, cutting edge science, and hands-on education; and attract millions of visitors to the coasts each year. These platforms act as the public face of proactive management and protection, promoting partnerships for science and education, and are a vital link between sanctuaries and the millions of Americans who visit the coast each year. For sanctuary Procurement, Acquisition, and Construction (PAC) funding, we propose \$8.5 million. This request includes \$4 million to replace vessels critical to operations. This April, ONMS released its Small Boat Fleet Assessment. Every national marine sanctuary relies on its NOAA small boats to access its protected resources, but increasing demands on an aging fleet are leading to higher operating costs as well as near and long-term challenges to maintaining safe, efficient and effective operations. Investment is necessary now for new vessels. The request also includes \$2 million for visitor centers, facilities, and signage improvements and ADA compliance; and \$2.5 million in a Sanctuary Challenge Fund. The Sanctuary Challenge Fund is an innovative approach, based on the model of the highly successful National Park Service Centennial Fund, to finance signature projects and programs across the National Marine Sanctuary System. The public investment would be matched at least 1:1 by nonfederal donations to address the backlog of needs for sanctuary facilities that enhance the sanctuary visitor experience as part of the ramp up to the 50th anniversary. In addition, these investments will create jobs through construction and shipbuilding in Alabama, Mississippi, or Washington.

Our national marine sanctuaries are national treasures. The National Marine Sanctuary Foundation and our network of community leaders strongly urge Congress to invest in community-based national marine sanctuaries by prioritizing a budget of no less than \$65.5 million in fiscal year 2019. Investments in these areas support local economies and jobs in a diversity of sectors from education to outdoor recreation to fishing and underscore the value of communities in America's iconic underwater places.

Thank you for this opportunity to provide written testimony to the Senate Appropriations Subcommittee on Commerce, Justice, Science and Related Agencies.

[This statement was submitted by Ms. Kristen J. Sarri, President and CEO.]

PREPARED STATEMENT OF THE NATIONAL NETWORK TO END DOMESTIC VIOLENCE

Chairman Moran, Ranking Member Shaheen, and distinguished Members of the Appropriations Committee, thank you for this opportunity to provide testimony on the importance of investing in Violence Against Women Act programs and the Victims of Crime Act. I sincerely thank the Committee for its ongoing support for these lifesaving programs.

I am the President and CEO of the National Network to End Domestic Violence (NNEDV), the Nation's leading voice for victims of domestic violence and their advocates. We represent the 56 State and territorial domestic violence coalitions, their over 2,500 member domestic violence and sexual assault programs, and the millions of victims they serve annually. Our direct connection with victims and those who serve them gives us a unique understanding of their needs and the vital importance of these continued investments.

The purpose of this testimony is to request an investment of the full authorized amount of \$571 million in the Violence Against Women Act (VAWA) and the release of \$2.6 billion (with no transfers to other DOJ programs) from the Victims of Crime Act Fund administered by the U.S. Department of Justice in the fiscal year 2019 Budget. We sincerely appreciate the Committee's increased funding in the recently passed Omnibus bill. These much needed increases will help survivors access critical services and find safety. While we're requesting additional funding, we also want to recognize and thank the committee for their investment in VAWA, VOCA, and the VOCA Tribal stream, as demonstrated in the recently passed Omnibus bill for fiscal year 2018. Thanks to the commitment of this Committee countless victims will be able to access critical and life-saving services, and we truly appreciate the Committee's leadership in securing increased funding.

Incidence, Prevalence, Severity and Consequences of Domestic and Sexual Violence.—The crimes of domestic and sexual violence are pervasive, insidious and life-threatening. In 2011, the Centers for Disease Control and Prevention released the first-ever National Intimate Partner and Sexual Violence Survey which found that domestic violence, sexual violence and stalking are widespread. Domestic violence affects more than 12 million people each year, and more than one in four women

and one in seven men have experienced rape, physical violence, or stalking in his or her lifetime. The terrifying conclusion of domestic violence is often murder, and every day in the U.S. an average of 3 women are killed by a current or former intimate partner.ⁱ The cycle is perpetuated as approximately 15.5 million children are exposed to domestic violence every year.ⁱⁱ In addition to the impact of domestic and sexual violence to individual victims and their families, these crimes cost taxpayers and communities. According to the Centers for Disease Control, based on 1999 figures, the cost of intimate partner violence exceeds \$5.8 billion each year, \$4.1 billion of which is for direct healthcare services.ⁱⁱⁱ Translating this into 2018 dollars, based on the Bureau of Labor Statistics Consumer Price Index, the annual cost to the Nation is over \$9 billion per year. In addition, domestic violence costs U.S. employers an estimated \$3 to \$13 billion annually.^{iv}

Despite this grim reality, we know that when a coordinated response is developed and immediate and essential services are available, victims can escape from violence and succeed at rebuilding their lives. Additionally, several high-profile cases, national focus on domestic and sexual violence, and the #MeToo movement have given survivors the courage to come forward and hold their abusers accountable. As a result, shelters overwhelmingly report that they cannot fulfill the growing need for these services. To address unmet needs and build upon their successes, VAWA programs and the Victims of Crime Act fund release should receive significant investments in the fiscal year 2019 Commerce, Justice, Science Appropriations bill.

The Need for Increased Funding to Maintain Programs and Bridge the Gap.—NNEDV's *DV Counts Census* found that in just one day during 2016, 72,959 victims of domestic violence received critical emergency shelter, housing, counseling, legal support, children's advocacy, crisis line, and prevention related services, but 11,991 requests for services went unmet, largely due to lack of funding. That same year, domestic violence programs reported that they had laid off nearly 1,200 staff positions, 61 percent of which were direct service positions, such as case managers, advocates, shelter staff, and child advocates. For those individuals who are not able to find safety the consequences can be dire, including homelessness or continued exposure to life-threatening violence.

We have made phenomenal progress in addressing sexual and domestic violence because of Congress' ongoing, annual investment. Before the passage of VAWA, law enforcement often failed to conduct effective investigations and make arrests where appropriate, prosecutors often declined to file, and courts often neglected cases involving survivors and their families. With the passage of VAWA, the infusion of Federal funds fostered unprecedented coordination between frontline stakeholders. VAWA has elevated a national learning community, fostering innovation and promoting best practices. VAWA's work is complemented by VOCA, which funds direct services to victims of all types of crime, including dating violence and stalking. Together, VAWA and VOCA have fueled our undeniable national progress. Between VAWA's implementation in 1994 and 2011, serious victimization by intimate partner violence declined by 72 percent for women and 64 percent for men.^v VAWA saved an estimated \$12.6 billion in net-averted costs in its first 6 years alone.^{vi} A 2010 study demonstrated that an increase in the number of legal services available is associated with a decrease in intimate partner homicide.^{vii} Referring a victim to an advocate has been linked to an increased willingness to file a police report.^{viii} Continued investment is vital to ensure that law enforcement officers, prosecutors, and judges and victim services have the tools they need to support victim safety and to hold perpetrators accountable. In order to meet the immediate needs of victims

ⁱBureau of Justice Statistics (2013). *Intimate Partner Violence: Attributes of Victimization, 1993–2011* (Special Report NCJ243300)

ⁱⁱMcDonald, R., et al. (2006). "Estimating the Number of American Children Living in Partner-Violence Families." *Journal of Family Psychology, 30*(1), 137–142.

ⁱⁱⁱNational Center for Injury Prevention and Control. *Costs of Intimate Partner Violence Against Women in the United States*. Atlanta (GA): Centers for Disease Control and Prevention; 2003.

^{iv}Bureau of National Affairs Special Rep. No. 32, *Violence and Stress: The Work/Family Connection 2* (1990); Joan Zorza, *Women Battering: High Costs and the State of the Law*, *Clearing-house Rev.*, Vol. 28, No. 4, 383, 385.

^v*Fiscal Year 2017: Congressional Justification*. (2016). United States Department of Justice, Office on Violence Against Women. <https://www.justice.gov/jmd/file/821736/download>.

^{vi}Clark, K.A., Biddle, A.K., & Martin, S.L. (2002). A Cost-Benefit Analysis of the Violence Against Women Act of 1994. *Violence Against Women, 8*, 4: 417–428.

^{vii}Reckdenwald, A., & Parker, K.K. (2010). Understanding gender-specific intimate partner homicide: A theoretical and domestic service-oriented approach. *Journal of Criminal Justice, 38*, 951–958.

^{viii}Campbell, R. (2006). Rape survivors' experiences with the legal and medical system: Do rape victim advocates make a difference? *Violence Against Women, 12*: 30–45.

and to continue to prevent and end domestic violence, I urge you to increase VAWA funding and release steady funds from VOCA.

VICTIMS OF CRIME ACT (VOCA) FUNDING

VOCA uses non-taxpayer money from the Crime Victims Fund (CVF) for several programs that serve victims of crime, including State-formula victim assistance grants. These funds, which are generated by fines paid by Federal criminals, support services to 4 million victims of all types of crimes annually, through 4,400 direct service agencies such as domestic violence shelters, rape crisis centers, and child abuse treatment programs. Sustained VOCA funds are critically needed to respond to the crisis caused by the dangerous lack of available services for victims of domestic and sexual violence. The balance in CVF is more than enough to maintain increased VOCA funding releases without jeopardizing future sustainability. We urge you to request that the committee set the annual VOCA funding release level at no less than the average amount deposited into the Fund over the three previous fiscal years, which is approximately \$2.6 billion for fiscal year 2019.

The fiscal year 2018 Appropriations bill transferred VOCA funds to pay for VAWA programs. We oppose VOCA funds being transferred to other CJS accounts, as this reduces vital funding for direct victim services. We urge you to request \$2.6 billion from the VOCA fund in fiscal year 2019 to address the urgent needs of victims of crime. We urge you to request that Appropriators do not transfer funds from VOCA to fund other programs within CJS. Additionally, we urge you to request funding to maintain the Federal funding stream from VOCA for Tribes. Individuals on Tribal lands experience disproportionately high rates of domestic and sexual violence and desperately need funding for victim services.

VIOLENCE AGAINST WOMEN ACT (VAWA)—\$571 million funding request

Since its passage in 1994, VAWA has been the cornerstone of our Nation's response to domestic violence, sexual assault, dating violence, and stalking. The promise of VAWA can only be fulfilled if the programs receive continued investment through the appropriations process. We urge you to support full funding for all VAWA programs as you work on the fiscal year 2019 CJS bill.

VAWA STOP Program—\$222 million funding request

VAWA's Services, Training, Officers, Prosecutors (STOP) Grant Program is at the core of effective coordinated community responses to domestic violence and sexual assault. As the foundational VAWA program, the STOP program awards funds to every State and territory through a formula-based system. States use this STOP funding for law enforcement, prosecution, and courts training and response. In 2016, STOP grant-funded programs helped 362,172 victims of domestic violence, dating violence, sexual violence, and stalking; funded 2,226 staff members, including victim advocates, law enforcement officers, counselors, and attorneys; and trained 252,795 criminal justice professionals. Increased investment in STOP will allow communities to expand their lifesaving homicide reduction efforts, continue to improve their law enforcement and prosecution responses, and serve more victims. We urge you to request \$222 million to support these essential, comprehensive services.

Legal Assistance for Victims (LAV)—\$57 million funding request

Research indicates that the practical nature of legal services gives victims long-term alternatives to their abusive relationships, and are also vital to support survivors of sexual assault in civil matters. Sadly, many survivors do not have the means to secure legal assistance in the aftermath of abuse or assault. The LAV program is the only federally-funded program designed to meet the legal needs of victims. Targeted increases to the LAV program are a sound investment in long-term solutions to violence. We urge you to request \$57 million for this program to support legal help for victims.

Rural Grant Program—\$50 million funding request

This program supports services for victims of domestic violence and sexual assault living in rural and isolated areas. Rural victims face unique barriers, including lack of access to child care, legal services, and public transportation, under-resourced law enforcement, and a shortage of safe shelter and services. We urge you to provide \$50 million for this program.

Transitional Housing Program—\$35 million funding request

This vital VAWA program helps communities in every State give victims of domestic violence, sexual assault, dating violence, and stalking a safe place to begin to rebuild their shattered lives. On just one day in 2016, 15,283 adults and children were housed in domestic violence transitional housing programs. On the same day,

however, 7,914 requests for emergency shelter or transitional housing were denied due to a lack of capacity. The extreme dearth nationwide of affordable housing produces a situation where many victims must return to their abusers or become homeless because they cannot find stable housing. Increased investment in the Transitional Housing program will allow more communities ensure that victims do not have to make these unfathomable choices. We urge you to request \$35 million for this program.

Grants to Encourage Arrest Program (GTEAP)—\$73 million funding request

GTEAP helps communities develop and sustain a comprehensive criminal justice response to domestic violence, enhancing victims' safety and holding perpetrators accountable. GTEAP encourages State, local, and Tribal governments and courts to treat domestic violence, dating violence, sexual assault, and stalking as serious violations of criminal law requiring the coordinated involvement of the criminal justice system. The homicide reduction initiative in GTEAP (\$4 million) is designed to address the risk of homicide of abuse victims, especially those in escalating situations. Additionally, a set aside for firearms lethality initiative will allow communities to address the deadly combination of firearms and domestic violence. Increased investment in GTEAP to \$73 million will allow communities to continue this lifesaving work.

Sexual Assault Services Program (SASP)—\$40 million funding request

SASP is a State formula grant and the only Federal funding source dedicated to providing direct services to adult and minor victims of sexual violence. Services include hotlines, crisis intervention, advocacy, and accompaniment through medical and legal systems. The Office on Violence Against Women's most recent report to Congress found that 49,068 survivors of sexual assault had been served, and 113,697 hotline calls answered, by SASP-funded advocates. Increased funding will help eliminate waiting lists and respond to the unmet needs of victims. We urge you to provide \$40 million for this vital program.

Remaining VAWA programs: Elder Abuse Grant program (\$9 million), Protections and Services for Disabled Victims (\$9 million), and Outreach to Underserved Victims (\$2 million). VAWA also funds programs designed to prevent domestic violence, sexual assault, dating violence, stalking and addresses crimes experienced by children and youth—including the Violence on College Campuses Grants (\$26 million), the SMART and CHOOSE Youth (\$15 million) programs, the Grants to Support Families in the Justice System (\$22 million). The Rape Survivor Child Custody Act (\$2.50 million) provides rights for victims of rape. Programs that address the needs of Native American victims include Research on Violence Against Indian Women (\$1 million), the VAWA Tribal Jurisdiction (\$5 million), National Tribal Sex Offender Registry (\$1 million) and the National Clearinghouse on Sexual Assault of American Indian and Alaska Native Women (\$0.5 million). Finally, the Resource Center on Workplaces Responses (\$1 million) helps companies address domestic violence and sexual assault in the workplace.

VAWA programs work together to improve the system-wide response to domestic and sexual violence. Thank you for your continued support of these vital programs. While our country has made continued investments in the criminal justice response to these heinous crimes, we need an equal investment in the human service, public health and prevention responses in order to comprehensively address and end the violence. These vital, cost-effective programs help break the cycle and save lives, and we asked for their fully authorized amounts.

[This statement was submitted by Kim Gandy, President and CEO.]

PREPARED STATEMENT OF THE NATIONAL WEATHER SERVICE EMPLOYEES ORGANIZATION

NWSEO urges rejection of the administration's proposal to cut 355 additional positions from the National Weather Service that is contained in its fiscal year 2019 budget submission. All but a handful of these positions are "emergency essential" operational personnel critical to protecting lives and property.

In May 2017, the Government Accountability Office released a study that confirms the vacancy rate in NWS operational units has already reached a point where NWS employees are "unable at times to perform key tasks." National Weather Service: Actions Have Been Taken to Fill Increasing Vacancies, but Opportunities Exist to Improve and Evaluate Hiring (GAO 17-364). The GAO found that the vacancy rate in operational units (defined as those 168 NWS offices that issue forecasts or warnings and that are staffed by emergency-essential personnel) rose from 5 percent

at the end of fiscal year 2010 (211 positions) to 11 percent at the end of fiscal year 2016 (455 positions). The GAO also found that NWS “staff experienced stress, fatigue and reduced morale resulting from their efforts to cover for vacancies” due to lack of time off and a loss of training. According to the GAO, NWS managers admit “that employees are fatigued and morale is low” and that employees “were demoralized because they had to cover the workload for multiple vacancies.”

Furthermore, the proposed reductions compromise the ability of the National Weather Service to meet specific requirements of the *Weather Research and Forecasting Innovation Act of 2017*, Public Law No. 115–25.

WEATHER SERVICE FORECASTERS

Program Change: NWS Workforce Savings (–110 FTE/–248 Positions, –\$15,000)

The President’s budget ostensibly recognizes that “advance notice provided by weather forecasts enables the Nation’s leaders, decision makers, and media to provide better warnings and advisories, the public, and businesses” and that “getting this right reduces the catastrophic loss of human life and property and the damaging effects on the national economy.” *An American Budget*, at 30. Nevertheless, the budget proposes to eliminate 20 percent of the 1,250 or so forecasters who issue these forecasts, warnings and advisories from the Nation’s 122 Weather Forecast Offices. The Budget Justification concedes that “operation times at various offices will be reduced” as a result of these staffing reductions, and that this will present “potential risk to the public and partners.” The budget admits that communities affected by these closures will have to rely on “other NWS offices for met watch and services during off hours.” *NOAA Budget Justification* at NWS–48, 49.

The Nation’s 122 Weather Forecast Offices operate 24/7, and most of the time would have just two forecasters on duty. Thus, even with full staffing, there is usually only the minimal number of staff on duty to be alert for severe weather and to call in the rest of the staff when it occurs. According to the National Academy of Sciences:

Though this works well in fair weather, it can become problematic in severe weather, particularly when events develop rapidly under seemingly benign conditions. While managers at individual WFOs generally plan ahead to add sufficient staff to cover forecasted dangerous weather situations, more innocuous weather scenarios that suddenly and unexpectedly “blow up” often lead to shortcomings that are directly attributed to having insufficient manpower. Several recent Service Assessments (e.g., NWS, 2003, 2009, 2010) illustrate the critical role that adequately enhanced staffing (or lack thereof) plays in the success (or weakness) of NWS performance during major events. Appropriate levels of staffing, beyond normal fair weather staffing, during major weather events, are critical for fulfilling the NWS’s “protection of life” mission.

NATIONAL RESEARCH COUNCIL OF THE NATIONAL ACADEMIES, THE NATIONAL WEATHER SERVICE MODERNIZATION AND ASSOCIATED RESTRUCTURING: A RETROSPECTIVE ASSESSMENT, 60–61 (2012).

The Service Assessments to which the NRC refers are conducted by the NWS after major storm events where there are multiple fatalities or a major economic impact, in order to evaluate its performance. Assessment teams, composed of experts from within and outside the NWS, generate a report that serves as an evaluative tool to identify and share best practices in operations and procedures, and to identify and address service deficiencies. Service assessments conducted following eleven major storms that occurred between 2008 and 2016 found that the ability of the NWS to protect lives during these major events was compromised due to already inadequate staffing at Forecast Offices or River Forecast Centers.¹

The Budget Justification claims that the agency will attempt to “minimize potential risk” inherent in closing offices part-time by “collaborating with other NWS offices for met watch and services during off hours . . . similar to the backup practice used today when there is a system or communications failure of an office.” *Budget Justification* at NWS–48. However, no savings can be achieved by reducing

¹ Central U.S. Flooding of June 2008; Southeast U.S. Floods, September 18–23, 2009; Record Floods of Greater Nashville: Including Flooding in Middle Tennessee and Western Kentucky, May 1–4, 2010; Historic Tornadoes of April 2011; Missouri/Souris River Floods of May–August 2011; Middle and Lower Mississippi River Valley Floods of Spring 2011; Remnant of Tropical Storm Lee and the Susquehanna River Basin Flooding of September 6–10, 2011; Hurricane/Post Tropical Storm Sandy, October 22–29, 2012; Historic South Carolina Floods of October 1–5, 2015; Historic Nor’easter of January 2016; October 2016 Hurricane Matthew. These reports can be found at: <http://www.weather.gov/publications/assessments>.

staff at one office and transferring its workload to a back-up office, because when this occurs now additional staff is called into the back-up office on overtime. Even the Budget Justification concedes that this “may require the supporting office to increase staffing.” page NWS–48.

Furthermore, the backup offices only issue critical products, and the quality of the forecasts are degraded because the forecasters in the backup office have limited knowledge of the climate, terrain, hydrology and weather patterns of the remote areas for which they are now forecasting. According to *NWS Western Region’s Back-Up Plan, Supplement 18–2003*, (Sept. 19, 2011) at 4: “Personnel at the disabled site remain the best authorities on local weather. They should retain as much responsibility as possible during back-up situations.” The backup office has no access to local weather models residing on the servers in the office that is closed. Transferring responsibility for forecasts and warnings back and forth between forecasters at one office and another disrupts the continuity of meteorological analysis and results in lack of continuity in successive forecast products.

The Budget Justification also explains that at other times, a forecast office may be staffed by a single person once the reductions take place. (NWS–49). This would violate a 2007 ruling from Labor Arbitrator James Lundberg in *National Weather Service and National Weather Service Employees Organization*, FMCS No. 06–04457–7. The Budget Justification explains that “this operational change will also require the office to be able to recall employees . . . if unexpected local operations or high-impact weather events occur.” NWS–49. According to the 2012 study by the National Academy of Sciences, “the quality of the NWS’s warning capability corresponds with its capacity to muster an ample, fully trained local staff at its Weather Forecast Offices as severe weather unfolds.” *Id* at 60. However, if staffing at the office is reduced, there may be no one available.

The Budget Justification also explains that the reductions sought “will move away from the current uniform staffing model” and rebalance staffing between forecast offices based on population and partner needs. However, according to a study completed by McKinsey and Co., the workload at most forecast offices exceeds the available meteorologist workforce. *NWS, Operations and Workforce Analysis Catalog*, (September 2017) at 17–18. Thus, rather than reducing staff overall, rebalancing should be achieved by increasing the intake of meteorologist interns (forecasters in training) at the majority of forecast offices that are now overworked, and let normal attrition rebalance the staff at the small number of offices that have excess capacity.

INFORMATION TECHNOLOGY OFFICERS

Program Change: Establishment of Regional Enterprise Application Development and Integration Teams (-74 FTE / -74 Positions, - \$10,100)

The President’s budget also again proposes the elimination of the Information Technology Officers (“ITOs”) at each of the 122 Weather Forecast Offices (“WFOs”)—a proposal that has been rejected by Congress every year for the past 6 years. As the Senate Appropriations Committee noted when rejecting an earlier proposal to eliminate the ITOs, the “IT staff have proven to be valuable parts of the local forecast office teams.” SENATE REPORT NO. 112–158, at 31. The NWS itself recognized the critical role that the ITOs play in the operations of its forecast offices in its recently published service assessment of the agency’s performance during Hurricane Matthew in October 2016:

The evolution of NWS is reliant on cutting-edge advanced technologies that improve forecasting, warning, and distribution of weather information. Therefore, it is imperative that adequate, well-trained IT expertise is readily available and accessible throughout NWSH and the NWS field to operate and maintain a solid infrastructure. Information Technology Officers (ITO) played a critical role within WFOs leading up to and during the event. WFOs are required to complete a series of preparations ahead of a hurricane season, many of which include technical upgrades. During events, the ITO is the WFO’s primary resource when technical issues arise. WFOs were unanimous in their support of having a local ITO present to address issues before, during, and after hurricane season . . . SR WFOs were required to complete a system upgrade to a new Content Management System (CMS) by the end of September 2016 . . . ITOs provided critical support to their WFOs during the event to mitigate website issues associated with the CMS change.

<https://www.weather.gov/media/publications/assessments/HurricaneMatthew8-17.pdf> (at 31).

CONSOLIDATION OF THE TSUNAMI WARNING CENTERS

Program Change: Reduce Tsunami Warning Program (-25 FTE/ -25 Positions, -\$11,000)

The President's budget also proposes to consolidate the two tsunami warning centers (possibly at the National Center for Environmental Prediction in College Park, Maryland) and eliminate 25 scientists and technicians employed at these Centers. The proposed merger of the two warning centers violates the express terms of the Tsunami Warning, Education and Research Act of 2017, which was signed into law in April as Title V of the Weather Research and Forecasting Innovation Act. Section 504 of the Act, codified at 33 U.S.C. § 3203(d)(1), requires NOAA to maintain two tsunami warning centers—one in Alaska (with primary responsibility for Alaska and the continental U.S.) and one in Hawaii (with primary responsibility for Hawaii, the Caribbean and other areas of the Pacific). Subsection 3203(d)(3), "Fail-safe warning capability," mandates that the two centers maintain the capability to "perform back-up duties for each other." These requirements cannot be met if the two centers are merged, and if 25 of the 40 scientists and technicians employed at these two centers are eliminated, as proposed.

NWS CLIMATE PREDICTION CENTER

Program Change: Consolidate Climate Prediction Center/Weather Prediction Center functions (-8 FTE/ -8 Positions, -\$1,200)

Finally, the budget also proposes to eliminate eight positions at the NWS Climate Prediction Center—which does "short-term" climate prediction for floods and drought from weeks to seasons. These activities aid U.S. aid and national security agencies in their global efforts. The Budget Justification (at NWS-52) frankly identifies the catastrophic impact of these cuts:

While some efficiency will be realized, this consolidation will limit some of NOAA's products and services such as climate prediction products with domains over hemispheres other than North America/Arctic. Some of these global climate predictions provide information that can lead to understanding of international phenomena like flood and drought that could impact food supplies. These global forecast products have supported national security planning and execution activities at the Department of Defense and the United States Agency for International Development including food security and disaster risk reduction, as well as pandemic health planning.

Consolidation of the CPC and reduction of its efforts would jeopardize the ability of the NWS to meet its requirements under Section 201 of the *Weather Research and Forecasting Innovation Act* "to make usable, reliable, and timely foundational forecasts of sub-seasonal and seasonal temperature and precipitation" and to "build upon existing forecasting and assessment programs and partnerships, including- by consulting with the Secretary of Defense and the Secretary of Homeland Security to determine the highest priority sub-seasonal and seasonal forecast needs to enhance national security."

[This statement was submitted by Richard J. Hirn, Legislative Director.]

PREPARED STATEMENT OF THE NATIVE AMERICAN RIGHTS FUND

Summary of the Request: The Native American Rights Fund (NARF)^a submits this written statement regarding the fiscal year 2019 budget request for the Department of Justice (DOJ) and the Legal Services Corporation (LSC), for the record. We respectfully request this subcommittee's consideration as you develop the fiscal year 2019 Commerce, Justice, Science and Related Agencies (CJS) appropriations bill of the following requests:

—maintaining funding within the Department of Justice, Office of Justice Programs, State and Local Law Enforcement Assistance account at a level similar to that provided in recent years of approximately \$1 to 2 million for the Tribal Civil and Criminal Legal Assistance, Training and Technical Assistance grant

^aFounded in 1970, the Native American Rights Fund (NARF) is the oldest and largest non-profit law firm dedicated to asserting and defending the rights of Indian Tribes, organizations and individuals nationwide. NARF's practice is concentrated in five key areas: the preservation of Tribal existence; the protection of Tribal natural resources; the promotion of Native American human rights; the accountability of governments to Native Americans; and the development of Indian law and educating the public about Indian rights, laws, and issues.

- program (TCCLA), either within a Tribal set-aside percentage of all Office of Justice Programs accounts, or within a line item for “assistance to Indian Tribes.”
- including bill and/or report language that would direct that DOJ’s allocation of fiscal year 2019 funding under a Tribal set-aside percentage of overall DOJ funding or for “assistance to Indian Tribes” provide some funding for the provision of legal assistance to individual Tribal citizens and to Tribal judicial systems pursuant to the Indian Tribal Justice Technical and Legal Assistance Act (Public Law 106–559), and that that legal assistance be both civil and criminal. Although in recent years, including fiscal year 2018, the Senate Appropriations Committee’s report accompanying the spending bill (page 83, S. Rpt. 115–139) helpfully referenced both civil and criminal legal assistance, the fiscal year 2018 bill language in section 213 was more restrictive in that it was limited to “Tribal criminal justice assistance.”
 - continuing bill language which would provide a Tribal set-aside from the Crime Victims Fund (CVF) to the Office for Victims of Crime for grants to Indian Tribes to improve services for victims of crime. Indian Country was thrilled that, for the first time, the fiscal year 2018 Consolidated Appropriations Act provided a 3 percent Tribal set-aside from the CVF; we support the administration’s proposed and the House of Representatives’ approved 5 percent Tribal set-aside from the CVF for fiscal year 2019. Continuation in fiscal year 2019 of a Tribal set-aside will benefit both Tribal governments and those of us who work with and support Tribal governments in the provision of victims’ justice services and programs, and assist Tribal citizens in receiving those services.
 - maintaining funding for the Legal Services Corporation at a level at least equal to the fiscal year 2018 enacted amount of \$410 million.

Background to the TCCLA Requests: In 2000, Congress enacted the Indian Tribal Justice Technical and Legal Assistance Act (Public Law 106–559). Sections 102 and 103 of that statute specifically authorized the Department of Justice, subject to available appropriations, to provide grants to “non-profit entities . . . which provide legal assistance services for Indian Tribes, members of Indian Tribes, or Tribal justice systems pursuant to Federal poverty guidelines” (emphasis added) for Tribal civil and Tribal criminal legal assistance, respectively.^b

For the past 7 years, through fiscal year 2017, a consortium of 24 Indian Legal Services programs connected with the Legal Services Corporation (LSC) and operating in 23 States has been awarded funding under DOJ’s Tribal Civil and Criminal Legal Assistance, Training and Technical Assistance (TCCLA) grants program. In addition to the legal representation of American Indian and Alaska Native individuals, Indian Legal Services programs are currently assisting more than 160 Tribal governments and/or Tribal judicial systems.^c

Most recently, in fiscal year 2017, the Bureau of Justice Assistance awarded the Indian Legal Services programs \$600,000 under TCCLA. The fiscal year 2017 Consolidated Appropriations Act included in section 213 bill language, providing a 7 percent Tribal set-aside of funding from select DOJ accounts, specifically for Tribal criminal justice assistance. Although House and Senate report language directed that DOJ allocate Tribal funding among traditional programs for Tribal detention facilities, Tribal courts, alcohol and substance abuse reduction assistance programs, and civil and criminal legal assistance as authorized by Public Law 106–559, DOJ’s Office of General Counsel interpreted the bill language to limit fiscal year 2017 funding for Tribal assistance to criminal justice assistance, only. As a result, the fiscal year 2017 funding award to Indian Legal Services is not being used for programs’ assistance in civil work with Tribes and Tribal citizens. Examples of such Tribal civil justice assistance work done under prior years’ TCCLA awards include revisions to civil codes, policies and procedures; representation of individuals in Tribal courts in family law, probate, employment, disability benefits claims, public housing, property disputes, debt collection, child welfare and juvenile delinquency

^bThe Indian Tribal Justice Technical and Legal Assistance Act also authorized grants to national or regional membership organizations of judicial system personnel to provide training and technical assistance for Tribal justice systems. The 2000 Act was reauthorized as section 242 of the Tribal Law and Order Act (Public Law 111–211).

^cNARF is the administrator of recent years’ grant awards under DOJ’s Tribal Civil and Criminal Legal Assistance, Training and Technical Assistance (TCCLA) program to the consortium of 24 Indian Legal Services programs connected with the Legal Services Corporation (LSC). NARF has distributed these TCCLA grant funds according to a funding formula that the coalition of Indian Legal Services programs has developed among themselves. Of the total 24 Indian Legal Services programs, 24 are receiving BJA funding under awards for Tribal Civil Legal Assistance, and between 17 and 21 programs are receiving awards for Tribal Criminal Legal Assistance.

matters; and guardian ad litem work in high conflict custody, guardianship, and parental termination cases.

We are currently awaiting DOJ's solicitation announcement of fiscal year 2018 funding under TCCLA.

Since 1968, Indian Legal Services programs have been providing essential capacity-building services to many Tribal courts across the country, and have provided representation of Indian individuals in those courts. In many instances, these Indian Legal Services programs have been "on the ground" in Tribal communities for decades, an integral part of the legal structure of the reservation communities they serve. The attorneys are well-versed in the uniqueness and complexities of Indian law, and are specialized legal practitioners. The Indian Legal Services programs are assisting Tribal governments and their justice systems in being grounded in solid codes and laws—which benefits not only members of the Tribal community, but non-Indians who do business, attend school, collaborate with Tribal enterprises and live in these Tribal communities.

With respect to the work of capacity-building services to Tribal governments' judicial systems, Tribes have noted that the lack of attorneys practicing in Tribal court is the single biggest barrier to exercising the authorities under the Tribal Law and Order Act of 2010 (TLOA) and the Violence Against Women Reauthorization Act of 2013 (VAWA). A number of Indian Legal Services programs are currently providing capacity-building assistance to Tribal governments which is laying the foundation toward those Tribes' implementation of TLOA and VAWA.

This work has included assisting Tribes with revisions to their criminal codes for compliance with these statutes, as well as drafting and updating codes, policies and procedures, and drafting of civil and criminal codes, including children's codes, and rules of procedure; Tribal court development, restructuring and improvement; training of judicial, law enforcement and justice systems personnel and Tribal court lay advocates and guardians ad litem; and negotiation or litigation to address jurisdictional issues with State court systems. Lay advocate and peacemaker trainings have been done with Tribal colleges and university law schools. The programs are engaged in TLOA or VAWA implementation assistance for 18 of the 160 Tribes they serve, and provide the only public defender service available in at least 46 Tribal courts.

In addition, legal representation of American Indian and Alaska Native youth and families is a central focus of many of the individual representation cases handled by Indian Legal Services programs. In affording access to justice for individuals, the programs' individual legal representation has expanded from traditional legal issues such as employment, disability benefits claims and housing issues to now include domestic violence, *pro se* assistance, family member prisoner visitation and re-entry, and child welfare, guardianship and adoption. This work also includes representation of families in Indian Child Welfare Act cases in State court; addressing the impact on individuals and families from substance abuse and correlated incidents of criminal activity by reforming Tribal sentencing guidelines; representation in divorce, child custody, paternity, child support, guardianship (minor and adult), and children in need of care cases (juvenile dependency); will drafting cases; expungement practices to proactively file for expungement to clear criminal records of Tribal members whose lives are adversely impacted by their record; and providing civil legal and public defender services.

We note that the TCCLA grants that Indian Legal Services programs have been awarded are funded separately from DOJ's Consolidated Tribal Assistance Solicitation (CTAS) program.

Background to Request for LSC Funding: As noted above, the Indian Legal Services programs are component programs connected to the Legal Services Corporation. So, we are deeply appreciative that in raising the spending caps between Defense and non-Defense discretionary spending for fiscal year 2018—and for fiscal year 2019, as well—Congress was able to appropriate a total of \$410 million for the Legal Services Corporation (LSC) for fiscal year 2018, a \$25 million increase.

According to LSC's 2016 *LSC by the Numbers* report,⁴ which provides a summary of data regarding service delivery by the LSC's 134 grantees in calendar year 2016, in 2016, Congress appropriated \$352 million for LSC basic field programs. Following a statutory formula, LSC designated 2.8 percent of those funds for 27 Native American service areas.

Since 2011, non-LSC sources of funding have made up an increasing part of all grantees' funding, rising from 56.7 percent in 2011 to 63.2 percent in 2016 for all of LSC. An average of non-LSC funding for 17 of the core Indian Legal Services programs in the 2016 report was nearly 50 percent. Grant funds awarded to these pro-

⁴ <https://lsc-live.app.box.com/s/5lbcn4ncgqu5bbm31wh9v5xl80kxz0xf>

grams under TCCLA, as well as funding from other Federal grant programs that Indian Legal Services programs are able to leverage, are an important supplement to funding from LSC.

While the administration's fiscal year 2019 budget request to Congress included a proposal of only \$18.2 million toward closure of the LSC, we request that the Senate Appropriations Committee join your House counterpart in maintaining funding for the Legal Services Corporation at a level at least equal to the fiscal year 2018 enacted level of \$410 million.

In conclusion, in fiscal year 2019, whether Congress provides funding to the DOJ for Indian Country Tribal justice and law enforcement programs as a 7 percent tribal set-aside of a percentage of overall DOJ funding, as the administration requested, or in an overall sum (such as the \$35 million appropriated in fiscal year 2018 for "assistance for Indian Tribes," or the \$30 million for fiscal year 2019 recommended by the House Appropriations Committee for "assistance for Indian Tribes" within the State and Local Law Enforcement Assistance account), we request that funding be included for the purpose of the provision of both Tribal civil and criminal legal assistance to individual Tribal citizens and to Tribal judicial systems pursuant to the Indian Tribal Justice Technical and Legal Assistance Act. We also request that funding for the Legal Services Corporation be maintained at a level at least equal to the fiscal year 2018 enacted level of \$410 million. Thank you for your consideration of this request.

[This statement was submitted by Steven C. Moore, Senior Staff Attorney.]

PREPARED STATEMENT OF THE NATURAL SCIENCE COLLECTIONS ALLIANCE

The Natural Science Collections Alliance appreciates the opportunity to provide testimony in support of fiscal year 2019 appropriations for the National Science Foundation (NSF). We encourage Congress to provide the NSF with at least \$8.45 billion in fiscal year 2019.

The Natural Science Collections Alliance is a non-profit association that supports natural science collections, their human resources, the institutions that house them, and their research activities for the benefit of science and society. Our membership consists of institutions that are part of the international community of museums, botanical gardens, herbaria, universities, and other institutions that contain natural science collections and use them in research, exhibitions, academic and informal science education, and outreach activities.

Scientific collections are a vital component of our Nation's research infrastructure. These specimens and their associated data (genetic, tissue, organism, paleontological, anthropological, and environmental samples) constitute a unique and irreplaceable library of Earth's history.

Natural science collections advance research that improves public health, agriculture, natural resource management, biodiversity conservation, and American innovation. Current research involving natural science collections also contributes to the development of new cyberinfrastructure, data visualization tools, and improved data management. A few examples of how scientific collections have saved lives, enhanced food production, and advanced scientific discovery include:

—On January 15, 2009, US Airways flight 1549 was forced to land in the Hudson River shortly after take-off. The plane's engines failed after it flew through a flock of birds. Luckily, no one was killed in the accident. Per government policy, museum scientists determined from the remains of these birds that they were Canada Geese. The scientists then gathered stable isotope data from feathers and tissue from the engines and compared these samples to museum specimens of geese from known North American localities. The comparative analyses determined that a flock of migratory Canada Geese from the Labrador region of Canada were involved. Using this information, LaGuardia Airport developed a management plan to reduce the risk of future bird strikes.

—In 1993, a deadly new disease appeared in the southwestern United States. Using NSF-supported biological collections at Texas Tech University and University of New Mexico, the agent was determined to be Hantavirus carried by a few species of rodents. When rodent populations increased following an El Niño weather event, the animals spread into human environments and increased the transmission of Hantavirus. With the vector known, it was possible to lessen the risk to humans by reducing opportunities for disease transmission. Using other specimens, scientists have now identified more than 40 other strains of Hantavirus worldwide that are carried by bats, moles, and shrews. Similar work is underway to identify the carrier of Ebola in Africa.

—Citrus bacterial canker disease wreaks havoc on fruit crops in Florida. Using plant specimens collected a century ago, scientists have analyzed the bacterium and traced its source. Knowledge of how the bacteria spreads allows scientists to develop effective control methods and to protect the U.S. citrus industry.

There are more than 1,600 biological collections in the United States, the result of more than 250 years of scientific investigation, discovery, and inventory of living and fossil species. Collections are housed at museums, universities, botanic gardens, and government managed laboratories and archives. The institutions that care for scientific collections are important research infrastructure for the United States that also provide students with hands-on training opportunities.

The NSF plays a unique role in protecting and expanding access to our Nation's scientific collections. NSF supports research that uses existing collections as well as studies that gather new natural history specimens. NSF's Directorates for Biological Sciences (BIO) and Geosciences (GEO) support research and student training opportunities in natural history collections. The NSF is also an important supporter of biological research infrastructure, such as natural history museums, living stock collections, and field stations. These place-based research centers enable studies that take place over long time periods and variable spatial scales.

NSF funds state-of-the-art work to digitize high priority specimen collections. The result of this effort is that irreplaceable biological specimens and their associated data are now accessible through the Internet to researchers, educators, and the public. More than 95 million specimens are now online, with millions more awaiting digitization. This effort involves biologists, computer scientists, and engineers in multi-disciplinary teams who develop innovative imaging, robotics, and data storage and retrieval methods. These new tools expedite the digitization process and contribute to the development of new products and services of value to other industries. Museum specimens and associated data represent an extraordinary resource for teaching core concepts in science.

In addition to supporting research, NSF's science, technology, engineering, and mathematics (STEM) education programs enhance the ability of museums, botanic gardens, zoos, and other research institutions to provide science learning opportunities for students. NSF's Advancing Informal STEM Learning program is furthering our understanding of informal science education outside of traditional classrooms. The program is especially valuable at broadening participation in science for under-represented groups.

CONCLUSION

Preservation of specimens is in the best interest of science and taxpayers. Quite simply, it is not possible to replace this important aspect of our heritage. Specimens collected decades or centuries ago are increasingly being used to develop and validate models that explain how species (including viruses, parasites, and pathogens) have dispersed around the world, as well as how and when they have or might infect humans.

The NSF is the primary funding source that provides support to institutions to help them preserve endangered collections, to help increase access to specimens for research and education, and to support the development of new tools and resources that enable innovative new research using the collections.

Investments in NSF programs that support natural science collections research and education are essential if we are to maintain our global leadership in innovation. Please support funding of at least \$8.45 billion for NSF for fiscal year 2019.

Thank you for your thoughtful consideration of this request and for your prior support of the National Science Foundation.

[This statement was submitted by John Bates, President.]

PREPARED STATEMENT OF THE NATURE CONSERVANCY

Thank you for the opportunity to comment on the fiscal year 2019 appropriations for the National Oceanic and Atmospheric Administration (NOAA). The Nature Conservancy (the Conservancy) is a non-profit conservation organization working in all 50 States and 72 countries to conserve the lands and waters on which all life depends. As the Nation enters the fiscal year 2019 budget cycle, the Conservancy acknowledges the need for fiscal restraint. However, the Conservancy also recognizes the critical role that oceans and coasts play in the lives of millions of Americans and in our Nation's economy. Each year the U.S. ocean and coastal economy contributes \$359 billion to the Nation's GDP and supports 3 million jobs. NOAA's funding keeps this ocean and coastal economic engine running. It not only helps NOAA cata-

lyze local and regional action, but also reduces risk and saves money based on the tangible economic and societal benefits that coastal natural resources provide.

While the President's fiscal year 2019 budget once again called for dramatic cuts to the National Marine Fisheries Service and the National Ocean Service including the proposed elimination of "grants and programs supporting coastal and marine management, research, and education including Sea Grant," the Conservancy was encouraged by Congress' fiscal year 2018 omnibus funding levels for these and other critical NOAA programs. Over the years and across many sites, NOAA has been an invaluable partner to the Conservancy. NOAA programs provide practical, community-oriented approaches to restoration, resource management, and conservation that align naturally with the Conservancy's mission. NOAA has made important strides in addressing key challenges, but much more remains to be done. We believe that the NOAA budget levels proposed by the Conservancy represent a prudent investment in our country's future, and ask your support for the requests detailed below.

NATIONAL MARINE FISHERIES SERVICE

Habitat Conservation and Restoration: The Conservancy supports at least \$53.384M, consistent with fiscal year 2018 funding. Coastal wetlands and nearshore waters produce the fish and shellfish that feed America. The health of these places is essential to the economic and social well-being of those who live, work, and recreate in coastal communities. NOAA and the Conservancy have partnered on over 150 habitat restoration projects across the U.S. Through the Community-based Restoration Program and the Habitat Blueprint Initiative, the Conservancy works closely with NOAA to restore the health of degraded habitats in places and ways that benefit not just local marine life, but communities and coastal economies as well. NOAA funding for coastal habitat restoration supports on average 15 jobs per million dollars spent and up to 30 jobs per million dollars spent on labor intensive restoration projects.¹ The several grants managed by this program are awarded on a competitive basis and typically leverage the resources and capacity of multiple partners. This work enhances our understanding of the connections between fisheries productivity and habitat, measures the effectiveness of conservation and restoration activities, and applies those lessons to improve future efforts. This funding provides for NOAA's consultations on and implementation of Essential Fish Habitat. The Regional Fishery Management Councils address fishing impacts on these areas, and NOAA must have sufficient capacity to provide technical assistance to the Councils and to work with Federal agencies to avoid, minimize, and mitigate the impacts on these important fishery habitats.

Fisheries Management Programs and Services: The Conservancy supports the appropriation of at least \$118.659M, consistent with fiscal year 2018 funding. With a \$214 billion dollar fisheries and seafood sector, fishermen rely on management services and information from NOAA to make the most informed decisions on where, how, and when to fish. NOAA Fisheries has made important strides in addressing these challenges and strengthening fisheries management, and support for these efforts is necessary to recover fish stocks so that they provide food and jobs now and in the future. It is critical that funding be provided to reduce destructive fishing practices, restore coastal habitats, and support the efforts of fishermen and fishing communities and do so in a collaborative way. Funding for work already begun to improve the management of electronic monitoring and reporting must be maintained. Recent legislation and administrative action to combat illegal, unreported, and unregulated (IUU) fisheries show great promise in leveling the playing field for legal fishermen. Funding provided will enable NOAA to take the next steps on traceability of seafood.

Fisheries and Ecosystem Science Programs and Services: The Conservancy supports at least \$144.196M, consistent with fiscal year 2018 funding. Good information about the status of fish stocks is essential for effective management. Systems for collecting fishery data tend to be paper-based, slow, expensive, and prone to errors; they are long overdue for modernization. The modest funding for electronic monitoring and reporting must be maintained. The subcommittee's previous report language has been very helpful, and continued guidance on the need to provide clear data and storage standards will be useful in moving efforts from pilot to implementation. Priority should be given to those fisheries that have already piloted these efforts. Also key is improving our understanding of the ecological and economic connections between fisheries and nearshore habitats. Funding for ecosystem-based so-

¹ Samonte et al. 2017. Socioeconomic Benefits of Habitat Restoration. NOAA Tech. Memo. NMFS-OHC-1. <http://www.habitat.noaa.gov/pdf/TM-OHC-1.pdf>.

lutions for fisheries management will provide tools and information to better target fisheries habitat restoration efforts.

Fisheries Data Collections, Surveys and Assessments: The Conservancy supports at least \$164.749M, consistent with fiscal year 2018 funding. Limited or poor quality information on the status of fishery stocks undermines the effectiveness of fishery management and can erode community support for conservation measures. Accurate and timely stock assessments are essential for the sound management of fisheries and the sustainability of fishing resources. The funding proposed will help the agency prioritize assessments, determine what level of assessments are needed and, where to appropriately incorporate ecosystem linkages—such as ocean conditions, habitat, multispecies assemblages, and socioeconomic factors.

Pacific Coastal Salmon Recovery Fund: The Conservancy supports at least \$65 million, consistent with fiscal year 2018 funding. This is the most critical Federal program addressing major threats to Pacific salmon so that these fish can continue to sustain culture, economies, recreation, and ecosystem health. PCSRF funding is tailored for each State, competitively awarded based on merit, and has funded hundreds of successful, on-the-ground salmon conservation efforts. PCSRF invests in cooperative efforts to conserve species under NOAA's jurisdiction, and projects are matched at a 3:1 ratio (Federal/non-Federal). The PCSRF has catalyzed thousands of partnerships among Federal, State, local, and Tribal governments, and conservation, business, and community organizations.

Protected Resources Science and Management: The Conservancy supports at least \$189.566M, consistent with fiscal year 2018 funding. Competitive grants to States and Tribes support conservation actions that contribute to recovery, or have direct conservation benefits for, listed species, recently de-listed species, and candidate species that reside within the States. Species Recovery Grants allow the agency to strengthen and expand partnerships to address the growing number of listed species and allow for larger, ecosystem-level scale recovery efforts. The Conservancy works with State agency partners to restore endangered species and monitor the results of these efforts. Additional listed species and emerging challenges to recovery have increased the number and complexity of NOAA's consultation and permitting requirements. Funding is needed to aid NOAA's ability to complete these requirements in a timely and predictable manner. NOAA's cooperative efforts with States, Tribes, and other partners such as the Conservancy, help to improve our understanding of and ability to protect listed salmon and the habitats that sustain them. Maintaining the modest increase provided in fiscal year 2018 to the Pacific salmon base funding will allow NOAA to enhance recovery efforts including monitoring, fish passages, hatchery operations, and stakeholder engagement.

NATIONAL OCEAN SERVICE

Coastal Management Grants: The Conservancy supports at least \$75 million for Coastal Zone Management Grants, consistent with fiscal year 2018 funding. Our Nation's coastal areas are vital to our economy and our way of life. The narrow area along our coasts is home to approximately 163 million people and coastal economies contribute over 45 percent of our gross domestic product. The Conservancy collaborates with State coastal programs around the country to meet multiple goals for coastal communities including economic development, enhancement of public access and recreation, and conservation of coastal resources. To advance these goals, the Conservancy supports an additional \$30 million in Title IX funds for the competitively awarded Regional Coastal Resilience Grants, consistent with the fiscal year 2018 level. The Regional Coastal Resilience Grant Program has provided the resources and tools to build coastal resilience to avoid costly Federal disaster assistance and sustain healthy fisheries, maintain robust tourism opportunities, provide for increased shipping demands, and support other coastal industries. Coastal communities have clearly shown that they are ready to match and leverage this funding to take proactive measures to protect their way of life. The subcommittee should ensure that the full range of eligible activities from the Regional Coastal Resilience Grant Program are maintained now that administration of the program's functions has been transferred to the National Fish and Wildlife Foundation (NFWF).

Coral Reef Conservation Program: The Conservancy supports at least \$26.6M, consistent with fiscal year 2018 funding. The decline of coral reefs has significant social, economic, and ecological impacts on people and communities in the United States and around the world. The Conservancy works with NOAA's Coral Reef Conservation Program under a competitively awarded, multi-year cooperative agreement to address the top threats to coral reef ecosystems: changing ocean conditions, overfishing, and land-based sources of pollution. Together, we develop place-based

strategies, measure the effectiveness of management efforts, and build capacity among reef managers globally.

Coastal Zone Management and Services: The Conservancy supports at least \$42.5M, consistent with fiscal year 2018 funding. NOAA's research and monitoring of coastal and marine systems provide data and decision-support tools that inform the safe operations of industry, prioritize habitats for restoration, and advance science-based management decisions. Improving our ability to incorporate natural infrastructure into coastal protection efforts before and after storms can help communities achieve multiple benefits such as improving fisheries productivity and coastal water quality. Additionally, the Conservancy has worked with NOAA through the Digital Coast partnership to develop decision support tools and techniques that help communities understand and reduce risk and build resilience. Sharing this work across Federal, State, and Tribal agencies, industry, and with non-governmental organizations can increase our collective ability to understand and incorporate into decisionmaking complex coastal economic, social, and ecological needs.

National Estuarine Research Reserve System: The Conservancy supports at least \$25 million, consistent with fiscal year 2018 funding. The National Estuarine Research Reserve System (NERRS) partners with States and territories to ensure long-term education, stewardship, and research on estuarine habitats. Atlantic, Gulf, Pacific, Caribbean and Great Lakes reserves advance knowledge and stewardship of estuaries and serve as a scientific foundation for coastal management decisions. By using local management needs to help shape research, the NERRs aim to fill critical gaps. Incorporating the results of this research into training programs and through public engagement, the NERRs make science actionable for communities.

Sanctuaries and Marine Protected Areas: The Conservancy at least \$54.5M, consistent with fiscal year 2018 funding. National marine sanctuaries support economic growth and hundreds of coastal businesses in sanctuary communities, preserve vibrant underwater and maritime treasures for Americans to enjoy, and provide critical public access for over 42 million visitors each year. Through a transparent, inclusive approach, the marine sanctuaries provide for the conservation of our natural and cultural marine resources while balancing multiple uses and diverse stakeholder needs.

Thank you for this opportunity to share The Nature Conservancy's priorities. Please contact me at smurdock@tnc.org if you have questions or would like additional information.

[This statement was submitted by Sarah Murdock, Director of Resilience and Water Policy.]

PREPARED STATEMENT OF THE NETWORK LOBBY FOR CATHOLIC SOCIAL JUSTICE

Thank you Chairman Moran, Ranking Member Shaheen, and Members of the subcommittee for the opportunity to submit written testimony on fiscal year 2019 appropriations for the 2020 Census. My name is Sister Simone Campbell, a Catholic Sister of Social Service. I am the Executive Director of NETWORK Lobby for Catholic Social Justice and leader of the Nuns of the Bus campaign.

Founded in 1971, NETWORK is a leading faith-based organization devoted to creating a society that promotes justice and the dignity of all in the shared abundance of God's creation. NETWORK, with more than 110,000 supporters, is rooted in the Catholic Social Justice tradition and is open to all who share our passion.

CENSUS: A HISTORICAL TRADITION

The census is one of our key issues because it is a crucial part of our faith tradition. The story of Jesus starts with his parents journeying to be counted for the census. We also know that in the Hebrew Scriptures Moses counted the Israelites. And why did that happen? It happened because it is essential to know who we are. It helps to answer the important question, "Who is our neighbor?"

For us, it is a matter of faith. Most people know that business and industry use the Federal census to determine trends or where to put services or retail. However, what people might not know is that many of our churches use the census to allocate future resources and define parish lines, or determine where new churches are needed. Everyone uses the census. It is not a partisan issue. We must count everyone, so that everyone counts. This is the constitutional mandate.

I am seriously concerned that the 2020 Census will fall short of meeting this constitutional and faith mandate. The teaching of Catholic Social Justice compels us to care for our Nation's most vulnerable people, and providing adequate funding for

an effective 2020 Census is a crucial prerequisite for doing so. But we cannot effectively serve people if we do not know who and where they are.

We use census data to allocate over \$675 billion for Federal policies and programs to respond to the needs of all in our Nation. Local community leaders use census and American Community Survey (ACS) data to make decisions about allocating resources for community needs like education, assistance for veterans, hospitals, and transportation. Census data can also help communities identify emerging problems that community leaders need to deal with. And State and local rebuilding and recovery efforts for areas impacted by recent natural disasters will need to utilize census data to help these devastated communities heal. An underfunded, inaccurate 2020 Census will skew the projections of needed resources and programs away from the communities that need them most.

FISCAL YEAR 2019 2020 CENSUS FUNDING REQUEST

I applaud Congress and the administration for taking steps to finally shore up funding for the 2020 Census. The \$1.344 billion increase above the fiscal year 2017 enacted level included in the Consolidated Appropriations Act 2018 (Public Law 115–141) and the \$4.8 billion approved by the House Appropriations Committee for fiscal year 2019 are substantial investments. Both underscore the need to ramp-up funding significantly in the years leading up to the 2020 count. However, preparations for the 2020 Census have been so hampered by delayed funding in the fiscal year 2017 and fiscal year 2018 appropriations cycles that even these funding increases are inadequate to overcome the growing challenges to a fair and accurate census. Outstanding issues include: (1) preparation for address canvassing, (2) marketing and outreach, and (3) final end-to-end testing currently scaled back from three locations to one. We cannot risk failure and must substantially increase our investment in the 2020 Census.

Given our Nation’s constitutional mandate, funding for the 2020 Census should not be subject to budgetary caps imposed by the Budget Control Act of 2011 (Public Law 112–25). To that end, NETWORK requests the Senate appropriate no less than \$4.8 billion outside the caps for the Census Bureau in the fiscal year 2019 Commerce, Justice, Science Appropriations bill to support the volume of work needed.

THE NEED: A FAIR, ACCURATE AND MODERN CENSUS

To be successful in 2020, the final and most critical years of preparations must include more presence in communities as well as in local and State organizations, including:

- Congress should provide funding for 2,000 Partnership Specialists who will engage, educate, and mobilize States, localities, and community-based organizations in support of the census;
- Increase funding for communications, in light of a lower projected self-response rate, to expand targeted and ‘in-language’ advertising to communities that are harder to reach and to address public fears about cyber-security;
- Expand the Census Bureau’s “footprint” in the field by increasing the number of local (“Area”) census offices to 300 (still far fewer than in 2010); and
- A contingency fund, as appropriated in past decennials and as requested by Secretary Ross. Unanticipated challenges, like counting populations in disaster-impacted areas, are bound to add to costs of the 2020 count.

COUNTING THE HARD-TO-COUNT

My deep concerns about the accuracy, reliability, and fairness of the decennial count are rooted in my faith commitment to social justice. Historically marginalized people in rural, immigrant, native communities, along with renters have been disproportionately undercounted in the census. For example, the undercount of young children under 5 has been getting progressively worse. Now, additional populations—such as rural residents and older Americans—may experience new or increased likelihood of being undercounted due to major changes in methodology, such as relying on the Internet as the primary way for households to respond to the 2020 Census. Being hard-to-count can deprive individuals and communities of equal political representation and their fair share of vital public and private resources.

COUNT EVERYONE REGARDLESS OF CITIZENSHIP

NETWORK opposes the recent decision by the Department of Commerce to include a citizenship question to the 2020 Census questionnaire based on vote dilution concerns raised by the Department of Justice. NETWORK opposes this decision, particularly at this late stage of planning when the 2020 Census has already been

identified as a high risk program. Asking a citizenship question increases the risk of failure due to diminished participation from immigrant households. A recent study by the Kaiser Family Foundation reports that there are nearly 20 million children that live in mixed immigrant status families. Without assurances from the Federal Government that these families would not face criminal prosecution or deportation for completing the survey truthfully answering the citizenship question, I am certain that adding a citizenship question would discourage their participation. Under the Constitution, the Census Bureau has an obligation to determine “the whole number of persons in each State” regardless of citizenship. Therefore, the citizenship the question should be eliminated.

CONCLUSION

My Catholic faith teaches that all humans possess inherent dignity—everybody counts. It is unacceptable to inadequately fund the census or include a question on citizenship. Either action renders the Census Bureau unable to carry out its responsibility. The Constitutional mandate to conduct a decennial census requires the Census Bureau to count everyone. We the People will defend our Constitution and demand that the Federal Government accurately and fairly counts everyone, so that everyone counts.

Once again, thank you for the opportunity to submit written testimony.

PREPARED STATEMENT OF THE NEZ PERCE TRIBE

The Nez Perce Tribe (Tribe) appreciates the opportunity to provide written testimony to the Committee as it evaluates and prioritizes fiscal year 2019 appropriations for the Department of Commerce and the Department of Justice. The testimony below addresses spending allocations for the Pacific Coastal Salmon Recovery Fund and Salmon Management Activities within the National Oceanic and Atmospheric Administration (NOAA), and funding or set-asides for the grants provided to Tribes within the Department of Justice.

As detailed below, for fiscal year 2019, the Tribe recommends both preservation of the Pacific Coastal Salmon Recovery Fund—which has been proposed to be eliminated—and funding for the Pacific Salmon Recovery Fund at no less than \$65 million; funding for Salmon Management Activities at \$38.2 million; full funding for programs authorized under the Tribal Law and Order Act; preservation of the \$70 million in funding provided in fiscal year 2018 for Office of Justice Programs Tribal grants, with flexibility in program funding, or in the alternative, reinstatement of the 7 percent Tribal set-aside that Tribes advocated for and received in fiscal year 2017; increasing Tribal set-aside from 3 percent to 5 percent out of Crime Victims Fund distributions; and keeping Tribal funding under the Community Oriented Policing Services program at \$30 million or greater.

The Nez Perce Tribe is a federally-recognized Indian Tribe with treaty-reserved fishing, hunting, gathering, and pasturing rights in the Snake River Basin and Columbia River Basin. In its 1855 Treaty, the Tribe reserved, and the United States secured, “the right of taking fish at all usual and accustomed places in common with the citizens of the Territory; and of erecting temporary buildings for curing, together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land.”¹

It is the Tribe’s desire that all species and populations of anadromous and resident fish and their habitats be healthy and harvestable throughout the Tribe’s usual and accustomed fishing places. The Tribe has long had an interest, and played an active role, in restoring anadromous and resident fish runs—including fall and spring Chinook, steelhead, sockeye, lamprey, bull trout, and white sturgeon—throughout all of the areas where the Tribe reserved treaty fishing rights. The Tribe is involved in these efforts to protect implementation of treaty rights, to restore species and conditions consistent with the Treaty, and to protect the long-term productivity of their natural resources.

The Tribe’s Department of Fisheries Resources Management (DFRM) is one of the largest and most successful Tribal fisheries programs in the United States,² with offices located at Lapwai, Sweetwater, Orofino, McCall, Powell, and Grangeville, Idaho, as well as Joseph, Oregon. The DFRM, with an annual operating budget of

¹ Treaty with the Nez Percés, June 11, 1855, 12 Stat. 957. The Treaty with the Nez Percés, June 9, 1863, 14 Stat 647, preserved the off-reservation rights that the Tribe reserved in its 1855 Treaty.

² The Nez Perce Tribe’s DFRM received the 2015 Honoring Nations award with High Honors from The Harvard Project on American Indian Economic Development.

over \$22 million, and has more than 190 Tribal and non-Tribal employees, 150 of whom are full-time.

The DFRM manages its own salmon fish hatchery at Cherrylane, Idaho, as well as 10 acclimation sites in Idaho and Oregon. In addition, the DFRM manages Kooskia National Fish Hatchery and co-manages Dworshak National Fish Hatchery. The DFRM also coordinates with the Idaho Department of Fish and Game and the U.S. Fish and Wildlife Service on production from other salmon and steelhead hatcheries throughout Idaho. The Tribe is committed to this work and requests that the United States properly fund the programs that are an instrumental part of the overall work on fish recovery.

PACIFIC COASTAL SALMON RECOVERY FUND

The Pacific Coastal Salmon Recovery Fund (PCSRF) was established by Congress in fiscal year 2000 to protect, restore, and conserve Pacific salmonids and their habitats. The Congressionally authorized activities that were funded under the PCSRF program maintain populations necessary for exercise of Tribal treaty fishing rights or native subsistence fishing. Over \$1.2 billion has been appropriated for PCSRF since 2000. With this funding, States and Tribes have leveraged additional resources to collectively implement 12,000 projects to conserve West Coast salmon.³ The Tribe requests PCSRF be preserved and funded at a minimum of \$65 million for fiscal year 2019.

PCSRF has been used by the Tribe to restore coho (silver) salmon to the Tribe's reservation in the Clearwater River, a distance of 500 miles from the ocean. Coho were extirpated from the Clearwater River over 40 years ago and most of these fish returned only as far as the lower Columbia River. Through the PCSRF (and Mitchell Act funds) the Tribe is able to rear and release almost one million coho into the Clearwater River, restoring their presence in the Snake River Basin. The Tribe views these returns as a tremendous success with counts of coho numbering more than 18,000 in 2014. In 2017, the Tribe worked with Oregon Department of Fish and Wildlife and the Confederated Tribes of the Umatilla Indian Reservation to also have the first release of coho in the Lostine River, a tributary of the Grande Ronde River. After decades of extirpation, these fish are being restored to some of the best habitat in the Columbia River Basin. Continued funding for the operation of these hatchery supplementation efforts is needed to maintain the populations of most species of salmon and steelhead in this "breadbasket" of salmon habitat, located upstream of eight Columbia River dams.

SALMON MANAGEMENT ACTIVITIES

The Mitchell Act provides for the conservation of the fishery resources of the Columbia River and is administered by NOAA's National Marine Fisheries Service. Funding for the Mitchell Act component of NOAA Fisheries supports the operations and maintenance of Columbia River hatcheries through grants and contracts to the States of Washington, Oregon, and Idaho, and to the U.S. Fish and Wildlife Service, to mitigate the loss of salmon on the Columbia and Snake Rivers. This subcommittee recommended funding in the amount of \$35.5 million for Salmon Management Activities in fiscal year 2017, which was also the amount appropriated in fiscal year 2018. The Tribe would request that \$38.2 million in funding be allocated in fiscal year 2019 for Salmon Management Activities. The importance of this funding cannot be overstated as the comprehensive, geographic nature of its application in the Pacific Northwest provides for an integrated infrastructure for fish management. As stated above, this funding in conjunction with PCSRF funding is the only funding source for the Tribe's coho restoration work. In addition, these funds allow for fish to be grown at other facilities that are used at Nez Perce Tribal production facilities. Other regional agencies also use the funds to grow fish that enhance treaty fishing opportunities for Nez Perce Tribal members on the Columbia River.

DEPARTMENT OF JUSTICE TRIBAL ASSISTANCE GRANT FUNDING

Providing law and order is one of the fundamental requirements of a functioning government. However, Tribes are limited in the resources available to commit to these programs as the United States has historically underfunded such programs in Indian Country. Tribes rely on the grant programs with the Department of Justice to help grow the capacity of Tribal law and order systems.

³National Oceanic and Atmospheric Administration Budget Estimates fiscal year 2017; Page NMFS-93.

In order to provide law enforcement, victims services, and Tribal justice to Indian and non-Indian residents of the reservation, the Tribe has relied on programs such as the Coordinated Tribal Assistance Solicitation grants program, the Tribal Juvenile Healing to Wellness Court program, the Comprehensive Tribal Victim Assistance Program, the Tribal Justice Systems Infrastructure Program, Violence Against Women Act programs, the Justice Systems and Alcohol and Substance Abuse Program, and the Children's Justice Act Partnership program. These programs need to continue.

As stated above, the Tribe recommends full funding for programs authorized under the Tribal Law and Order Act. The Tribe also recommends either preservation of the fiscal year 2018 funding for Office of Justice Programs grants or a reinstatement of the 7 percent Tribal set-aside that Tribes advocated for and received in fiscal year 2017. If the Committee chooses to fund these programs in the same way as fiscal year 2018, there needs to be flexibility provided in program funding so that the funding is not narrowly allocated to Tribes solely through competitive grant programs. Finally, the Tribe recommends increasing the Tribal set-aside from 3 percent to 5 percent from the Crime Victims Fund distributions and maintaining Tribal funding under the Community Oriented Policing Services program at \$30 million or more.

PREPARED STATEMENT OF THE NORTHWEST INDIAN FISHERIES COMMISSION

Chairman Moran, Ranking Member Shaheen, and Honorable Members of the subcommittee, my name is Lorraine Loomis and I am the Chair of the Northwest Indian Fisheries Commission (NWIFC). The NWIFC is comprised of the 20 Tribes that are party to *United States v. Washington*¹ (*U.S. v. WA*), which upheld the Tribes' treaty-reserved right to harvest and manage various natural resources on and off-reservation, including salmon and shellfish. On behalf of the NWIFC, we are providing testimony for the record on the natural resources and fishery management program funding requests for the National Oceanic & Atmospheric Administration (NOAA)/National Marine Fisheries Service (NMFS) fiscal year 2019 appropriations. These programs support the management of salmon fisheries, which contribute to a robust natural resource-based economy and the continued exercise of Tribal treaty rights to fish.

SUMMARY OF FISCAL YEAR 2019 (FISCAL YEAR 2019) APPROPRIATIONS REQUESTS

1. \$65.0 million for NOAA Pacific Coastal Salmon Recovery Fund
2. \$30.0 million for NOAA Pacific Salmon Treaty
3. \$25.9 million for NOAA Mitchell Act Hatchery Programs
4. Sufficient funding for NOAA Fisheries Disaster Assistance Program
5. \$5.0 million for NOAA Hatchery Genetic Management Plans

The member Tribes of the NWIFC ceded much of the land that is now western Washington in exchange for reserving the continued right to harvest and manage various natural resources including salmon and shellfish. Salmon are, and have always been, the foundation of Tribal cultures, traditions and economies in western Washington. To ensure that Tribal treaty rights and lifeways are protected and not rendered meaningless, it is essential that the Federal Government provide support to all aspects of salmon management including harvest planning and implementation (e.g. Pacific Salmon Treaty), hatchery production, (e.g. Mitchell Act Hatchery Programs) and habitat protection and restoration (e.g. Pacific Coastal Salmon Recovery Fund).

JUSTIFICATION OF REQUESTS

1. *Provide \$65.0 million for NOAA Pacific Coastal Salmon Recovery Fund (PCSRF)*

We respectfully request \$65.0 million for PCSRF, which maintains the fiscal year 2018 enacted level. Although we support the fiscal year 2018 enacted level of \$65.0 million, it is a significant departure from the PCSRF peak level of \$110.0 million in fiscal year 2002 or subsequent years in which budget authority was maintained upwards of \$80.0 million through fiscal year 2011. We ultimately would like to see PCSRF funding fully restored to fiscal year 2002 levels, but we recognize that budget conditions may necessitate an incremental increase in the short term. Nevertheless, we continue to support the original congressional intent of these funds that

¹*United States v. Washington*, Boldt Decision (1974) reaffirmed western Washington Tribes' treaty fishing rights.

would enable the Federal Government to fulfill its obligations to salmon recovery and the treaty fishing rights of the Tribes.

The PCSRF is a multi-State, multi-Tribe program established by Congress in fiscal year 2000 with a primary goal to help recover salmon throughout the Pacific coast region. Through PCSRF, Tribes develop and implement sustainable salmon harvest and hatchery management practices and help protect and restore salmon habitat. To accomplish this, Tribes implement scientifically based salmon recovery plans developed for each watershed in concert with Federal, State, and local partners. Tribes also participate in sustainable harvest management activities such as monitoring of fish abundance, which is then used to forecast adult returns and subsequently develop annual harvest rates that achieve conservation objectives and provide for Tribal and non-Tribal harvest opportunities. Since its inception, PCSRF has been the primary salmon recovery response. This has resulted in over 1.1 million acres of spawning and rearing habitat restored and protected, and re-establishing salmon access to 11,980 miles of previously inaccessible streams in our region.

2. *Provide \$30.0 million for NOAA Pacific Salmon Treaty (within Salmon Management Activities and Regional Councils and Fisheries Commissions)*

We support the Pacific Salmon Commission (PSC) U.S. Section's request of \$30.0 million to implement the Pacific Salmon Treaty (PST). Department of Commerce (DOC) funding covers a wide array of programs including NMFS participation in PST, State (AK, WA, ID, OR) base grants, Coded Wire Tag Program, Puget Sound Critical Stock Augmentation Program, Chinook indicator stock assessments and implementation of the Chinook Salmon Agreement. Total DOC fiscal year 2018 funding for the PSC and PST implementation was \$13.3 million. PSC and PST implementation is funded in large part through NFMS's Salmon Management Activities account, as well as some funding provided through the Regional Councils and Fisheries Commissions account.

Within our collective request of \$30.0 million to support the PSC and implement the PST, we specifically request the following funding within Salmon Management Activities account: \$3.0 million for Coded Wire Tag (CWT) Program, \$2.5 million for the Puget Sound Critical Stock Augmentation Program, and restoration of funding levels for the Chinook Salmon Agreement line to the original level of \$1.8 million.

Adult salmon returning to most western Washington streams migrate through U.S. and Canadian waters and are harvested by fishermen from both countries. For years, there were no restrictions on the interception of returning salmon by fishermen of neighboring countries. After many years of negotiations, in 1985 the U.S. and Canada agreed to cooperate in the management, research and enhancement of Pacific salmon stocks of mutual concern by ratifying the PST. The PSC was created to implement the PST, and is responsible for developing management recommendations, assessing each country's performance and compliance with the treaty. It is also the forum for all entities to work towards reaching agreement on fisheries issues.

The Puget Sound Critical Stock Augmentation Program is required for effective implementation of the PST and its 2008 Chinook annex and pending future Chinook agreements. This program provides funding for operation and maintenance costs for hatchery augmentation programs. These hatchery efforts were initiated in connection with the 2008 agreements, because the conservation needs of these populations could not be met by harvest restrictions alone.

The funding and implementation of the CWT Program is also a U.S. obligation under the PST. The CWT Program produces data that is widely used by State, Federal and Tribal fisheries managers to evaluate hatchery contributions to catch, smolt to adult survival rates, spawner abundance on spawning grounds, differential in-hatchery treatments, and other important information that supports fisheries management and research. Funding for the coast-wide CWT Program supports continued maintenance and efficiency improvements.

3. *Provide \$25.9 million for NOAA Mitchell Act Hatchery Programs (within Salmon Management Activities)*

We respectfully request \$25.9 million for the Mitchell Act Hatchery Programs. The fiscal year 2018 appropriations provided a total of \$20.2 million. The request for an additional \$5.7 million in Mitchell Act funds above the fiscal year 2018 funding level is to ensure that mitigation hatcheries operate at a full production level to meet Federal obligations. This program is funded through the Salmon Management Activities account.

Mitchell Act hatchery production is intended to mitigate for fish and habitat loss caused by the Federal hydropower dam system on the Columbia River. Funding for

these programs supports the operation and maintenance of hatcheries that release between 50 and 60 million juvenile salmon and steelhead in Oregon and Washington. These programs provide fish production for Tribal treaty and non-Tribal commercial and recreational fisheries in the Columbia River, and also contribute to ocean fisheries from Northern California to Southeast Alaska. Unfortunately, overall production from these hatcheries has been reduced from more than 110 million to fewer than 60 million fish due to inadequate funding.

Adequate funding for Mitchell Act hatcheries is of particular importance to us because it supports salmon production for Tribal treaty harvest along the Washington coast. Additionally, adequate funding to ensure full production from the Mitchell Act hatcheries dampens the impact of Canadian and Alaskan ocean fisheries on Washington fisheries under the terms of the PST.

4. Provide sufficient funding for NOAA Fisheries Disaster Assistance Program

We respectfully request sufficient funding for the Fisheries Disaster Assistance Program. Recent declarations of salmon fisheries disasters affecting Washington Tribes include: Fraser River sockeye in 2013, Fraser River sockeye in 2014, Grays Harbor coho in 2015, South Puget Sound coho in 2015, Quileute Dungeness crab in 2015, Nisqually coho, chum and Chinook in 2015, and a Washington ocean salmon troll fishery in 2016. The financial impact from these disasters is severe. For example, the western Washington treaty Tribes estimate \$17.325 million in damages as a result of those officially declared fisheries disasters since 2014. There are other disasters to which the Secretary has not yet acted upon, including but not limited to a 2015 Tribal coho and pink salmon fishery.

Unforeseen natural and manmade disasters can have grave and unexpected impacts on Tribal treaty fishing, and impact the livelihoods of Tribal members who are economically dependent upon these fisheries. Because of the seasonal nature of fishing, a single disaster can have significant impacts on annual revenues needed to maintain boats and gear, forcing fishers to drop out of the sector, and therefore sometimes lead to diminished fishing fleets. An ongoing funded Fisheries Disaster Assistance Program is a much-needed stop gap measure to prevent the collapse of this important economic sector during difficult times. We therefore, respectfully request ongoing appropriations to maintain and enhance the Fisheries Disaster Assistance Program, which is needed to support a resilient national fishing fleet.

5. Provide \$5.0 million for NOAA Hatchery Genetic Management Plans (within Pacific Salmon)

We respectfully request \$5.0 million to provide increased funding to expedite NMFS's review and approval of the backlog of western Washington Hatchery Genetic Management Plans (HGMPs). Review and approval of HGMPs is necessary to provide our hatcheries with ESA coverage. The fiscal year 2018 omnibus provided \$63.0 million for the Pacific Salmon account. The House Appropriations Committee has recommended \$67.0 million, including \$5.0 million for HGMP review. NMFS' fiscal year 2019 proposed budget requests a specific decrease of \$1.696 million for HGMP review, despite reported progress with new funding, and admittedly still facing a large backlog. NMFS uses the information provided by HGMPs to evaluate a hatchery's impacts on salmon and steelhead listed under the ESA. With proper resources, NMFS should be able to review a bundle of HGMPs within a watershed and provide ESA coverage to operate those hatcheries within 18 months. However, HGMP bundles (multiple HGMPs for a geographic area) to date have been taking about 4–6 years to permit. If NMFS were to review the 11 remaining bundles (65 HGMPs total) at past rates, ESA coverage of Puget Sound hatcheries could take 8–10 more years.

CONCLUSION

Federal support for sustainable salmon fisheries management that improve harvest planning, hatchery production and habitat management are essential components of the Federal obligation to ensure continued exercise of Tribal treaty-reserved rights. The treaties and the treaty-reserved right to harvest are the “supreme law of the land” under the U.S. Constitution (Article VI, Clause 2). It is therefore, critically important for Congress and the Federal Government to provide continued support in upholding the treaty obligations and fulfilling the trust responsibilities. This can be accomplished, in part, by supporting the aforementioned programs. We respectfully urge you to continue to support our efforts to protect and restore our natural resources that in turn will provide for thriving economies. Thank you.

[This statement was submitted by Lorraine Loomis, Chair.]

PREPARED STATEMENT OF THE OCEAN CONSERVANCY

FISCAL YEAR 2019 APPROPRIATIONS FOR THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Thank you for this opportunity to provide Ocean Conservancy’s recommendations for fiscal year 2019 funding for NOAA. Ocean Conservancy has worked for over 40 years to address threats to the ocean through science-based, practical policies that protect our ocean and improve our lives. To learn more about Ocean Conservancy’s support for a strong ocean budget at NOAA, see www.TheMoreYouNOAA.org.

We greatly appreciate the subcommittee’s efforts to ensure a positive outcome for NOAA in the fiscal year 2018 omnibus, which made important investments in NOAA ocean programs, including Integrated Ocean Acidification.

We reject the Trump administration’s proposed budget for NOAA in fiscal year 2019, which would cut more than \$1 billion in funding, including cuts to almost every single NOAA ocean program. As described in this testimony, we support funding for NOAA ocean programs at or above fiscal year 2018 funding levels.

NOAA’s mission to understand, protect, restore, and manage our ocean, coasts, and Great Lakes is vitally important to sustain these resources and our economy. The U.S. ocean and coastal economy contributes \$320 billion annually to the Nation’s GDP and supports more than 3 million jobs. There is a good reason that NOAA is in the Department of Commerce, and adequate funding is vital to support a healthy and resilient ocean that can maintain and grow our coastal economies and communities. For example, our Nation’s fisheries and seafood sector generates \$207.6 billion in sales impacts and supports 1.6 million jobs. Fishermen rely on information from NOAA to make the most informed decisions on where to fish, how to fish and when to fish. Coastal wetland buffer zones in the U.S. are estimated to provide \$23.2 billion per year in storm protection, and NOAA works to build resilient coasts that are more storm-ready and prepared for threats like sea level rise and ocean acidification.

Much of the U.S. ocean is under Federal jurisdiction, and yet many of NOAA’s programs focus on pushing resources and decisionmaking power out to regions, States and communities. From region-by-region fishery management, to region-specific programs in places like the Arctic, to extramural funding that supports State agencies and universities, to place-based conservation in our estuaries and oceans, NOAA is providing leverage for hardworking people on the coast and on the water who are fighting for a stronger economy and a healthier ocean.

We ask that you also consider the balance between NOAA’s oceanic and atmospheric missions, and the nexus between the two. Americans should not have to choose between weather satellites and ocean and coastal resources like coral reefs and marine mammals. We need both. NOAA’s ocean programs support many other Federal agencies and missions that will also suffer if NOAA funding is cut. For example, ocean observations and monitoring provide critical information for severe storm tracking and weather forecasting. Ocean programs also facilitate homeland security and national defense functions, including U.S. Navy operations and U.S. Coast Guard search and rescue.

We are alarmed by administration proposals to wholly eliminate vital NOAA programs like Coastal Zone Management Grants, Sea Grant, and the National Estuarine Research Reserve System, among others. We are also alarmed to see new cuts proposed in fiscal year 2019 that had not been proposed by the administration in fiscal year 2018, including new proposed cuts to IOOS and Habitat Conservation & Restoration. We reject these cuts and ask that you fund NOAA ocean programs at or above fiscal year 2018 levels. We also offer additional testimony and recommend funding increases for the following NOAA programs.

Account, Program or Activity	Fiscal Year 2018 Enacted	Fiscal Year 2019 Recommended Increases
Operations Research and Facilities		
National Ocean Service:		
Coastal Science, Assessment, Response and Restoration: Marine Debris ...	\$6.5 m	\$10 m
Coastal Zone Management Grants	\$75 m	
National Ocean and Coastal Security Fund	\$30 m	\$40 m
National Marine Fisheries Service:		
Marine Mammals, Sea Turtles, & Other Species	\$113.342 m	
Fisheries Data Collections, Surveys and Assessments	\$164.749 m	

Account, Program or Activity	Fiscal Year 2018 Enacted	Fiscal Year 2019 Recommended Increases
Office of Oceanic and Atmospheric Research: Integrated Ocean Acidification	\$11 m	\$21.775 m
Office of Marine and Aviation Operations: Marine Operations & Maintenance	\$191.129 m	

MARINE DEBRIS: \$10 MILLION

Marine debris, particularly plastic waste pollution, has become one of the most widespread pollution problems facing the world's oceans and waterways. An estimated 150 million metric tons of plastic waste are in the ocean today, and every year an estimated 8 million metric tons more are being added. With oil prices at an all-time low, coupled with growing population levels and economic prosperity, plastic production and consumption are predicted to double over the coming decade. Without immediate intervention, 250 million metric tons of plastic waste could be in the ocean in fewer than 10 years. Marine debris has serious effects on the marine environment and the economy. It causes impacts on wildlife through entanglement, ingestion and ghost fishing and also impacts marine transportation causing navigational hazards and vessel damage.

The program is authorized at \$10 million, but received only \$6.5 million in fiscal year 2017. Given the magnitude of the problem, there is an urgent need for the NOAA Marine Debris Program to do more to counter the growing threat to ocean health. Fundamental knowledge gaps exist in four critical areas: the sources of plastic waste in the ocean, how the waste distributes within the marine environment, the fates of those materials, as well as their impacts. More scientific research into these key areas will support data-driven policy solutions to prevent plastic from entering the environment and impacting ocean health. Additional funding will enable NOAA MDP to support this additional research.

COASTAL ZONE MANAGEMENT GRANTS

Coastal Zone Management Grants achieve multiple goals for coastal communities including economic development, enhancement of public access and recreation, and protection of coastal resources. The CZM program provides Federal support for these State programs to ensure that as a Nation, all coastal States and territories can enable their coastal communities to achieve both State and national priorities. This State-Federal partnership also enables States to leverage Federal funds to improve permitting processes, provide grants to communities, and ensure Federal actions are consistent with State laws. Moreover, the CZMA requires a dollar-for-dollar State match for almost all Federal funding, with States matching over \$59 million fiscal year 2016.

NATIONAL OCEAN AND COASTAL SECURITY FUND: \$40 MILLION

Regional Coastal Resilience Grants have produced on-the-ground results through regional ocean partnerships, with grants going out to every region of the country in recent years. The fiscal year 2018 Omnibus spending bill shifted funding from RCRG to the National Ocean and Coastal Security Fund ("Ocean Fund") and directed the Ocean Fund to achieve the goals of RCRG. We see those goals as improved regional collaboration, accessible ocean data, stakeholder engagement to increase maritime domain awareness, enhanced ocean and coastal management, adaptive management in response to changing ocean conditions, and further improved national security and resilience.

We support funding the Ocean Fund at \$40 million in fiscal year 2019 in anticipation that this fund will support the priorities we have laid out. This increase is supported by the high demand for RCRG in recent years, which had exceeded \$150 million in applications in a single year.

MARINE MAMMALS, SEA TURTLES AND OTHER SPECIES

NOAA's work to protect living marine resources is important nationwide, but is especially critical in the Gulf of Mexico region. We are glad to see a small increase for Marine Mammals in fiscal year 2018 and encourage you to continue that trend, in particular because increased funds support increased capacity for restoration efforts in the Gulf of Mexico region. We support continued funding at or above fiscal year 2018 funding levels, including for the John H. Prescott Marine Mammal Res-

cue Assistance Grant Program, which funds the first responders for sick or dying marine mammals.

FISHERIES DATA COLLECTIONS, SURVEYS AND ASSESSMENTS

We support funding for programs that implement the *Magnuson-Stevens Fishery Conservation and Management Act*. As we review the Act for reauthorization, it is important to note that the Act is working—NOAA has made great strides towards ending overfishing and continued investments in these programs are needed.

This recently consolidated budget line supports a host of activities critical to MSA implementation. For example, it provides resources for fisheries managers to assess priority fish stocks, implement the requirement for annual catch limits (ACLs), and ensure the successful recovery of overfished populations. Stock assessments give fishery managers greater confidence that their ACLs will avoid overfishing while providing optimal fishing opportunities. We also support funding for the Marine Recreational Information Program. Despite their often sizeable economic and biological impacts, much less data are collected from recreational saltwater fisheries than commercial fisheries due to the sheer number of participants and limited sampling of anglers' catches. The low level of data collection and lack of timely reporting of data in these fisheries is a large source of uncertainty and has become a flashpoint for controversy in regions where catch restrictions have been adopted to rebuild overfished stocks, particularly in the Southeast. By all accounts, improved sampling and timelier reporting of catch data are needed for successful management of marine recreational fisheries.

We support funding for electronic monitoring and reporting for nationwide efforts. In particular we support funding that goes to the Gulf of Mexico region, where managers need electronic monitoring to keep track of catch and prevent overruns in the red snapper fishery. Given the unique management challenges that exist in the Gulf of Mexico, there is a significant need for additional funding. Based on the findings of the November 2014 "Technical Subcommittee Report to the South Atlantic and Gulf of Mexico Fishery Management Councils: Recommendations for Electronic Logbook Reporting" NOAA's requested increases are only a portion of what is needed to support effective electronic monitoring. The Gulf of Mexico region alone will require more than \$5 million annually to support electronic monitoring.

INTEGRATED OCEAN ACIDIFICATION: INCREASE TO \$21.775 MILLION

The Integrated Ocean Acidification line item funds NOAA's ocean acidification program (OAP), which was established and mandated by the Federal Ocean Acidification Research and Monitoring (FOARAM) Act of 2009. Under FOARAM, OAP is directed to "provide grants for critical research projects that explore the effects of ocean acidification on ecosystems and the socioeconomic impacts of increased ocean acidification," establish long-term monitoring, identify adaptation strategies, and conduct public outreach.

Ocean acidification (OA) is the rise in acidity of the earth's ocean caused by uptake of CO₂ from the atmosphere. This rising acidity makes it harder for shell-forming species such as oysters and crabs to grow, and fundamentally alters many other processes (e.g., reproduction, risk avoidance) necessary for healthy ecosystems and the coastal industries that depend on them. Prior Federal investments in OAP, such as FOARAM, have greatly expanded our knowledge of OA and its risks to coastal communities and industries, but current funding levels are not at the scale needed to understand this global problem and its full impacts.

We recommend a funding level of at least \$21.775 million for this program.

MARINE OPERATIONS AND MAINTENANCE

Marine Operations and Maintenance should be funded at or above the fiscal year 2018 level. Days at sea funded by this line are functionally tied to fishery stock assessments, and the two programs must be viewed together.

[This statement was submitted by Jeff Watters, Director, Government Relations.]

PREPARED STATEMENT OF ORGANIZATIONS IN SUPPORT OF THE MINORITY BUSINESS
DEVELOPMENT AGENCY

ASIAN, Inc.
Baltimore Mayor's Office of Small, Minority and Women Business Development
Capital Region Minority Supplier Development Council
California Asian Pacific Chamber of Commerce
The Enterprise Center
Florida State Minority Supplier Development Council
Native American Contractors Associations
University of Southern California Civic Engagement

May 25, 2018

The Honorable Jerry Moran, Chair
Subcommittee on Commerce, Justice,
Science, and Related Agencies
Committee on Appropriations
United States Senate
Washington, DC 20510

The Honorable Jeanne Shaheen, Rank-
ing Member
Subcommittee on Commerce, Justice,
Science, and Related Agencies
Committee on Appropriations
United States Senate
Washington, DC 20510

RE: Minority Business Development Agency, Fiscal Year 2019

Dear Chairman Moran and Ranking Member Shaheen:

Our organizations have successfully operated multiple Minority Business Centers at the behest of the U.S. Department of Commerce's Minority Business Development Agency (MBDA). In light of the President's fiscal year 2019 budget request, we are gravely concerned about the potential loss of crucial job-creating and job-saving value that the national network of MBDA Business Centers and other MBDA projects have provided.

Therefore, we write to request that, as you negotiate and finalize legislation to fund the government for the fiscal year 2019 budget cycle, that you fund MBDA at \$40 million, and that your Committee's report reflect that "[w]ithin the funds provided, not less than \$20,000,000 shall be awarded through cooperative agreements, external awards and grants." While other Federal agencies focus on broader demographic and emerging businesses, MBDA focuses exclusively on the unique needs of minority-owned, middle-stage businesses.

In fiscal year 2017, approximately 40 MBDA Business Centers, Export Centers, Advanced Manufacturing Centers around the country and the Federal Procurement Center facilitated nearly \$5 billion in capital transactions and nearly \$3 billion in contract transactions, helping businesses owned by African Americans, Hispanic Americans, Asian and Pacific Islander Americans, Native Americans (including Alaska Natives, Alaska Native Corporations and Tribal entities), Asian Indian Americans and Hasidic Jewish Americans create and save 18,555 jobs nationally. All transactions are client-verified and evidenced by documentation submitted to and accepted by MBDA. It is important to note that as a highly efficient economic development tool, MBDA more than pays for itself. MBDA has returned \$234 for every taxpayer dollar invested in the agency and its MBDA Business Centers.

As you know, MBDA was established in 1969 by President Richard Nixon through Executive Order 11458. The agency is a part of the Department of Commerce and is the premier Federal agency dedicated to supporting the expansion of minority- and Native-owned business enterprises (MBEs). The President's fiscal year 2019 budget blueprint recommended the reduction of the agency by eliminating the network of MBDA centers, each of which provides businesses with services to assist them to grow in size and scale. Activities are not in duplication of any Small Business Administration program, and include bid proposal support, pricing, commercializing technology, pitching to investors, merging and acquiring firms, and in securing investment.

MBDA helps firms to realize their full economic potential through technical assistance, contracting opportunities, advocacy, research and education, and by serving as a strategic partner for growth and development. MBDA is the only Federal agency dedicated to the growth and global competitiveness of our Nation's 8.5 million MBEs, which, according to the U.S. Census Bureau's 2007 Survey of Business Owners, contributed \$1 trillion in total economic output and employed nearly 6 million

Americans. Given the economic challenges that MBEs face and the income and wealth gap between minority and non-minority communities, it is important that we fund MBDA to support these firms with overcoming some of the obstacles that they disproportionately encounter.

As diversity continues to spearhead a new chapter in our Nation's economic growth, MBDA is supporting the next generation of MBEs by increasing the capacity of regional economies. These findings highlight that the economic contribution of these firms has a significant impact on the national economy, and more recent Census reports demonstrate that this impact is continuing to grow. However, there are still challenges that MBEs disproportionately face compared to other businesses. These obstacles include barriers to accessing capital, contracts, and export markets. There is also an impediment in not having existing informal networks that businesses traditionally rely on in the pursuit of business opportunities.

Thank you for your commitment to ensuring that MBEs are able to maximize their potential, and for your consideration of this request. We appreciate the opportunity to testify to the importance of preserving MBDA's job-creating and job-saving value to the Nation.

Sincerely,



Michael A. Chan
President, ASIAN, Inc.
San Francisco, CA
Operator, Fresno & San Jose MBDA Business Centers



Beatrice Louissaint
President/CEO, Florida State Minority Supplier
Development Council
Miami, FL
Operator, Miami & Orlando MBDA Business Centers



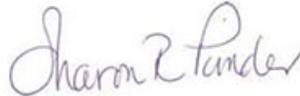
Della Clark
President, The Enterprise Center
Philadelphia, PA
Operator, Philadelphia MBDA Business Center



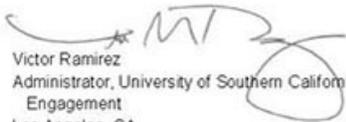
Michael "Keawe" Anderson
Executive Director, Native American Contractors Assn.
Washington, DC
Operator, Anchorage MBDA AIAN Business Center



Paul E. Taylor
Director, Mayor's Office of Small, Minority and Women
Business Development
Baltimore, MD
Operator, Baltimore MBDA Advanced Manufacturing
Center



Sharon Pinder
President/CEO, Capital Region Minority Supplier
Development Council
Silver Spring, MD
Operator, Federal Procurement Center & District of
Columbia MBDA Business Center



Victor Ramirez
Administrator, University of Southern California Civic
Engagement
Los Angeles, CA
Operator, Los Angeles MBDA Business Center



Pat Fong Kushida
President/CEO, California Asian Pacific Chamber of
Commerce
Sacramento, CA
Operator, Sacramento MBDA Export Center

PREPARED STATEMENT OF THE PACIFIC SALMON COMMISSION

Mr. Chairman, and Honorable Members of the Committee, I am W. Ron Allen, the Alternate Tribal Commissioner and Chair for the U.S. Section Budget Committee of the Pacific Salmon Commission (PSC). I am also the Tribal Chairman/CEO of the Jamestown S'Klallam Tribe located on the northern Olympic Peninsula of Washington State. The U.S. Section prepares annual budgets for the implementation of the Pacific Salmon Treaty.

Department of Commerce funding in support of implementing the Pacific Salmon Treaty is part of the Salmon Management Activities account in the National Marine Fisheries Service (NMFS) budget. Funding in the Department of Commerce budget intended for the programs to fulfill national commitments created by the Treaty was \$13,113,113 in the 2017 budget. The U.S. Section estimates that a budget of \$30,000,000 for fiscal year 2019 is needed to implement national commitments created by the Treaty.

The implementation of the Treaty is funded through the Departments of Commerce, Interior and State. The Department of Commerce principally funds programs conducted by the States of Washington, Oregon, Idaho and Alaska and the National Marine Fisheries Service. The cost of programs conducted by the States to fulfill national commitments created by the Treaty are substantially greater than the funding provided in the NMFS budget in past years. Consequently the States have supplemented the Federal Treaty appropriations from other sources, including State general funds. Many of those funding sources are limited or no longer available.

The Pacific Salmon Treaty line item in the Salmon Management Activities section of the National Marine Fisheries Service budget is funded at \$5,727,858 for fiscal year 2017 to provide base support for the States of Alaska, Washington, Oregon, and Idaho. The National Marine Fisheries Service is funded at \$2,680,245 to conduct salmon stock assessments and fishery management programs required to implement the Treaty's conservation and allocation provisions for Coho, Sockeye, Chinook, Chum, and Pink salmon fisheries. Effective, science-based implementation of negotiated salmon fishing arrangements and abundance-based management approaches for Chinook, southern Coho, and Northern Boundary and Transboundary River salmon fisheries includes efforts such as increased annual tagging and tag recovery operations, harvest monitoring, genetic stock identification and other emerging stock identification techniques. The U.S. Section identified a need of \$18,300,000 for fiscal year 2019 to fully carry out these activities.

The Chinook Salmon Agreement line item in the Salmon Management Activities was funded at \$1,440,947 in fiscal year 2017 representing a reduction from previous years. The U.S. Section recommends restoring the funding to the original level of \$1,800,000. This funding supports research and stock assessments necessary to acquire and analyze the technical information needed to fully implement the abundance-based Chinook salmon management program provided for by the Treaty. The States of Alaska, Washington, Oregon, and Idaho, and the 25 Treaty Tribes conduct projects selected in a rigorous competitive process.

The International Fisheries Commissions line, under Regional Councils and Fisheries Commissions in the NMFS budget was funded at \$365,657 and provides the U.S. contribution to bilateral cooperative salmon enhancement on the transboundary river systems, which rise in Canada and flow to the sea through Southeast Alaska. This project was established in 1988 to meet U.S. obligations specified in the Treaty and had been previously funded at \$400,000 annually.

The 2008 Agreement line supports improvements to the Coded Wire Tag program and to Puget Sound critical Chinook stocks, both necessary to reach agreement on revised fishery provisions between the U.S. and Canada. The amount appropriated for fiscal year 2017 was \$2,898,406. Increased funding of these programs in the fiscal year 2019 Federal budget at \$5,500,000 is necessary to address Chinook salmon conservation needs and to meet existing Treaty commitments. The U.S. Section recommends adding \$4,000,000 to fund critical salmon escapement indicator stock programs.

The core Treaty implementation projects included in the Pacific Salmon Treaty line, and the U.S. Chinook Agreement line under Salmon Management Activities, as well as the International Fisheries Commission line under Regional Councils and Fisheries Commissions consist of a wide range of stock assessment, fishery monitoring, and technical support activities for all five species of Pacific salmon in the fisheries and rivers between Cape Suckling in Alaska to Cape Falcon in Oregon. The States of Alaska, Washington, Oregon, Idaho, and the National Marine Fisheries Service conduct a wide range of programs for salmon stock abundance assessment, escapement enumeration, stock distribution, and fishery catch and effort informa-

tion. The information is used to establish fishing seasons, harvest levels, and accountability to the provisions of Treaty fishing regimes.

Like many other programs, funding to implement the Pacific Salmon Treaty decreased in recent years. Prior to that, the base annual Treaty implementation funding remained essentially flat since the inception of the Treaty in 1985. In order to continue to fulfill the Federal commitments created by the Treaty, as costs and complexity increased over time, the States had to augment Federal funding with other Federal and State resources. However, alternative sources of funding have seen reductions or, in some cases, have been eliminated.

The provisions of five annex chapters to the Treaty will expire on December 31, 2018. These chapters contain the specifics for implementing the Treaty for each species in each geographic area. An agreement in principle has been reached for the Transboundary, Coho, and Chum chapters. Agreements for the Northern Boundary and Chinook chapters should be reached in the near future. The revised chapters represent the combined efforts of the participants to ensure healthy salmon populations for the next 10 years. They also require commitments to increase efforts to improve upon current management strategies for numerous salmon populations.

Finally, you should consider the fact that the value of the commercial harvest of salmon subject to the Treaty and managed at productive levels under the Treaty, supports the infrastructure of many coastal and inland communities. The value of the commercial and recreational fisheries, and the economic diversity they provide for local communities throughout the Pacific Northwest and Alaska, is immense. The Pacific Salmon Commission recently funded an economic study of these fisheries and determined that this resource creates thousands of jobs and is a multi-billion dollar industry. The value of these fish to the twenty-five Treaty Tribes in Washington, Oregon, Idaho and Alaska goes far beyond their monetary value, to the cultural and religious lives of Indian people. A significant monetary investment is focused on salmon due to the listings of Pacific Northwest salmon populations under the Endangered Species Act.

Given these resources, we can continue to utilize the Pacific Salmon Commission to develop recommendations that help with the development and implementation of solutions to minimizing impacts on listed stocks. We continue to work towards the true intent of the Treaty, and with your support, we will manage this shared resource for mutual enhancements and benefits.

This concludes the statement of the U.S. Section of the Pacific Salmon Commission submitted for consideration by your Committee. We wish to thank the Committee for the support given to us in the past. Please let us know if we can supply additional information or respond to any questions the Committee Members may have.

Thank you

[This statement was submitted by W. Ron Allen, Chair.]

PREPARED STATEMENT IN SUPPORT OF THE REGIONAL INFORMATION SHARING
SYSTEMS (RISS) PROGRAM

The Regional Information Sharing Systems (RISS) Program serves more than 9,000 local, State, Federal, and Tribal criminal justice agencies and other partners by providing adaptive solutions and services that facilitate information sharing, support criminal investigations, and promote officer safety. RISS's powerful and valuable tools, services, and resources help law enforcement agencies and officers solve cases, apprehend offenders, and stay safe. With ongoing threats to our homeland, the opioid crisis and proliferation of narcotics, gang violence, cyber threats, and emerging challenges, it is imperative that programs like RISS be preserved and strengthened. It is respectfully requested that RISS be funded in fiscal year 2019 at \$45 million.

RISS is composed of six regional centers and the RISS Technology Support Center. RISS works regionally and nationwide to respond to the unique crime problems of each region, while strengthening the country's information sharing environment. For more than 40 years, RISS has demonstrated its value and benefit to the criminal justice and law enforcement community. Hundreds of shared successes are submitted to RISS each year from agencies utilizing RISS services. Examples can be viewed at www.riss.net/Impact.

RISS's adaptable approach and regional/nationwide model enable it to quickly and efficiently respond to the ever-changing criminal justice landscape. RISS supports efforts against all crimes, including organized and violent crime, gang activity, drug activity, terrorism, human trafficking, identity theft, cybercrime, and other regional

priorities and emerging threats. RISS is a trusted resource that law enforcement agencies and officers utilize to—

- Share critical law enforcement and intelligence data across jurisdictions
- Access case and analytical services that help solve crimes and prosecute offenders
- Prevent friendly fire and safeguard the men and women protecting our streets
- Preserve the integrity of operations and protect citizens and communities

In response to the demand for RISS's services, in fiscal year 2017, the RISS Centers:

- Developed 83,612 analytical products.
- Loaned 3,250 pieces of specialized equipment.
- Responded to and provided research and information for 85,122 requests for assistance.
- Trained 40,225 law enforcement officers and personnel.
- Provided access to more than 45.2 million records to authorized personnel, including access to investigative databases, such as the RISS Property and Recovery Tracking System (RISSProp), the RISS Money Counter Project (MCP), and the RISS Master Telephone Index (MTI).
- Enabled users to conduct more than 5 million inquiries to RISS resources and visit RISS-supported websites more than 3.8 million times.

One resource that makes these results possible is the RISS Secure Cloud (RISSNET), which connects disparate systems, provides bidirectional sharing, offers a single simultaneous search of connected systems, and houses hundreds of resources, collaboration tools, and databases (most owned by State and Federal partners, fusion centers, and others who trust RISS and turn to RISSNET to solve their information sharing needs). Without RISSNET resources and information, multi-jurisdictional information sharing would become difficult, leads might be lost, and some cases might not be solved timely or at all. RISS has also developed a number of resources accessible via RISSNET that are critical to the law enforcement community's mission, including the following:

- The RISS Criminal Intelligence Database (RISSIntel) provides for a real-time, online federated search of more than 50 RISS and partner intelligence databases.
- The RISS National Gang Program (RISSGang) consists of an intelligence database, a website, and information resources.
- The RISS Automated Trusted Information Exchange (ATIX) provides a secure platform for law enforcement, public safety, first responders, and the private sector to share information and collaborate.
- The RISSLeads Investigative Website enables authorized law enforcement officers to post information regarding cases or other law enforcement issues.
- The RISS Officer Safety Website provides law enforcement and criminal justice users with timely officer safety information and a secure infrastructure to exchange and share officer safety-related information among agencies.
- Law Enforcement Secure Hosted Websites enable partners to securely share information and materials with specific groups or partners. There are 39 secure hosted websites.

The RISS Officer Safety Event Deconfliction System (RISSafe) supports law enforcement personnel who are conducting an event in close proximity to one another at the same time. Events include law enforcement actions, such as undercover operations, surveillance, or executing search warrants. When certain elements are matched between two or more events, a conflict results. Immediate notification is then made to the affected agencies or personnel regarding the identified conflict.

Event deconfliction helps support and protect law enforcement officers in a variety of ways. Officers partaking in high-risk operations are able to enhance their personal safety and the safety of those around them. Using an event deconfliction system enables officers to identify operational conflicts and collaborate with other law enforcement agencies and officers. It also safeguards community members, helps ensure operational integrity, strengthens information sharing, helps reduce risk and liability, and builds community confidence. Officers are able to leverage each other's information and successfully apprehend criminals. Event deconfliction helps prevent "friendly fire" and helps solve investigations.

Since RISSafe's inception, 1,613,086 operations have been entered into RISSafe, resulting in 425,570 identified conflicts. Without the identification of these conflicts, officers might have interfered with another agency's or officer's investigation, links between cases might have been lost, or officers or citizens might have been unintentionally hurt or killed. RISSafe is accessible and monitored on a 24/7/365 basis and

available at no cost to all law enforcement agencies. Currently, 28 RISSafe Watch Centers are operational, 22 of which are operated by organizations other than RISS. These organizations have invested resources to support this critical officer safety program.

In May 2015, the three nationally recognized event deconfliction systems—Case Explorer, SAFETNet, and RISSafe—were integrated. The partners worked in collaboration to accomplish this goal with the help of many vested partners, including the Bureau of Justice Assistance (BJA); the Partner Engagement, Information Sharing Environment (PE–ISE); the U.S. Drug Enforcement Administration (DEA); the High Intensity Drug Trafficking Areas (HIDTA); and many others. This partnership and system integration have further strengthened officer and citizen safety across the country.

RISS also supports Federal and nationwide initiatives that help enhance and expand efficient and effective information sharing among the criminal justice community. Examples of RISS’s Federal and nationwide partnerships include:

- Federal Bureau of Investigation’s (FBI) Law Enforcement Enterprise Portal (LEEP)
- FBI’s Law Enforcement National Data Exchange (N–DEx)
- Federal Law Enforcement Training Centers (FLETC)
- Global Justice Information Sharing Initiative (Global)
- HIDTAs
- INTERPOL
- National Criminal Intelligence Resource Center (NCIRC)
- National Fusion Center Association (NFCA)
- National Motor Vehicle Title Information System (NMVTIS)
- National Virtual Pointer System (NVPS)
- National White Collar Crime Center (NW3C)
- Office of the Director of National Intelligence (ODNI) Intelink-U
- PE–ISE
- United States Attorneys’ Offices (USAO)
- U.S. Department of Homeland Security (DHS) and the Homeland Security Information Network (HSIN)
- U.S. Department of Justice (DOJ)

These and other partnerships have resulted in streamlined processes, increased information sharing and officer access to critical data, safer officers and communities, and the advancement of important technology solutions, some of which are highlighted below.

Through the N–DEx and RISS partnership, access to N–DEx is available to authorized RISSNET users via LEEP without an additional username or password. This capability enables officers to obtain information quickly, saves officers’ time, streamlines operations, and enhances law enforcement’s ability to respond to crime effectively and efficiently. Work continues to expand this capability nationwide.

As foundational members of the Sensitive But Unclassified (SBU) Working Group and the National Identity Exchange Federation, HSIN and RISS have made significant progress in implementing bidirectional secure single sign-on between the two systems. This integration provides a streamlined approach that enables users to quickly and easily access critical information.

During fiscal year 2017, RISS developed, completed, and deployed the Online Registration, User Self-Service, and the new RISSNET Home Page. In addition, a new RISS Public Website was deployed. RISS also expanded partnerships with the FBI, U.S. Customs and Border Protection, and Nlets—The International Justice and Public Safety Network.

In order to continue to build on the gains made in information and intelligence sharing and officer safety, fiscal year 2019 funding for RISS is requested at \$45 million. The requested funding supports the entire RISS Program, including the operation of the six regional RISS Centers and the RISS Technology Support Center. In addition, the increase in funding will support the following:

- Offer more information resources to additional users from member agencies and partner systems, and significantly expand the effective use of bidirectional federated search by connecting more systems to RISSIntel.
- Support RISSafe’s 24/7/365 operation, expand officer safety programs, support RISSafe Watch Centers across the country, and continue to promote event deconfliction.
- Enhance information sharing with existing partners, such as NVPS and RISSIntel’s information partners, and expand deconfliction of this data with partners.

- Further bridge the gap by expanding existing partnerships with Federal partners.
- Provide agencies having a need for an intelligence database with a cloud-based solution known as RISSIntel 4.0.
- Continue to enhance RISSNET's cloud and supporting infrastructure.
- Expand some of RISS's successful regional investigative data sources that are in demand nationwide, such as MTI and MCP.
- Architect additional scalable solutions on devices, such as mobile, laptop, and desktop computers, and provide scalable solutions for legacy applications.
- Integrate biometrics and incorporate advanced analytics into RISS systems.

RISS diligently identifies and integrates innovative solutions to provide fast, quality-driven, evidence-based support to the law enforcement and public safety communities. Level or reduced funding for RISS would significantly weaken the Nation's information sharing environment, hinder investigations, and impact the safety of our officers and communities.

RISS is a resource that saves agencies money and time and produces results. The cost of doing business continues to rise and, with level or reduced funding, that means a shortfall for programs like RISS. Without an increase in funding, RISS will not be able to continue some of its critical services that law enforcement agencies and officers desperately need. However, with additional funding, RISS can continue to operate while building on its successes. Investing in RISS—a proven, evidence-based, and successful program that directly supports law enforcement's efforts to keep our communities and officers safe—is a smart strategy and a good use of taxpayer dollars.

It would be counterproductive to require local and State RISS members to self-fund match requirements or to reduce the amount of BJA discretionary funding. Agencies require more funding to fight the Nation's crime problems. RISS is unable to make up the decrease in funding that a match would cause, for it has no revenue source of its own. RISS is grateful to provide this testimony at your request and appreciates the support that this committee continuously provides to the RISS Program.

[This statement was submitted by Donald F. Kennedy, Jr., Chair, RISS National Policy Group.]

PREPARED STATEMENT OF RESEARCH!AMERICA

I appreciate the opportunity to submit testimony on behalf of Research!America, the Nation's largest not-for-profit education and advocacy alliance working to accelerate medical progress and strengthen our Nation's public health system. We are grateful for the subcommittee's dedicated stewardship over such a critical subset of our Nation's discretionary funding priorities. As you consider fiscal year 2019 allocations, we request that the National Science Foundation (NSF) receive at least \$8.45 billion to support our Nation in achieving its strategic objectives. Funding at this level will begin to reverse the trend that has left the United States on the verge of lagging behind our international competitors who continue to increase their investments in science research and development.

Over the past 65 years, the NSF has faithfully and successfully pursued its mission: promoting scientific progress that richly benefits Americans, strengthening the national defense, and advancing national health and prosperity. NSF's portfolio, which is intentionally diverse to maximize the returns on science investment, spans biology, economics, mathematics, computer science, the social and behavioral sciences, engineering, and other disciplines and areas of scientific focus. We firmly believe that robust funding for NSF is a sound strategy for advancing our Nation's strategic interests in an increasingly complex global landscape.

WHAT THE NSF PROVIDES

The NSF funds diverse basic and applied research in local universities and other research institutions located in all 50 States, the District of Columbia and three U.S. territories. An estimated 359,000 students, teachers, researchers and postdoctoral fellows were empowered by the NSF in fiscal year 2017 alone. Approximately 90 percent of NSF funding is allocated to grants or cooperative agreements to researchers through a competitive merit review process. Since 1950, the NSF has supported more than 230 Nobel Prize winners, including four Nobel Laureates in 2017. The studies supported by the NSF bear on virtually every sector of our economy, support cyber- and other crucial areas of national security, and factor impor-

tantly into the productive use of “big data” and other highly promising avenues of research.

NSF LEVERAGES AMERICAN INGENUITY TO BREAK NEW GROUND IN SCIENCE AND TECHNOLOGY

The NSF supports high-risk, potentially transformative projects that resulted in groundbreaking discoveries in the last year. In an effort to store data more efficiently and securely, NSF-funded researchers at California Institute of Technology developed a new computer chip using nanoscale optical quantum memory. These findings are moving the field closer to using photons of light to transmit information more reliably. Much of this work would have never been possible without previous NSF investment in computer science, math and statistics.

Advancements continue to be found throughout NSF-funded research, often through collaboration across multiple fields. This year, researchers at Brown University were able to create miniature 3-D tissue engineering molds, or “mini-brains”, that form networks and allow scientists to conduct biomedical research. Last year, the researchers discovered that the “mini-brains” can be used to study brain injuries and diseases such as stroke, concussions and Alzheimer’s. Through NSF’s continued support, fields can work together to produce cutting-edge research that continue to push the fields of neuroscience, engineering and biomedical science forward.

NSF IS CRUCIAL TO TRAINING THE NEXT GENERATION OF AMERICAN SCIENTISTS AND INNOVATORS

Our Nation’s continued global leadership is inexorably linked to our strength in the fields of Science, Technology, Engineering, and Mathematics (STEM). The NSF fosters future American leaders in these strategically important disciplines. Since 1952, the NSF has supported more than 53,000 students through Graduate Research Fellowships and has provided grant support to thousands of postdoctoral fellows and young investigators. The agency also engages in innovative educational initiatives such as NSF INCLUDES (Inclusion across the Nation of Communities of Learners of Underrepresented Discoveries in Engineering and Science). NSF INCLUDES is a new national initiative to make STEM education more inclusive of underrepresented and underserved populations. Efforts like this set the stage for future success as our Nation seeks to accelerate the pace of medical progress.

These examples demonstrate the strategic importance of NSF. I encourage you to fund the agency with at least \$8.45 billion in fiscal year 2019 to support our Nation’s unrivaled scientific enterprise. Research!America appreciates the difficult and complex task facing the subcommittee as it seeks to prioritize funding in a manner that best serves the American people, and hope you will call on our organization if additional information would prove useful.

Thank you for your continued leadership and consideration.

Sincerely,



Mary Woolley
President and CEO
Research!America

PREPARED STATEMENT OF RESTORE AMERICA’S ESTUARIES

FISCAL YEAR 2019 APPROPRIATIONS FOR THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Restore America’s Estuaries is a nonpartisan, nonprofit organization that has been working since 1995 to restore our Nation’s greatest estuaries. Our mission is to restore and protect estuaries as essential resources for our Nation. Restore America’s Estuaries is an alliance of community-based coastal conservation organizations across the Nation that protect and restore coastal and estuarine habitat. Our member organizations include: American Littoral Society, Chesapeake Bay Foundation, Coalition to Restore Coastal Louisiana, Save the Sound—a program of the Connecticut Fund for the Environment, Galveston Bay Foundation, North Carolina Coastal Federation, EarthCorps, Save The Bay—San Francisco, Save the Bay—Nar-

ragansett Bay, and Tampa Bay Watch. Collectively, we represent over 250,000 members nationwide.

As you develop the fiscal year 2018 Commerce, Justice, Science and Related Agencies appropriations bill, Restore America's Estuaries encourages you to provide the funding levels below within the Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) for core programs which significantly support coastal community and ecosystem resilience and local economies:

- \$68.4 million for Habitat Conservation and Restoration
(NOAA: ORF: NMFS: *Habitat Conservation and Restoration*)
 - \$21.1 million for the Community-based Restoration Program
- \$54 million for Coastal Zone Management and Services
(NOAA: ORF: NOS: *Ocean and Coastal Management and Services: Coastal Zone Management and Services*)
 - \$100 million for Coastal Management Grants
(NOAA: ORF: NOS: *Ocean and Coastal Management Services: Coastal Management Grants*)
 - \$40 million for Regional Coastal Resilience Grants
(NOAA: ORF: NOS: *Ocean and Coastal Management Services: Title IX Fund*)
- \$27 million for National Estuarine Research Reserve System
(NOAA: ORF: NOS: *Ocean and Coastal Management and Services: National Estuarine Research Reserve System*)

These investments strengthen and revitalize America's coastal communities by protecting and restoring habitat, improving local water quality, and enhancing resilience. Healthy coastlines protect communities from flood damage and extreme weather, improve commercial fisheries, safeguard vital infrastructure, and support tourism and recreational opportunities.

NOAA HABITAT CONSERVATION AND RESTORATION

(NOAA: ORF: NMFS: *Habitat Conservation and Restoration*)

NOAA's Office of Habitat Conservation (OHC) protects, restores, and promotes stewardship of coastal and marine habitat to support our nation's fisheries and improves the resilience of coastal communities through financial support and the provision of restoration expertise and services. Funding for the Office of Habitat Conservation through the Habitat Conservation and Restoration PPA supports the Community-based Restoration Program and staff capacity to efficiently execute and facilitate habitat restoration nationwide.

NOAA's Community-based Restoration Program (CBRP), funds on-the-ground projects to restore the Nation's coastal, marine, and migratory fish habitat while creating jobs and benefiting local economies. Habitat restoration is critical to sustaining and rebuilding fish populations needed to support sportfishing opportunities and the commercial fishing industry in the coming years. Furthermore, healthier habitats resulting from restoration increase community resilience by buffering against storms, protecting vital infrastructure, and providing new recreational opportunities. The CBRP provides scientific expertise, funding, and technical support to national, regional, and local conservation partners to restore coastal and marine habitat. This non-regulatory tool has helped build collaborations with more than 2,500 organizations, from industry to nonprofits to local governments, and funded more than 2,000 projects that have restored over 81,000 coastal acres. The program has engaged more than 258,000 project volunteers and generated more than \$150 million in non-Federal match and in-kind contributions from project partners.

We strongly urge the Committee to provide \$68.4 million for Habitat Conservation and Restoration, including no less than \$21.1 million for the Community-based Restoration Program. Funding at this level reflects an increase over fiscal year 2018 Omnibus level of funding due to increased demand and need for restoration activities to recover from last year's disastrous hurricane season and to improve the resiliency of our coasts as we face increasingly intense and frequent extreme weather.

NOAA COASTAL ZONE MANAGEMENT AND SERVICES

(NOAA: ORF: NOS: *Ocean and Coastal Management and Services: Coastal Zone Management and Services*)

The National Ocean Service Coastal Zone Management and Services line supports the Office for Coastal Management (OCM) and implementation of the Coastal Zone Management Program. The Coastal Zone Management Program comprehensively addresses the issues and challenges facing our Nation's coastlines through a voluntary partnership between State and Federal partners; 34 of the 35 eligible coastal

States have elected to participate in the CZM Program. This funding provides States with access to resources to help preserve natural features that provide storm protection (dunes, barrier islands), protect wetlands and natural shorelines, provide opportunities for public access to the coast, and manage and curb nonpoint source pollution entering our waterways and coastal waters.

We urge the Committee to provide \$54 million for NOAA's Coastal Zone Management and Services line. This will allow the Coastal Zone Management Program to continue to effectively and efficiently protect, restore, and conserve our shorelines and coastal waters.

NOAA COASTAL MANAGEMENT GRANTS AND TITLE IX FUND

(NOAA: ORF: NOS: Ocean and Coastal Management and Services: Coastal Management Grants/Title IX Fund)

The National Ocean Service's Coastal Management Grants provide critical funding for States to implement their coastal management programs. State Coastal Zone Management Programs, among other things, help to: plan and coordinate coastal restoration projects, mitigate coastal hazards like storms, flooding and erosion, conduct comprehensive ocean planning efforts, promote smart coastal community development, enhance public access to the coast, and coordinate stakeholder engagement to encourage better decisionmaking results. Additionally, there is significant State and local support for this program; in fiscal year 2016, the Federal funding was matched by more than \$57.1 million from State and local governments, and others.

Additionally, we are particularly supportive of the Regional Coastal Resilience Grants, now located in the Title IX Fund. These funds are directed to help interested communities improve resilience to extreme weather events, climate hazards, and changing ocean conditions by supporting collaborative partnerships that develop and use science-based solutions to address coastal hazards. These diverse efforts, including risk assessment, development of strategic resilience plans, and implementation of comprehensive adaptation strategies will help ensure that coastal communities are prepared for and more easily recover from coastal hazards. In fiscal year 2016, NOAA received more than 130 proposals from coastal communities requesting more than \$151 million for coastal resilience projects, demonstrating an unmet need for resilience planning and tools and project implementation nationwide. We request that the same priorities of the Regional Coastal Resiliency Grants be reflected in the priorities for the Title IX Ocean Fund monies.

Restore America's Estuaries urges the Committee to provide no less than \$100 million for NOAA's Coastal Management Grants and no less than \$40 million for the Title IX Ocean Fund. We request an increase of \$10 million for the Title IX Ocean Fund to work towards meeting the demand for these grant monies. We greatly appreciate the subcommittee's past strong support for habitat restoration and, in particular, the Coastal Ecosystem Resiliency Grants program, and respectfully request robust support in the fiscal year 2019 cycle.

NOAA NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM

(NOAA: ORF: NOS: Ocean and Coastal Management and Services: National Estuarine Research Reserve System)

The National Estuarine Research Reserve System (NERRS) is comprised of 29 protected reserves that support long-term research, education, training, and monitoring. Through an effective partnership between NOAA and coastal States, NERRS plays a critical role in sustaining resilient coasts and coastal communities. The States have been entrusted to operate and manage NOAA's program in 24 States and Puerto Rico, where over 1.3 million acres of land and water are protected in perpetuity. Through scientific research and science-based management, NERRS provides numerous benefits to communities that result in improved water quality, increased upland flood and erosion control, and improved habitat quality that support local fisheries and provide storm protection to coastal communities. NERRS assists our coastal communities, industries and resource managers to enhance coastal resiliency in a changing environment. Through NERRS, NOAA can tailor science and management practices to enable local planners to use estuarine habitat as a tool for resilience and adaptation.

Restore America's Estuaries respectfully requests \$27 million for NERRS operations in fiscal year 2019. This funding level will allow NERRS to continue to deliver comprehensive environmental intelligence data and services to support coastal communities.

CONCLUSION

Restore America's Estuaries greatly appreciates the support this subcommittee has provided in the past for these important programs. These programs help to accomplish on-the-ground restoration work which results in major benefits:

- Jobs*.—Coastal habitat restoration projects create between 17–33 jobs per \$1 million invested, more than twice as many jobs as the oil and gas sector and road construction industries combined.
- More fish*.—Traditional fisheries management tools alone are inadequate. Fish need healthy and abundant habitat for sustainable commercial and recreational fisheries.
- Resiliency*.—Restoring coastal wetlands knocks down storm waves and reduces devastating storm surges before they reach the shore, protecting lives, property, and vital infrastructure for the nearly 40 percent of Americans that live in coastal communities.
- Leverage*.—Community-based restoration projects leverage 3–5 times the Federal investment through private matching funds, amplifying the Federal investment and impact.

Thank you for taking our requests into consideration as you move forward in the fiscal year 2019 appropriations process. We stand ready to work with you and your staff to ensure the health of our Nation's estuaries and coasts.

[This statement was submitted by Jeffrey R. Benoit, President and CEO.]

PREPARED STATEMENT OF LYDIA DENNETT, PROJECT ON GOVERNMENT OVERSIGHT,
AND DANIEL SCHUMAN, DEMAND PROGRESS ACTION

The activities of foreign lobbyists, as collected and recorded by the Department of Justice (DOJ) under the Foreign Agents Registration Act (FARA), are the subject of sustained public and congressional interest. FARA is intended to provide transparency into how foreign governments attempt to influence U.S. policies on everything from foreign aid to multi-billion-dollar arms deals. But when the Department of Justice does not uncover when lobbyists for foreign governments fail to register or properly disclose their activities, the public and even Congress can be left in the dark about how our laws are shaped and influenced. We believe the agency's interpretation of the law must be publicly clarified so Congress can grapple with the underlying issues behind foreign lobbyist disclosure.

To address these issues, we respectfully request that the Committee include the following provisions in its committee report language:

1. A request that FARA advisory opinions be provided to the Committee and the general public;
2. A request that the Department of Justice provide to the Committee and the general public its official guidance on how it interprets the law;
3. Additional items for inclusion in the National Security Division's strategic plan for enforcement of FARA, including a date for when that report must be completed and provided to the Committee and released to the public.

We note the House of Representatives proposed an increase in funding in the fiscal year 2019 budget for the National Security Division to address improper foreign influence issues. We also acknowledge the House Appropriations Committee report language noting that the National Security Division is developing a strategic plan for FARA. While we believe this is a step in the right direction, we encourage this subcommittee to prompt the Justice Department to publicly clarify its interpretation of the law.

RECOMMENDATIONS

1. Congressional and Public Access to FARA Advisory Opinions

The Justice Department issues advisory opinions that describe the agency's "present enforcement intentions" concerning the Foreign Agents Registration Act. Specifically, the guidance concerns whether the law requires a present or prospective agent of a foreign principal to register or disclose information. A few summaries of these advisory opinions are published online. Unfortunately, the few publicly available advisory opinion summaries fail to provide clarity on the more nuanced aspects of the law.

We recommend the Justice Department *proactively* publish the full advisory opinions except to the extent it would identify the requester. This is consistent with the suggestions of the DOJ Inspector General (IG) as well as a DOJ statement that it

is willing to release certain reports pursuant to FOIA requests. This should not be burdensome since the FARA unit received only 14 requests for advisory opinions between 2013 and 2016.

In 2016, the DOJ IG recommended the Justice Department consider publishing advisory opinions online with personal information redacted. “We believe the FARA advisory opinions may be a worthwhile informational resource, and recommend [the Justice Department’s National Security Division] consider whether there is value in making them publicly available,” the report stated.

The same year, the Justice Department stated it would release advisory opinions that have led to a FARA registration pursuant to Freedom of Information Act requests. However, FOIA requests are time-consuming, and the agency should operate under a presumption of openness.

Instead of requiring those interested to formally request these documents, the Justice Department should proactively post them online. Proactive disclosure is a best practice and a common one. For example, the DOJ has published advisory opinions to clarify its interpretation of the Foreign Corrupt Practices Act since 1993.

We recommend the following report language:

The National Security Division is requested to provide to the Committee and publish online all Foreign Agent Registration Act advisory opinions for individuals and entities that subsequently registered or disclosed information under FARA, subject to the redactions permissible under FOIA. In addition, the NSD is requested to provide to the Committee and the public all other advisory opinions after redacting information that would identify potential registrants or otherwise would be withheld under FOIA.

2. Clarify Registration Requirements Under FARA

The Justice Department should release any existing official guidance on FARA that explains its interpretation of the law. There are significant portions of FARA that remain undefined or poorly worded, and disclosure of how the DOJ interprets the law would provide Congress and the public with greater understanding.

For example:

- FARA registrants are required to file with the Department any “informational materials” they intend to send to two or more people. We do not know how the Department interprets the phrase “informational materials.”
- An agent of a foreign principal is defined as “a person any of whose activities are directly or indirectly supervised . . . *in major part* by a foreign principal” (emphasis added). We do not know how the Department interprets the phrase “in major part.”
- Lobbyists who are working solely on behalf of a foreign commercial interest, rather than a foreign government or political party, may register under the far less strict Lobbying Disclosure Act and be exempt from FARA requirements. This exemption does not apply if the “principal beneficiary” of the work is a foreign government or political party.” We do not know how the Department interprets the phrase “principal beneficiary.”

We recommend the following report language:

The National Security Division is requested to provide to the Committee and publish online all official guidance currently in effect that interprets or further defines terms used in the Foreign Agents Registration Act.

3. The National Security Division’s Strategic Plan

The House report acknowledges that the National Security Division is drafting a strategic plan on FARA. However, the DOJ has been in perpetual review of FARA for more than a decade, which has had the effect of forestalling action. We believe you should establish a deadline by which the plan is to be released to the Committee and the public. In addition, the plan should include the following:

- An assessment of whether the FARA unit should conduct a cost-benefit analysis of the fee structure to determine whether fee requirements should be changed;
- Whether civil fines should be available to the DOJ to increase compliance; and
- A plan to improve the FARA website so that it works properly in accordance with recommendations made by civil society in this letter.

CONCLUSION

Thank you for the opportunity to submit our testimony regarding FARA. We would welcome the opportunity to discuss this further. For more information, please contact Lydia Dennett at the Project On Government Oversight at ldennett@pogo.org.

PREPARED STATEMENT OF THE SEA GRANT ASSOCIATION

The National Sea Grant College Program (Sea Grant) is a joint Federal-State investment that supports the health and resilience of the Nation's coastal communities (including the Great Lakes, Gulf of Mexico, and communities on the Atlantic and Pacific coasts), yielding quantifiable economic, social, and environmental benefits at the national, regional, State, and local levels. It is a program of the National Oceanic and Atmospheric Administration, Department of Commerce.

The Sea Grant Association recommends that the National Sea Grant College Program, including the Knauss Fellowship Program and Sea Grant STEM education activities, be funded at \$85 million for fiscal year 2019, an amount consistent with the total amount proposed for authorization in H.R. 4306 and S. 129 (which passed the Senate unanimously).

RATIONALE FOR THE SGA RECOMMENDATION

According to the most recent completed census (2010), 39 percent of all Americans live in coastal and Great Lakes counties, and projections suggest that this will increase by another 8 percent by 2020. Our coastal communities generate 58 percent (\$8.3 trillion) of the Nation's gross domestic product. In 2016, Americans, on average, ate 15 pounds of fish and shellfish per person—4.8 billion pounds altogether—making the U.S. second in the world in total seafood consumption. The United States is the leading global importer of fish and fishery products, with 91 percent of the seafood we eat originating abroad—half of which is from aquaculture. Driven by imports, the U.S. seafood trade deficit has grown to over \$14 billion annually. Sea Grant's integration of research, outreach, and education is vital in creating and applying aquaculture products, tools, and services to foster the expansion of a sustainable U.S. marine and Great Lakes aquaculture industry.

Tourism is a major economic driver in coastal States contributing over 2.2 million jobs and generating over \$51 billion in wages. Sea Grant is at the forefront of research, education, and training programs to enhance the economic and environmental benefits of the tourism industry.

The U.S. has jurisdiction over 3.4 million square miles of coastal ocean—an expanse greater than the land area of all 50 States combined. This is a dynamic area, with biologically diverse offshore habitats that provide a wealth of natural resources and economic opportunities, while at the same time exposing human and biological communities to coastal hazards such as storms and hurricanes, shifting shorelines, outbreaks of harmful algal blooms, and water-borne disease. Sea Grant researchers and educators address all of these issues.

Sea Grant's response to the 2010 Gulf of Mexico Deepwater Horizon oil spill; Superstorm Sandy in 2012; Toledo, Ohio's, drinking water crisis in 2014; and this past year's Hurricanes Harvey, Irma, and Maria provide further evidence that, in addition to proactively addressing issues, Sea Grant is nimble and can quickly contribute to rebuilding coastal communities and businesses after disasters.

Indeed, Sea Grant is a key partner in developing robust capabilities to sustain ocean-based economies; assisting the seafood sector of local economies; diversifying our energy sources; protecting critical ocean and coastal infrastructure and related natural resources; and training the next generation of scientists, managers, and stakeholders—all necessary components of a more resilient ocean, coastal, and Great Lakes enterprise.

SEA GRANT CONTRIBUTES QUANTIFIABLE BENEFITS AND SERVES THE NATIONAL INTEREST

The National Sea Grant College Program (Sea Grant) is authorized in Public Law 89-688, the National Sea Grant College Program Act of 1966, as amended (33 USC § 1121 et seq. Sea Grant). The Sea Grant College Program Act authorizes the awarding of grants and contracts to initiate and support programs at Sea Grant colleges and other institutions for research, education, and advisory services in any field related to the conservation and development of marine resources. A joint Federal, State, and local investment, Sea Grant provides solutions for the issues affecting our Nation's coastal communities (including the Great Lakes, Gulf of Mexico, and communities on the Atlantic and Pacific coasts), yielding quantifiable economic, social, and environmental benefits. Sea Grant embodies administration priorities that emphasize economic security, public-private partnerships, and workforce development.

Sea Grant distributes 95 percent of its appropriated funds to coastal States through a competitive, merit-based process designed to address issues identified as critical by public and private sector constituents and coastal communities through-

out the United States. Sea Grant fosters cost-effective partnerships among State universities, State and local governments, Federal agencies, and coastal communities and businesses, leveraging nearly \$3 in cost sharing for every \$1 appropriated to Sea Grant by Congress.

In 2016, the Sea Grant program helped generate an estimated \$611 million in economic impacts; created or sustained over 7,000 jobs; provided 33 State-level programs with funding that assisted 494 communities with technical assistance on sustainable development practices; worked with about 1,300 industry and private sector, local, State, and regional partners; and supported the education and training of over 2,300 undergraduate and graduate students. The Sea Grant program achieved this with a congressional appropriation in fiscal year 2016 of \$73 million, which is leveraged with matching funds provided by States, universities, and other sources.

For over 50 years, Sea Grant has been at the forefront of creating economic opportunities, enhancing food and water security, and reducing risks from natural hazards and extreme events facing coastal communities through research and outreach efforts. Sea Grant is user-driven and university-based, and fully engaged with regional, State, and local organizations.

Sea Grant represents the eyes and ears of NOAA in coastal communities, linking NOAA resources and expertise to the university enterprise to meet local needs and providing timely responses. The program addresses issues across NOAA line office jurisdictions, including weather, fisheries, climate, and coasts. Sea Grant helps connect local stakeholders with NOAA resources. The Sea Grant program is rigorously reviewed and evaluated using well-defined performance measures. The evaluation process highlights superior performance associated with high expectations and significant returns on the Federal investment.

Funding Sea Grant results in support for sustainable fisheries and aquaculture, resilient communities and economies, healthy coastal ecosystems, environmental literacy, the Sea Grant Knauss Fellows and other fellowship programs, and workforce development. In its 50 plus-year history, National Sea Grant College Program successes can be attributed to its ability to respond to the changing needs of our coastal communities. Sea Grant's 33 programs are integrated into both the National Sea Grant and NOAA's national strategic plans. Each tailored and therefore maximally effective State program executes the following objectives:

- Sea Grant has capacity, breadth, and depth.*—Sea Grant brings the expertise of its vast network of universities, research institutions, faculty, students, staff, and facilities, with on-the-ground and in-the-field knowledge. This knowledge, bolstered by established ties and credibility with communities and community leaders, results in the conversion of science and technology into practical use and informed decisionmaking.
- Sea Grant facilitates opportunities.*—Sea Grant engages partners, stakeholders, and constituents through its nimbleness, capacity for rapid response, and multifaceted ability to address critical issues and needs facing the Nation.
- Sea Grant is proactive.*—Sea Grant has engaged in planning, resilience, hazard preparedness and recovery, and participated in the overall “Blue Economy” before the terms were popularized in national programs. In 2016, the Sea Grant network developed a 10-year aquaculture vision that outlines the most pressing needs and opportunities to foster sustainable aquaculture development across the country.
- Sea Grant is there for its stakeholders.*—The needs and desires of the Nation's taxpayers who live, work, and play in coastal America for products and services that Sea Grant provides are rapidly increasing. This is because Sea Grant is recognized and trusted for its ability to work with local constituents to better understand their needs and deliver relevant information and services.

CONCLUSION

Population density in coastal communities is increasing as people are attracted to the beauty, economic opportunities, and recreational activities offered by these localities. According to the most recent completed census (2010), 39 percent of all Americans live in coastal and Great Lakes counties, and projections suggest that this will increase by another 8 percent by 2020. In 2014, coastal and Great Lakes States comprised 57 percent of U.S. land area, but more than 82 percent of the population and economy. Sea Grant is helping coastal communities cope with the strain that population expansion places on local resources and the increased need for hazard preparedness planning. In recent years, coastal communities have experienced an increased risk to lives and property from storms and natural disasters. Weather events like hurricanes, tornadoes, and snowstorms have increased in number and

intensity, posing threats to people, animals, livelihoods, and ecosystems. In cost-effective ways, Sea Grant is assisting States, regions, and local communities to improve both their preparedness for, and resilience to, challenges due to increased extremes and variability in weather and other natural disasters.

The United States imports about 90 percent of its seafood, creating an annual seafood trade deficit exceeding \$14 billion. With worldwide fish consumption projected to increase by 21 percent in the next decade, this our seafood deficit will continue to grow if sustained action is not taken. Through its research and extension activities, Sea Grant makes vital contributions towards the development of a U.S. aquaculture industry helping to make it competitive in the global marketplace while increasing food security.

Local, State, regional, and national partnerships are critical to addressing these and other issues central to the survival of our coastal communities, economies, and ecosystems. Coastal and Great Lakes communities need to be informed, engaged, and prepared to respond to these threats and to turn these adversities into opportunities. This is precisely what Sea Grant does.

For over 50 years, Sea Grant has been at the forefront of creating economic opportunities, enhancing food and water security, and reducing risks from natural hazards and extreme events facing coastal communities through research and outreach efforts. Sea Grant is user-driven and university-based, and fully engaged with regional, State, and local organizations.

With \$85 million in Federal funding, Sea Grant will leverage significant State and local support, continue to increase the economic development and resiliency of coastal communities, and help sustain the health and productivity of the ecosystems on which they depend.

[This statement was submitted by Dr. James Hurley, President, Sea Grant Association and Director, Wisconsin Sea Grant.]

PREPARED STATEMENT OF SEARCH, THE NATIONAL CONSORTIUM FOR JUSTICE
INFORMATION AND STATISTICS

INTRODUCTION

Thank you, Mr. Chairman and members of the subcommittee, for the opportunity to submit testimony on the Department of Justice (DOJ) funding to be provided for in the fiscal year 2019 Commerce, Justice, Science, and Related Agencies appropriations bill. SEARCH recommends an appropriation of at least \$75 million for the National Criminal History Improvement Program (NCHIP) and the National Instant Criminal Background Check System (NICS) Act Record Improvement Program (NARIP), which is the amount that was included in the 2018 Consolidated Appropriations Act.

SEARCH, The National Consortium for Justice Information and Statistics (SEARCH), is a nonprofit membership organization created by and for the States. SEARCH's Governor-appointed, dues-paying Members from the States and Territories have the responsibility, among other things, to oversee both NCHIP and NARIP within their States.

Over the years, States have made great strides in meeting their criminal history record improvement goals under both programs. Robust funding for these programs in prior years, as reflected in the fiscal year 2017 and fiscal year 2018 Commerce, Justice, Science and Related Agencies appropriations was welcomed by the States who use the funding to modernize and enhance operations and technology, and to more effectively share data for critical criminal justice and public safety decisions. NCHIP funding has helped States vastly improve the quality and completeness of criminal history records, and to make this information immediately available and broadly accessible nationwide. NARIP funding has significantly improved information for firearms eligibility determinations via the NICS system, including increasing mental health records availability to NICS by nearly 1600 percent.¹

There is still work to be done to realize a truly complete and accurate national criminal history background check system. That system not only informs a variety of justice and public safety decisions, but also and increasingly critical noncriminal justice decisions, such as those regarding applicants for employment and licensing; volunteers who work with children, elderly and other vulnerable populations; and individuals purchasing firearms. It is important to recognize that information stored in State criminal history record repositories throughout the Nation and used for criminal justice decisionmaking (such as at arrest, prosecution, sentencing, and com-

¹ <https://www.ncjrs.gov/pdffiles1/bjs/grants/249793.pdf>

munity supervision), is precisely the same information that is required for other public safety and noncriminal justice decisions (such as employment and licensing decisions and for firearms eligibility determinations).

The States are leveraging prior congressional funding to engage in broad-scale initiatives and partnerships with other State agencies to improve and enhance criminal history record information collection and sharing. These partnerships between the criminal history repositories and State courts, corrections, prosecution and mental health agencies—among others—have been stimulated through these substantive grant funding streams, which enable the development of enterprise solutions to address universal interagency information sharing challenges. Continued progress and substantive advances rely in no small measure on new funding in fiscal year 2019.

SEARCH appreciates the subcommittee's recognition that while both NCHIP and NARIP focus on improvements to the efficiency, effectiveness, timeliness, and accuracy of criminal history record and associated data for decisionmaking purposes, each program emphasizes specific and distinct goals.

NCHIP allows States to focus on a broad range of criminal history improvement activities that are unique and specific to each State. States have identified and prioritized the improvements needed in their systems to support critical decisionmaking at the State and national level for both criminal and civil decisions. Some of those priorities include improving arrest records, increasing disposition reporting, expanding conviction record availability in the Federal systems, and enhancing positive identification capabilities.

Maine, for example, has used NCHIP funding to locate missing criminal history record dispositions or fingerprint-supported records, specifically focusing on improving felony, sex offender and domestic violence records. Connecticut has used NCHIP funding to migrate paper criminal history record dispositions into a searchable electronic format to improve the overall efficiency in searching disposition records and reducing the disposition backlog. South Carolina has used NCHIP funding to hire individuals to conduct training to ensure that records conform to FBI standards, add thousands of dispositions to the State's criminal history records repository, and process thousands of expungements.

The flexibility of NCHIP funding allows States to enhance enterprise information sharing and data used to support a myriad of key decisions in the justice arena each and every day. For example, the lack of positive, biometric identification associated with criminal history records is often a major challenge. Kentucky used fiscal year 2015 funding to develop a Court Fingerprint Notification application within its E-Warrants system. When an offender appears before a judge, the judge will be automatically notified if the offender's fingerprints are not on file, enabling the judge to order that fingerprints be taken, thereby supporting efforts to establish and verify identity with biometric precision. Michigan used NCHIP funding to create an instructional training video to provide local agencies with easily accessible information regarding the proper submission of fingerprints and criminal history record data.

In contrast to NCHIP grant funding, NARIP funding focuses specifically on improving information sharing with NICS for firearms purchases. There are 10 categories established in Federal law that disqualify an individual from purchasing firearms. They include disqualifiers such as felony conviction information, fugitive from justice, domestic violence protection order, involuntary commitment to mental health institution, etc.

Nearly 90 percent of the records used to make these disqualifying decisions are based on the information that States provide to NICS.² That information comes from three key sources: the Interstate Identification Index (III—the national system for exchanging criminal record information), the National Crime Information Center (NCIC—an automated, nationally accessible database of crime data, criminal justice and justice-related records, including wanted persons and protection orders) and the NICS Indices (created for presale background checks of firearms purchase). Any efforts States undertake to improve the information contribution to any of these databases enhance the effectiveness of firearms eligibility decisionmaking.

NARIP grants allow States to improve information made available to NICS, such as increasing the number of disqualifying mental health records into the NICS Indices and domestic violence orders of protection into the NCIC. Such targeted funding assists States in meeting the challenges specifically associated with getting information to the system. As valuable as the program is, however, NARIP funds are only available to 31 States at this point, since not all States qualify for the funding.³

²FBI Criminal Justice Information Services III Statistics, February 1, 2013.

³NARIP has two main requirements: States must (1) establish a process where those adjudicated as "mentally defective" can seek to reinstate their right to purchase a firearm, and (2)

States that do qualify for NARIP funding can target information sharing efforts to improve their contributions to NICS. For example, NARIP grant funds have significantly improved the records that New York State makes available to the NICS Indices. New York State can now efficiently transmit records of mental health involuntary admissions and civil guardianships to NICS. New York State also collects and reports Misdemeanor Crimes of Domestic Violence (MCDV) convictions to NICS so that vulnerable spouses, children and intimate partners are further protected. Nebraska has utilized NARIP funding to develop a Protection Order Portal that enables local law enforcement to efficiently enter protection orders into NCIC, making them available for NICS checks.

SEARCH makes three key recommendations regarding NCHIP and NARIP funding:

1. Support NCHIP funding for improvements to State criminal history record information to robustly support criminal and civil decisionmaking nationwide.

The NCHIP program has been successful in helping States improve the accuracy, reliability and completeness of their automated criminal history record systems. Meaningful NCHIP funding will more broadly improve the Nation's criminal justice information sharing backbone. Moreover, the Federal investment can be leveraged many times over by contributing to the ability of State and local criminal justice agencies to provide timely, accurate and compatible information to Federal programs, such as the III. And, importantly, all States qualify for funding under NCHIP.

NCHIP funding since fiscal year 2014 has reinvigorated an important and timely program. Because State criminal history records are the principal source for the FBI's III database, any constraints on the States weakens the ability of many State and Federal programs to identify threats and keep our Nation safe.

2. Continue to invest in improving background screening for firearms purchases.

We urge Congress to continue the investment in the Federal-State criminal background screening partnership that comprises NICS. NICS is a critical tool in the fight against gun violence, and the States and FBI rely on NICS every day for informed decisionmaking on firearms transactions.

There are still many opportunities for improving the timeliness and availability of information to NICS. Millions of records related to felony convictions, cases under indictment or information, fugitives from justice and drug abusers—all NICS disqualifying categories—remain open and unavailable to NICS. While States have made significant strides in making mental health records available to NICS, many States need continued support to target information sharing in the other prohibitor categories to further improve their information sharing to NICS.

3. Provide an appropriation of \$75 million for NCHIP and NARIP.

Providing at least level funding for NCHIP and NARIP in fiscal year 2019 will allow States to utilize these programs to improve their criminal history records in support of general criminal justice and civil decisionmaking, as well as improvements to background screening for firearms purchases.

CONCLUSION

SEARCH thanks the Chairman and Members of the subcommittee for their steadfast support of these programs in the face of daunting budget challenges. Given the critical importance of criminal history record information for a broad spectrum of decisions that keep our citizens safe from predators, terrorists and other criminals, it is a worthwhile and needed investment. The accuracy, completeness and reliability of the Nation's criminal history record system is more important than ever before, for criminal investigations, officer safety, sentencing and other criminal justice purposes; for expungement and other reentry strategies; for homeland security and anti-terrorism purposes; for public noncriminal justice purposes, such as licensing and employment suitability and firearms purchases; and for research that provides critical guidance in shaping law and policy.

SEARCH encourages Congress to allow States to tailor their use of NARIP and NCHIP funding to address the specific challenges each State faces, as the examples discussed earlier clearly illustrate, in making more records available to the national system.

comply with a process to estimate the number of NICS disqualifying records they maintain. Only 31 States have met requirement #1.

On behalf of SEARCH's Governor-appointees, and the thousands of criminal justice officials who benefit from SEARCH's efforts, I thank you for your consideration.

[This statement was submitted by David J. Roberts, Executive Director.]

PREPARED STATEMENT OF THE SMART APPROACHES TO MARIJUANA (SAM)

MARIJUANA INDUSTRY PROTECTION IN THE FISCAL YEAR 2019 CJS APPROPRIATIONS ACT

Thank you, Chairman Moran and Ranking Member Shaheen for the opportunity to submit testimony about proposed language to protect the marijuana industry from Federal enforcement by the Department of Justice in the Fiscal Year 2019 CJS Appropriations Act. I represent Smart Approaches to Marijuana (SAM), the leading non-partisan national organization offering a science-based approach to marijuana policy.

Expanded marijuana use appears to be exacerbating the opioid crisis. In a study of 34,000 individuals, marijuana users were discovered to be more than two times as likely to abuse prescription opioids or initiate non-prescription use of opioids.ⁱ This is in stark contrast to several population studies that claim marijuana legalization is correlated with reduced opioid deaths. These population studies suffer from the ecological fallacy and fail to properly account for concurrent actions taken to reduce mortality.ⁱⁱ Tragically, more Coloradans died from drug overdoses in 2017 than in any year in the State's history, as overdose deaths in all categories rose.ⁱⁱⁱ

Accordingly, SAM requests the absence of medical marijuana language in the Fiscal Year 2019 Commerce, Justice, Science, and Related Agencies Appropriations Act. In previous years, this language has stated:

None of the funds made available in this Act to the Department of Justice may be used, with respect to any of the States of Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming, or with respect to the District of Columbia, Guam, or Puerto Rico, to prevent any of them from implementing their own laws that authorize the use, distribution, possession, or cultivation of medical marijuana.

Both the fiscal year 2016 and 2017 budgets submitted by President Obama and the fiscal year 2018 and 2019 budgets submitted by President Trump requested the removal of this language.

Rather than change the law—which is in Congress's power to do—the medical marijuana language merely refuses to enforce the law. In this sense, the medical marijuana language inhibits the President from taking care that the laws be faithfully executed.

Several other considerations also strengthen the case for removal of the medical marijuana language, as follows.

A. MARIJUANA IS NOT A STATES' RIGHTS ISSUE

Ultimately, those who argue that the commercial sale of marijuana is a States' rights issue are arguing one of two things: either the entire Controlled Substances Act (CSA) is unconstitutional, or marijuana is completely harmless and should be removed from scheduling under the CSA completely. Both arguments are incorrect.

1. *All justices in Gonzalez v. Raich recognize the constitutionality of CSA*

The Supreme Court answered the most fundamental questions about the ability of Congress to preempt State law and ban the growing, distribution, and sale of marijuana in the 2005 case of *Gonzales v. Raich*. Raich's attorneys argued that Congress did not have the power to regulate her growing of marijuana plants under the Interstate Commerce Clause. The Supreme Court ruled 6–3 against her that Congress could indeed ban marijuana, even for personal use under State medical marijuana programs. As Justice Scalia stated in his concurring opinion, "In the CSA,

ⁱ <https://www.drugabuse.gov/news-events/news-releases/2017/09/marijuana-use-associated-increased-risk-prescription-opioid-misuse-use-disorders>

ⁱⁱ Hall, et. al. It is premature to expand access to medicinal cannabis in hopes of solving the US opioid crisis. *Addiction*. 22 Feb. 2018.

ⁱⁱⁱ <https://www.denverpost.com/2018/04/04/colorado-drug-overdoses-opioid-deaths-hit-high/>

Congress has undertaken to extinguish the interstate market in Schedule I controlled substances, including marijuana. The Commerce Clause unquestionably permits this.^{iv} The Supreme Court has interpreted the Controlled Substances Act (CSA) to apply to all facets of marijuana cultivation and distribution. Even in the dissents to the *Raich* case, the justices acknowledged the constitutionality of the CSA when it applies to the commercial sale of marijuana—something that was not at issue in that case but constitutes an integral part of present-day marijuana legalization programs.

2. Current science argues against removing marijuana from CSA

Current medical literature and statistical surveys are clear: marijuana is a drug of abuse, is physiologically and psychologically addictive, and causes clear negative effects in both individuals and society. Regular use of marijuana can cause permanent changes in the brain, increasing the mass of the nucleus accumbens (reward center),^v similar to the effect of other addictive drugs. Cessation of use may result in physical withdrawal symptoms, including cravings, decreased appetite, sleep difficulty, and irritability.^{vi} Surveys show that regular marijuana users report more severe consequences than alcohol in most categories, including serious problems at work or school, taking time away from work or school, causing problems with family or friends, or spending a lot of time getting/using drugs.^{vii} Drugged driving fatalities have markedly increased in States which have legalized marijuana, posing a hazard to the general public.^{viii} The current body of evidence strongly reinforces current classification of marijuana as a controlled substance under the Controlled Substances Act, particularly with respect to modern, high-potency marijuana and extracts.

B. EXISTING STATE MEDICAL MARIJUANA PROGRAMS ARE A FAILED EXPERIMENT

1. Medical marijuana States are hubs for black market activity

A recent report by the Oregon State Police reveals that: Oregon is producing three to five times the amount of marijuana than can be consumed in State; 70 percent of the sales of marijuana are occurring in the black market; marijuana is being diverted out of State as far as Florida and even internationally; and the counties with the highest rates of out of State diversion also have the most medical marijuana grower and dispensary registrants.^{ix} Colorado's marijuana program has similarly been abused. The State initially allowed cultivation of up to 99 marijuana plants at home, which resulted in both drug cartels and domestic drug dealers hiding in plain sight, shipping product out of State to more lucrative illegal markets. While the State has recently reduced the number of allowed plants, police are so inundated with reports of illegal grows that they can only track down a fraction of the tips they get.^x As Colorado Attorney General Cynthia Coffman has said, "The criminals are still selling on the black market. . . . We have plenty of cartel activity in Colorado [and] plenty of illegal activity that has not decreased at all."^{xi}

2. Medical marijuana programs devolve into de facto legalization

Because of the wide variety of conditions medical marijuana is authorized to treat, and a number of unscrupulous doctors who are willing to recommend marijuana, anyone who wants medical marijuana can get it in many States. Marijuana is recommended to "treat" conditions as diverse as insomnia, headaches, writer's cramp, and anxiety. A 2017 survey of Oregon's medical marijuana program showed that just 1.5 percent of participating physicians (26 out of 1,715) were responsible for

^{iv} *Gonzales v. Raich* (2005).

^v Gilman, et al., Cannabis Use Is Quantitatively Associated with Nucleus Accumbens and Amygdala Abnormalities in Young Adult Recreational Users, *Journal of Neuroscience*. 16 April 2014, 34 (16):5529–5538.

^{vi} Gorelick DA, Levin KH, Copersino ML, et al. Diagnostic Criteria for Cannabis Withdrawal Syndrome. *Drug Alcohol Depend.* 2012;123(1–3):141–147.

^{vii} Caulkins, Johnathan P., The Real Dangers of Marijuana. National Affairs. Winter 2016 (30).

^{viii} AAA Foundation for Traffic Safety. Prevalence of Marijuana Involvement in Fatal Crashes: Washington, 2010–2014. May 2016. Web. 23 Oct. 2016.

^{ix} Oregon State Police. A Baseline Evaluation of Cannabis Enforcement Priorities in Oregon. January 2017.

^x "Police left buried under a mountain of marijuana and red tape as weed laws change." Colorado Springs Independent, 07 June 2017. Web. 11 April 2016.

^{xi} "Special report, 'Clearing the haze': Black market is thriving in Colorado." *Colorado Springs Gazette*, 20 Mar. 2015. Web. 21 Oct. 2016.

over 75 percent of the medical marijuana card applications (47,354 out of 62,903).^{xii} Other surveys have revealed that under 5 percent of the holders of medical marijuana cards have cancer; instead, the average medical marijuana patient is a 32-year old white male with no history of life-threatening disease and a history of drug and alcohol abuse.^{xiii} Easy medical marijuana access is often publicly advertised on billboards or signs, with the most commonly cited example being the “Dr. Reefer” billboard in Las Vegas, Nevada.

C. LEGITIMATE, FDA-APPROVED MEDICATIONS DERIVED FROM THE MARIJUANA PLANT HELP PEOPLE MORE THAN UNREGULATED STATE PROGRAMS

1. *Existing law can be improved to research medications without rescheduling marijuana*

It is possible under existing law to research medications that can be derived from the marijuana plant. In fact, several such medications already exist. Marinol is a synthesized form of THC and is a Schedule III drug which is used to stimulate appetite in cancer and AIDS patients. Sativex is an oral spray with isolated cannabinoids used to treat spasticity in MS patients. Epidiolex is an isolated CBD oil medication that is in the final stage of FDA approval for treating severe seizures in children. This purified CBD medication has been tested for safety and drug interactions, with over 1,100 families accessing the medication through FDA’s Early Access Program for their suffering children. The FDA voted unanimously for preliminary approval of the drug on April 19, 2018, and final approval is expected in June of 2018.

2. *Despite State regulations, existing products sold under State marijuana laws are dangerously undosed, unlabeled, and unstandardized, placing people at risk*

While purified, high-dose CBD oil is showing tremendous promise in clinical trials in treating childhood epilepsy, many unscrupulous dispensaries and manufacturers have taken advantage of desperate families to sell them untested products. When the FDA has performed tests on many of these products, they found some that were very low in CBD content and high in THC content. Others were contaminated with mold. Some contained no detectable levels of the active ingredient advertised on their labels. These products were very dangerous for use, and the FDA sent cease and desist letters to these bad actors.^{xiv}

3. *Rescheduling marijuana does not increase research or access to treatments*

In the case of marijuana, rescheduling the drug to Schedule II or lower would immediately trigger requirements that the FDA regulate the safety and efficacy of the drug. Because the marijuana industry has realized that whole plant marijuana is unlikely to ever pass through FDA trials since it cannot be dosed or standardized, they no longer argue for rescheduling the drug. Rescheduling would also not effectively reduce barriers to research, as researchers for Schedule II drugs face nearly all of the same requirements and restrictions as those who research Schedule I drugs.

4. *Congress can easily facilitate additional, legitimate research through proposed legislation*

Much more research is needed, and Congress could reduce some of the barriers to research without rescheduling marijuana. H.R. 3391 [115th]—the Medical Marijuana Research Act by Congressman Andy Harris (MD–1) and S. 1803/H.R. 4825 [115th]—the MEDS Act by Senator Orrin Hatch (R–UT)/Congressman Rob Bishop (UT–1) would accomplish that goal. Senators Feinstein (D–CA) and Grassley (R–IA) have introduced similar marijuana research legislation.

D. CONCLUSION

In summary, SAM asks that you refrain from adding marijuana-related language to the fiscal year 2019 CJS Commerce, Justice, Science, and Related Agencies Act. “Medical marijuana” does not meet the definition of medicine; it has not been

^{xii} Oregon Health Authority. Oregon Medical Marijuana Program: Statistical Snapshot. April 2017.

^{xiii} O’Connell, T. et al. Long Term Marijuana Users Seeking Medical Cannabis in California (2001–2007): Demographics, Social Characteristics, Patterns of Cannabis and Other Drug Use of 4117 Applicants. *Harm Reduction Journal*. 2007 4:16. Numberg, H. et al. An Analysis of Applicants Presenting to a Medical Marijuana Specialty Practice in California. *Journal of Drug Policy Analysis*. Feb 2011; 4(1): 1.

^{xiv} FDA News Release. “2016 Warning Letters and Test Results for Cannabidiol-Related Products.” Web. 27 April 2017.

through clinical trials and has no standardized, prescribed dose. Instead, as the recent Oregon State Police report shows, medical marijuana legalization has provided cover for illicit, black market activity. The experiment has failed. The Department of Justice should be able to enforce the law when States have failed to do so.

[This statement was submitted by Kevin A. Sabet, President and CEO.]

PREPARED STATEMENT OF THE SOCIETY FOR INDUSTRIAL AND APPLIED MATHEMATICS

Summary: This written testimony is submitted on behalf of the Society for Industrial and Applied Mathematics (SIAM) to ask you to continue your support of the National Science Foundation (NSF) in fiscal year 2019 by providing NSF with \$8.45 billion to advance both core research areas and NSF's Big Ideas for Future Investment. These Big Ideas would dramatically propel interdisciplinary research forward while revolutionizing quantum communications, medicine, and other areas. In particular, we urge you to provide strong support for the Research and Related Activities Account (RRA) that supports key applied mathematics and computational science programs in the Division of Mathematical Sciences and the Office of Advanced Cyberinfrastructure.

Full Statement: On behalf of SIAM, I am submitting this written testimony for the record to the subcommittee on Commerce, Justice, Science, and Related Agencies of the Committee on Appropriations of the U.S. Senate.

SIAM has over 14,000 members, including applied and computational mathematicians, computer scientists, numerical analysts, engineers, statisticians, and mathematics educators. They work in industrial and service organizations, universities, colleges, and government agencies and laboratories all over the world. In addition, SIAM has almost 500 institutional members, including colleges, universities, corporations, and research organizations. SIAM members come from many different disciplines but have a common interest in applying mathematics in partnership with computational science to solve real-world problems, which affect national security and industrial competitiveness.

First, we would like to emphasize how much SIAM appreciates your Committee's continued leadership on and recognition of the critical role of the National Science Foundation (NSF) and its support for mathematics, science, and engineering in enabling a strong U.S. economy, workforce, and society.

Today, we submit this testimony to ask you to continue your support of NSF in fiscal year 2019 and beyond. In particular, we join with the research and higher education community and request that you provide NSF with \$8.45 billion in funding for fiscal year 2019. After several years of flat funding before fiscal year 2018, NSF needs growth to ensure U.S. competitiveness as countries such as China are rapidly increasing their science and engineering investments.

As we are reminded every day, the Nation's economic strength, national security, and welfare are being challenged in profound and unprecedented ways. Many of these challenges are fueled by gaps in our understanding of complex systems such as cyberspace, terrorist networks, the human brain, or the energy grid. Mathematics and computational science play a foundational and cross-cutting role in understanding these systems through advanced modeling and simulation, developing techniques essential to designing new breakthrough technologies, and providing new tools for managing resources and logistics. Progress in computational sciences and applied mathematics also underpins advances across an array of fields and challenges in computing, materials, biology, engineering, and many other areas.

NATIONAL SCIENCE FOUNDATION

NSF serves a unique and critical function supporting all areas of science and engineering to further innovation and seed the knowledge and technologies for a strong future America. NSF provides essential Federal support for applied mathematics and computational science, including 64 percent of all Federal support for basic academic research in the mathematical sciences. Of particular importance to SIAM, NSF funding supports the development of new mathematical models and computational algorithms, which are critical to making substantial advances in such fields as neuroscience, energy technologies, genomics, and nanotechnology. In addition, new techniques developed in mathematics and computing research often have direct application in industry. Modern life as we know it—from search engines like Google to the design of modern aircraft, from financial markets to medical imaging—would not be possible without the techniques developed by mathematicians and computational scientists. NSF also supports mathematics education at all levels, ensuring that the next generation of the U.S. workforce is appropriately trained to participate

in cutting-edge technological sectors and that students are attracted to careers in mathematics and computing.

SIAM supports the administration's proposal to increase funding for the *10 Big Ideas for Future Investment*, which represent major scientific challenges where sustained investment can make a transformative difference. In particular, SIAM urges support for the Harnessing the Data Revolution, Understanding the Rules of Life, and Quantum Leap Big Ideas, which each have revolutionary potential. SIAM applauds NSF's recently established programs in these areas, such as the Transdisciplinary Research on Principles of Data Science (TRIPODS) Institutes and the NSF-Simons Research Centers for Mathematics of Complex Biological Systems.

SIAM urges strong investment in the Research and Related Activities account (RRA) to enable support for the Division of Mathematical Sciences (DMS), the Office of Advanced Cyberinfrastructure (OAC), and other core programs in addition to the Big Ideas. This funding would enable critical support for essential mathematical and computational science research, workforce development programs, and early career researchers.

NSF DIVISION OF MATHEMATICAL SCIENCES

The NSF Division of Mathematical Sciences (DMS) in the Directorate for Mathematical and Physical Sciences (MPS) provides the core support for all mathematical sciences. DMS supports areas such as algebra, applied and computational mathematics, foundations, geometry, mathematical biology, probability, statistics, and topology. In addition, DMS supports national mathematical science research institutes; infrastructure, including workshops, conferences, and equipment; and postdoctoral, graduate, and undergraduate training opportunities.

The activities supported by DMS and performed by SIAM members, such as modeling, analysis, algorithms, and simulation, underpin advancements across science and engineering and provide new ways of obtaining insight into the nature of complex phenomena, such as the power grid, software for military applications, and the human body.

Investment in DMS is critical because of the foundational and cross-cutting role that mathematics and computational science play in sustaining the Nation's economic competitiveness and national security, and in making substantial advances on societal challenges such as energy and public health. NSF, with its support of a broad range of scientific areas, plays an important role in bringing U.S. expertise together in interdisciplinary initiatives that bear on these challenges. DMS plays a central role in cross-NSF efforts, with programs supporting the interface of mathematics with a variety of other fields. Other agencies rely on NSF research to advance their missions, and both agencies and foundations partner with NSF thereby leveraging Federal funding for maximum impact, such as with the Joint NSF/National Institutes of Health Initiative Quantitative Approaches to Biomedical Big Data (QuBBDD).

NSF OFFICE OF ADVANCED CYBERINFRASTRUCTURE

Work in applied mathematics and computational science is critical to enabling effective use of the rapid advances in information technology and cyberinfrastructure. Programs in the NSF Office of Advanced Cyberinfrastructure (OAC) in the Directorate for Computer and Information Science and Engineering (CISE) focus on providing research communities access to advanced computing capabilities to convert data to knowledge and increase our understanding through computational simulation and prediction.

SIAM strongly endorses OAC's efforts to continue as a steward for computational science, building bridges across NSF to accelerate transformational science and engineering, and driving universities to improve their research and education programs in this multidisciplinary area.

The programs in OAC that support work on software and applications for the next generation of supercomputers and other cyberinfrastructure systems are critically important to enabling effective use of advances in hardware, facilitating applications that tackle key scientific questions, and to improving our understanding of increasingly complex software systems.

SIAM strongly endorses NSF's role advancing high performance computing to position the Nation to meet critical national security needs, fully leverage computing technology for economic competitiveness and scientific discovery, and position the U.S. for sustained technical leadership.

SUPPORTING THE PIPELINE OF MATHEMATICIANS AND SCIENTISTS

SIAM is concerned by proposals in the budget request to cut support for the *Graduate Research Fellowships and CAREER* awards. These programs are crucial to the training and professional development of the next generation of leadership in mathematical sciences research and education as well as many other disciplines. Congress should provide sufficient NSF funding to ensure continued support for these programs. SIAM also supports *Improving Undergraduate STEM Education* (IUSE), which is essential for advancing STEM professional development as well as developing a STEM literate citizenry. SIAM notes that mathematical education is foundational to STEM learning across disciplines and NSF should continue to fund development of mathematical and computational skills, including at the undergraduate level when young scientists and engineers gain critical interests and competencies.

CONCLUSION

We would like to thank you again for your ongoing support of NSF that enables the research and education communities it supports, including thousands of SIAM members, to undertake activities that contribute to U.S. health, security, and economic strength. NSF needs sustained growth to maintain our competitive edge in science and technology, and therefore we respectfully ask that you continue robust support of these critical programs in fiscal year 2019.

We appreciate the opportunity to provide testimony to the Committee on behalf of SIAM. SIAM looks forward to providing any additional information or assistance you may ask of us during the fiscal year 2019 appropriations process.

[This statement was submitted by Dr. C. David Levermore, Vice President for Science Policy.]

 PREPARED STATEMENT OF THE SOCIETY FOR INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY

On behalf of the Society for Industrial and Organizational Psychology (SIOP), we are pleased to provide this written testimony to the Senate Appropriations Subcommittee on Commerce, Justice, and Science, and Related Agencies for the official record. SIOP urges the subcommittee to provide \$8.45 billion for the National Science Foundation (NSF), including strong support for the Directorate for Social, Behavioral, and Economic Sciences (SBE), in the fiscal year 2019 appropriations process.

SIOP and its members recognize and appreciate the challenging fiscal environment in which we, as a Nation, currently find ourselves; however, we also have evidence that Federal investment in social and behavioral science research directly and positively impacts the U.S. economy, national security, and the health and well-being of Americans.

Through SBE, NSF supports basic research to develop a scientific evidence base for improving the performance, effectiveness, management, and development of organizations and the workforce. The methods, measurements, and theories developed through this Federal investment enhance business practices, policy-making, and interprofessional collaboration. The evidence base derived from basic research in the science of organizations is applied throughout the public and private sectors. For example, Federal research agencies across the government, including the Department of Defense (DoD), National Aeronautics and Space Administration (NASA), the Department of Justice (DOJ), NSF, etc. invest in I-O research that enhances organizational effectiveness and human performance. Findings from that work also improve the effectiveness of the private sector and Federal workforces.

Additionally, new pressures to address privacy, performance, and safety in the workplace have further expanded the need for Federal investment in social and behavioral science research, especially in industrial and organizational (I-O) psychology, emphasizing the importance of the entire work system in addition to the individual. Cybersecurity threats, challenging economic circumstances, subtle and formal discrimination, talent shortages in technical jobs, and a host of other recent events and conditions have catalyzed the development and application of new methodologies for studying how people think and behave in the workplace.

SIOP also supports NSF's dedication to its "10 Big Ideas,"¹ including *Work at the Human-Technology Frontier*, which seeks to address and improve human-technology interactions as workplaces integrate and adapt to artificial intelligence, automation, machine learning, and beyond. In addition to developing these technologies, successful implementation relies on understanding human learning at various stages of life, and improving education and training to appropriately use these technologies.

With funding assistance from NSF and other Federal agencies, the field of I-O psychology has developed data-driven methods to predict successful teams, address workplace dysfunction, improve the work experience of individuals, and enhance job performance and employee engagement. Use of this rich knowledge and understanding has informed and benefitted both private companies and the public workforce. Continued Federal support for I-O psychology keeps its knowledge and expertise in the public domain and enhances shared workplace efficiency and understanding of worker well-being at all levels. Other applications of I-O psychology include: improving airline safety through Crew Resource Management, transitioning veterans and service members to civilian jobs, managing age diversity in the workplace, and mitigating the impact of furloughs on the Federal workforce, among many others.

SIOP is a community of nearly 10,000 members worldwide with a common interest in promoting the research, practice, and teaching of I-O psychology to enhance human well-being and performance in organizational and work settings. SIOP provides a platform for scientists, academics, consultants, and practitioners to collaborate, implement, and evaluate cutting-edge approaches to workplace challenges across sectors.

Given NSF's critical role in supporting fundamental research and education across science and engineering disciplines, SIOP supports an overall fiscal year 2019 NSF budget of \$8.45 billion. SIOP requests robust support for the NSF SBE Directorate, which funds important research studies, enabling an evidence base, methodology, and measurements for improving organizational function, performance, and design across sectors and disciplines.

Thank you for the opportunity to offer SIOP's support for NSF. Please do not hesitate to contact SIOP should you have any questions. Additional information is also available at www.siop.org.

[This statement was submitted by Dr. Fred Oswald, President, and Jeff Hughes, Executive Director.]

PREPARED STATEMENT OF THE SOCIETY FOR NEUROSCIENCE

Mr. Chairman and Members of the subcommittee, I am Richard Haganir, President of the Society for Neuroscience (SfN), and it is my honor to present this testimony on behalf of the Society in support of increased funding for the National Science Foundation (NSF) for fiscal year 2019. As a professor at, and the director of, The Solomon H. Snyder Department of Neuroscience at Johns Hopkins University, I understand the importance of Federal funding for neuroscience research. I am offering this testimony in my capacity as President of SfN, an association of nearly 36,000 neuroscientists from all 50 States and around the world. Our members stand with the broader scientific community in requesting \$8.45 billion for NSF in fiscal year 2019, which will continue to build our understanding of the most basic brain functions, allowing for further discovery. We also urge the committee to complete their appropriations work in advance of the September 30 deadline, to provide certainty to scientists that rely on Federal funding to support their work.

NSF research significantly impacts scientific discoveries—exhibited by the fact that since 1952, 217 Nobel Prize recipients have received NSF funding. Providing robust funding for NSF allows for the investments needed in basic science to bring about the next breakthroughs in the health, education, and well-being for Americans. Supporting NSF is critical to continue broad scientific advancements, and increasing NSF's budget specifically allows for the development of new tools and technologies to advance neuroscience. As the incidence of brain diseases and disorders continues to grow, our ability to diagnose and treat disease becomes ever more critical. The basic science funded by NSF serve as the foundation for some of our most significant scientific advances. Advancements in our understanding of the brain and nervous system rely on continued discoveries and development of the tools that will allow us to observe the most "complex biological structure on Earth,"¹ the brain,

¹National Science Foundation-proposed "10 Big Ideas" (https://www.nsf.gov/about/congress/reports/nsf_big_ideas.pdf?dm_i=1ZJN,4FGWL,E29O0Q,GB891,1)

¹https://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=128239.

in new ways. These endeavors rely on support from the Federal Government—in fact, 27 percent of the Federal budget for basic science is funded by NSF.

As the subcommittee continues its work for fiscal year 2019, we also ask that Congress work to ensure that final fiscal year 2019 funding is approved before the end of fiscal year 2018. Reliance on continuing resolutions in place of regular appropriations has real implications for scientists working in the field, as it severely restricts NSF’s ability to fund science. For some, this means waiting for a final decision on NSF’s funding before knowing if their highly scored grant will be supported. This delays the launch of research, hiring of researchers, and otherwise causes meritorious science to sit on the shelf. For others, it means operating a lab at reduced funding levels until full-year appropriations are finalized—similarly impacting hiring and causing science to “stop and start”—resulting in wasted effort, data, and resources. There is no substitute for robust, sustained, and predictable funding for NSF.

We are also appreciative of the Committee’s support for NSF’s Understanding the Brain program, including the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative. This multi-agency, targeted portion of the overall Federal investment in neuroscience, which includes NSF, will help develop the tools needed to look deeper into the brain to map functions for a plethora of applications.

The deeper our grasp of basic science, the more successful those focused on clinical and translational research will be. Basic research, like that supported by NSF, creates discoveries—sometimes unexpected—that expand our knowledge in unanticipated ways. Basic research in neuroscience is a critical function of the Federal Government as it builds the foundation for advancements in public and individual health, education, and workforce. Some recent, exciting advancements include the following:

THE IMPACTS OF NEUROSCIENCE RESEARCH

New technologies unlock the brain’s mysteries

My own BRAIN Initiative supported research investigates how neurons communicate and coordinate with each other to form circuits. Neurons are constantly relaying information to each other through connections called synapses. Neuroscientists previously discovered that multiple kinds of internal cellular inputs influence the responsiveness of the receiving neuron, strengthening or weakening the connection of particular pathways. This process is essential for learning and memory and is impacted in neurological and psychiatric disorders like Alzheimer’s disease, autism, and schizophrenia. Today monitoring more than one pathway at a time is a challenge, and consequently, we have a limited understanding of the complexities of how synaptic changes occur and are regulated.

My laboratory is developing new tools to simultaneously evaluate multiple types of cell signaling to better understand brain activity during learning in awake, behaving animals. These tools will enable us to develop a complex, and more complete, picture of how learning and other higher brain functions are achieved. Ultimately, the tools developed in my laboratory may inform how specific cell circuits involved in learning are affected by neurological diseases and disorders. My hope is that the tools generated will help other neuroscientists overcome some of the enormous challenges they face when studying the brain.

Improving noninvasive diagnostics

NSF supported research is also providing necessary foundations for additional transformative findings beyond the BRAIN Initiative. Over the last 25 years, optical coherence tomography (OCT) imaging has revolutionized ophthalmology by creating 3D images of the human eye at micrometer resolution. OCT is an effective diagnostic tool, capable of imaging a wide spectrum of conditions, from blood vessel blockages to early stage tumors, without harming surrounding tissue. Multiple fields of medicine, beyond ophthalmology, including cardiology, oncology, and dermatology, are now starting to use OCT given the sensitivity of the imaging. Numerous OCT applications were discovered through NSF funded research, and NSF continues to support improvements in the amount of tissue imaged, speed, and affordability of OCT. For example, an NSF funded project developed a photonic chip that both increases the speed of OCT and shrinks the device to the size of a U.S. quarter. A functional result in improving the speed of OCT imaging has the potential to multiply its clinical applications. For instance, improving the speed of OCT imaging allows clinicians to detect blood flow changes in even the smallest blood vessels.

BASIC NEUROSCIENCE RESEARCH: A KEY INVESTMENT FOR THE NATION

Neuroscience, and basic research, is a critical Federal investment with implications for not only health and well-being, but also for education, national security, and the economy. In 2017, nearly 353,000 Americans directly benefited from NSF programs through salaries, stipends, or participant support with millions of others impacted through educational and research related activities.² In 2011 alone, over 670 spin-off companies were formed from university research efforts.³ In fact, one dollar of research money from NSF results in two dollars in economic output.⁴

Equally as critical to the future of U.S. scientific leadership, NSF trains the next generation of America's scientists and science educators through tools like the graduate research fellowships—over 50,000 since 1952.⁵ This training provides a foundation for a strong economy built on scientific advances and the pioneers driving innovation, spurring the development of new businesses and jobs. With a basic understanding of the environments we live in, we can transform the way we treat disease, learn, work, and engage with the world.

Thank you for the opportunity to testify today. SfN respectfully requests that the Committee provide \$8.45 billion to NSF so researchers can continue their important work. Additionally, we ask Congress to complete funding decisions on time, which will allow for the use of resources to be optimized.

PREPARED STATEMENT OF SUPPORTERS FOR FUNDING OF THE LEGAL SERVICES CORPORATION

As leaders of more than 180 U.S. law firms with offices in all 50 States and the District of Columbia, we encourage you to maintain the bi-partisan support for fully funding the Legal Services Corporation (“LSC”). Specifically, we respectfully request that you support LSC’s requested appropriation of \$564 million for fiscal year 2019.

For more than four decades, Congress has funded LSC to provide grants to local legal aid organizations in all 50 States, covering every county in our Nation. Proposals to defund LSC appear to misunderstand the local impact and control of this Federal funding. LSC’s grants are spent only by community-based organizations, which supplement the funds with local fundraising, to provide critical civil legal services to low-income individuals, like veterans seeking benefits, women fleeing domestic violence, and families struggling to stay in their homes. LSC’s local grantees follow the congressional mandate to focus their resources on these vulnerable individuals in our communities; they are precluded by law from using this money to, among other things, represent prisoners, file class actions, and litigate re-districting actions.

The local legal aid organizations funded by LSC are critical to our firms and our communities. The lawyers at our firms collectively provide millions of hours of free legal services each year to individuals in desperate need of assistance. Our ability to provide these pro bono legal services is directly dependent on partnership with LSC-funded legal aid organizations, which screen cases for merit and eligibility, and train and mentor our attorneys. Eliminating the Legal Services Corporation will not only imperil the ability of civil legal aid organizations to serve Americans in need, it will also vastly diminish the private bar’s capacity to help these individuals. The pro bono activity facilitated by LSC funding is exactly the kind of public-private partnership the government should encourage, not eliminate.

It is also important to understand that LSC funds local legal aid organizations in rural areas that most law firms have difficulty serving because of their lawyers’ geographic location and/or bar memberships. In many rural counties across our Nation, the local legal aid organizations funded by LSC are the only available help for low-income Americans.

LSC funding is money well spent in our local communities. State studies have shown that the problems solved by legal aid offer a strong return on investment. For instance, in Florida in 2016, civil legal services saved \$60.4 million, including emergency shelter and foreclosure costs. In Tennessee in 2015, civil legal aid saved \$1.3 million on emergency shelters; \$7.5 million in costs to domestic violence survivors, including medical and mental health expenses; and \$33.8 million in foreclosure costs for residents and local governments. In Virginia in 2015, civil legal aid spending saved \$1.2 million in emergency shelter costs and \$1.9 million in

² https://www.nsf.gov/news/news_summ.jsp?cntn_id=100595.

³ Sparking Economic Growth 2.0. The Science Coalition. October 2013.

⁴ Gundaya, D. and Inazu, J.K. The Economic Impact of Federal Funds on a Local Community in Hawaii. June 2011.

⁵ <https://www.nsf.gov/pubs/2017/nsf17003/nsf17003.pdf>.

healthcare and other expenses related to domestic violence. Other State surveys, from Pennsylvania and Iowa for instance, have shown that every dollar spent on legal aid has an eleven-fold local economic impact.

Our local communities depend on the legal aid organizations funded by LSC, and our firms, in turn, rely on these legal aid agencies to increase the impact of our volunteer legal services. That is why our firms, as well as our individual lawyers, give generously to LSC grantees. We ask that Congress do its part by fully funding LSC and continuing its bi-partisan support of civil legal aid for our communities.

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PREPARED STATEMENT OF THE TAHIRIH JUSTICE CENTER

The Tahirih Justice Center (“Tahirih”) respectfully submits this statement to the United States Senate Committee on Appropriations; Subcommittee on Commerce, Justice, Science, and Related Agencies, as it reviews the fiscal year 2019 Budget Request for the United States Department of Justice.

Tahirih is a national, nonpartisan advocacy and direct services organization that has assisted over 20,000 immigrant survivors of gender-based violence over the past 20 years. Our clients include women and girls who have endured horrific abuses such as rape, domestic violence, and human trafficking and are in dire need of humanitarian relief.

Congress has repeatedly expressed its longstanding, bipartisan, and unwavering resolve to provide a safe haven for traumatized survivors of human rights abuses such as our clients by enacting various laws to protect them. For example, in 1980, the U.S. codified the tenets of the “United Nations Refugee Convention” and “Protocol” of 1951 as our domestic asylum laws.ⁱ In 1994, Congress first passed the Violence Against Women Act, followed by the Trafficking Victims Protection Act in 2000.ⁱⁱ These laws give immigrant survivors of violence the opportunity to apply for legal relief and if granted, to rebuild their lives in safety and contribute to society.

Many applicants request legal relief before the Department of Justice’s (DOJ) Executive Office for Immigration Review (EOIR), which houses the U.S. immigration courts and the Board of Immigration Appeals (BIA). Crushing backlogs have plagued our immigration courts for the past 11 years, however, and the acute need to alleviate them is indisputable. The DOJ notes that the current pending caseload

ⁱThe United States Refugee Act of 1980 amended the Immigration and Nationality Act of 1965 and the Migration and Refugee Assistance Act of 1962.

ⁱⁱ<https://www.gpo.gov/fdsys/pkg/BILLS-113s47enr/pdf/BILLS-113s47enr.pdf>; <https://www.gpo.gov/fdsys/pkg/BILLS-114s178enr/pdf/BILLS-114s178enr.pdf>.

before the EOIR is the largest it has ever been.ⁱⁱⁱ With cases pending for an average of over 700 days,^{iv} evidence grows outdated and opportunities for witnesses to testify are diminished. Survivors of gender-based violence are eager to begin healing, yet are re-traumatized when recounting details of rape and torture after many years in legal limbo. Severe backlogs can cause asylum seekers to wrongly and unfairly fail in their claims, while the threats they confront upon deportation remain.

THE DEPARTMENT OF JUSTICE'S FISCAL YEAR 2019 APPROPRIATIONS REQUEST FOR THE EOIR

The DOJ has requested a total of \$64.8 million for the EOIR for fiscal year 2019. \$39.8 million would fund 450 new positions, including attorneys, immigration judges, and critical support staff such as law clerks, legal assistants, and administrative support personnel including interpreters. DOJ is making this request “to maintain the efficacy and efficiency of immigration enforcement and adjudication programs and process the increasing workload.” The other \$25 million will fund modernization of the EOIR’s paper-based information technology system which is a major contributor to inefficiencies in the immigration courts. With these funds, EOIR will implement a system where applicants submit all case-related information electronically, records of proceedings will be electronic, and ultimately courtrooms will be paperless.^v

Tahirih supports the DOJ’s appropriation request. It is clear that insufficient staffing and outdated infrastructure is to blame for the backlogs, and additional funds are imperative to address the problem. In addition to inefficiency, however, we are also deeply concerned that in the absence of additional EOIR funding, basic due process for asylum seekers and other vulnerable populations will all but disappear. The Attorney General is citing the backlogs to justify implementing the following measures:

- Imposing a job performance rating system for immigration judges that ties their remand rate and number of cases completed to his or her performance rating;^{vi}
- Pressuring judges to only grant continuances in very limited circumstances, even where, for example, an indigent asylum seeker is having difficulty securing pro bono counsel;^{vii}
- Reconsidering well-settled case-law defining “good cause” to support continuances,^{viii} for example, where a survivor of violence waits for USCIS to adjudicate her petition for relief under the Violence Against Women Act. If the judge denies her request and she is sent home to wait, she might be forced to leave her U.S. citizen child in the custody of her abuser;
- Reconsidering whether immigration judges can “administratively close” cases,^{ix} raising the same issues as above for survivors of violence
- Vacating a precedent decision holding that asylum seekers are entitled to a full evidentiary hearing in immigration court.^x

While these new policies purport to promote efficiency, they put survivors’ lives at risk. Notably, there is only likely outcome for cases so swiftly disposed of that no testimony or evidence is even permitted—deportation. Applicants for relief will be sent home to face persecution and torture, in violation of U.S. obligations under international law. Furthermore, precisely because the law entitles immigrants to due process,^{xi} appeals alleging due process violations will skyrocket. Ironically, these efforts will increase inefficiency by simply shifting the backlogs to the Federal appellate courts. Relatedly, if the DOJ’s request is granted and additional immigration judges and BIA members are hired, there must be accountability and transparency in the selection process. Whistleblowers within the DOJ recently alerted Congress that the Department may be unlawfully evaluating candidates using political and ideological factors. Yet, Federal law and well-settled Department policy strictly prohibit discrimination in hiring based on political affiliations.^{xii} The Attorney General’s attempts to curtail due process are of grave concern and oversight of the DOJ’s hiring process is therefore imperative. Ultimately, if the DOJ hires biased

ⁱⁱⁱ <https://www.justice.gov/file/1033621/download>.

^{iv} http://trac.syr.edu/phptools/immigration/court_backlog/.

^v <https://www.justice.gov/file/1033621/download>.

^{vi} <http://cdn.cnn.com/cnn/2018/images/04/02/immigration-judges-memo.pdf>.

^{vii} <https://www.justice.gov/eoir/file/oppm17-01/download>.

^{viii} <https://www.justice.gov/eoir/page/file/1045661/download>.

^{ix} <https://www.justice.gov/eoir/page/file/1022366/download>.

^x <https://www.justice.gov/eoir/page/file/1040936/download>.

^{xi} See *Zadvydas v. Davis*, 533 U.S. 678 (2001); *Shaughnessy v. Mezei*, 345 U.S. 206 (1953).

^{xii} <https://cumings.house.gov/sites/cummings.house.gov/files/Dems%20to%20DOJ%20re.%20EOIR%20Politicization.pdf>.

adjudicators, any efficiencies gained as a result of the new hires will be lost when applicants appeal denials based on lack of due process.

At the immigration court stage, safeguarding due process for pro se applicants and detainees in particular is critical. Applicants who are unaware of their rights cannot exercise them. Asylum seekers suffering from Post-Traumatic-Stress-Disorder may be too traumatized to navigate our complex and daunting immigration process alone. In enacting laws, Congress not only presumes—but implicitly requires—meaningful access to the legal process for those who they are designed to protect.

For the reasons above, we urge Congress to appropriate additional funding for the immigration courts per the DOJ's request. Doing so will allow the EOIR to absorb its increased caseload without sacrificing integrity, accuracy, and fairness in adjudication of high-stakes immigration cases. We appreciate the opportunity to submit this statement.

[This statement was submitted by Archi Pyati Chief of Policy.]

PREPARED STATEMENT OF THE THEODORE ROOSEVELT CONSERVATION PARTNERSHIP
April 27, 2018

The Honorable Jerry Moran, Chairman
Senate Appropriations Subcommittee on
Commerce, Science, and Justice
142 Dirksen Senate Office Building
Washington, DC 20510

The Honorable Jeanne Shaheen, Rank-
ing Member
Senate Appropriations Subcommittee on
Commerce, Science, and Justice
Hart 125 Senate Office Building
Washington, DC 20510

Re: National Marine Fisheries Service

Dear Chairman Moran and Ranking Member Shaheen,

The Theodore Roosevelt Conservation Partnership is a national coalition of sportsmen, conservation, and outdoor industry organizations that seeks to ensure all Americans have access to quality places to hunt and fish. We partner with 56 hunting, fishing, and conservation organizations to unite and amplify the voices of America's more-than 40 million sportsmen and women whose activities help sustain the \$887-billion outdoor recreation economy.

We appreciate the opportunity to submit this letter in support of the critical programs and initiatives within the National Marine Fisheries Service (NMFS) that protect aquatic habitat, support nature-based infrastructure solutions, and preserve our Nation's recreational fishing heritage.

As your subcommittee drafts fiscal year 2019 spending legislation for the NMFS, we ask the subcommittee to consider our recommendations below which we believe would constitute sound stewardship of our country's natural resources and preserve our angling heritage and the economy it supports for the next generation. Specifically, we support the following:

302(b) allocation increase: TRCP is encouraged by the fiscal relief provided by the Bipartisan Budget Act of 2018, which provided a roughly 12-percent increase in non-defense discretionary spending for fiscal years 2018 and 2019. In February 2018, TRCP submitted a formal request to full committee leadership for increases to each subcommittee's 302(b) allocation proportional to the overall non-defense increase. Given the nationwide conservation impact that relies on spending crafted in your subcommittee, we urge the subcommittee to request an increase to its 302(b) allocation proportional to the overall non-defense increase.

Fisheries Data Collection, Surveys, and Assessments: Inaccurate data collection too often causes season reductions and closures, drastically limiting angler opportunities and harming the coastal communities whose seasonal economies rely heavily on recreational spending. TRCP supports the Commerce Department's recent announcement of a pilot program giving five Gulf States greater control in managing their red snapper fisheries, however uncertainty in the long-term, in other States, and for other recreational species still remains. TRCP and our partners are actively engaging with authorizing committees on an update to the Magnuson-Stevens Act, and two of our top priorities are improvement of Federal data collection and better integration of State data into the Marine Recreation Information Program. While Congress works towards enactment of modern fishery policy, we believe strong funding for the Fisheries Data Collection, Surveys, and Assessments line item will best prepare NMFS for enhanced integration.

We request \$184,519,000 for Fisheries Data Collections, Surveys and Assessments.

Habitat Conservation and Restoration: The projects and programs supported by this line item are critical for preparation and response to increased development, natural and man-made disasters, and long-term ecological changes. Moving forward, strong funding is required to ensure healthy aquatic habitats can support the species recreational anglers care most about. Additionally, NOAA projects funded through this line item have shown the multiple benefits provided by nature-based infrastructure solutions, from enhanced public safety, to improved habitat, to cost effectiveness. This program not only enhances long-term ecological benefits for game species in the Gulf of Mexico, such as speckled trout, but also benefits fish and wildlife habitat in important regions like the Chesapeake Bay and Great Lakes.

We request \$59,790,000 for Habitat Conservation and Restoration.

* * *

Recreational fishing is a long held tradition for millions of Americans, and their annual spending is an economic engine across the country. According to the U.S. Fish & Wildlife Service, the Nation's angling population grew nearly 20 percent from 2006–2016, and those nearly 36 million anglers spent more than \$46 billion in 2016 alone. Reliable fish population assessments and healthy aquatic habitat are both necessary to inform and execute fishery management practices that ensure recreational anglers can pursue their passion, now and in the future.

Thank you for the opportunity to submit this testimony, and we look forward to working with you and your colleagues as fiscal year 2019 spending legislation progresses through Congress.

Thank you for your consideration.

[This statement was submitted by Whit Fosburgh, President & CEO.]

PREPARED STATEMENT OF THE TULALIP TRIBES

Chairman Moran, Ranking Member Shaheen and Honorable Members of the Committee,

Thank you for the opportunity to provide written testimony. My name is Marie Zackuse, and I am Chair of the Tulalip Tribes. The Tulalip Tribes respectfully request your support in restoring and enhancing funding for the National Oceanic and Atmospheric Administration (NOAA)/National Marine Fisheries Service (NMFS) budget to expedite review and approval of the longstanding backlog of western Washington Hatchery Genetic Management Plans (HGMPs).

The Tulalip Tribes, signatory to the 1855 Treaty of Point Elliot, reserved specific Tribal rights, including but not limited to the right to harvest and manage salmon. The continued exercise of the Tribes' treaty-reserved right to harvest salmon is greatly supported by hatchery supplementation. HGMPs are technical documents that describe the composition and operation of each individual hatchery program, and are evaluated by NOAA under an Endangered Species Act (ESA) §4(d) rule, to ensure that propagation management strategies support conservation and recovery of ESA-listed salmon and steelhead populations. Although our HGMPs are approved by NMFS for the Snohomish basin, we believe it is important for NMFS to complete their reviews of all western Washington HGMPs, which in some cases are almost 20 years in waiting. NMFS's review and approval of all western Washington HGMPs has yet to be completed due in large part to a lack of resources. Because HGMPs are reviewed for ESA compliance under NOAA's §4(d) rule, continued delay in reviewing HGMPs increases the exposure of litigation from third party lawsuits. While we recently obtained ESA and NEPA coverage for salmon and steelhead hatchery programs operated by State and Tribal co-managers for the Snohomish basin, we continue to understand the importance of completing these for the other watersheds that are needed to protect those programs from ongoing litigation.

We therefore respectfully request Congress to appropriate \$5.0 million within NOAA's Pacific Salmon account to continue expediting NMFS's review and approval of the backlog of western Washington HGMPs and support hatchery monitoring and reporting efforts. The fiscal year 2018 omnibus appropriations bill provided \$63.0 million for the NOAA Pacific Salmon account, which is the line item that funds HGMP review among other activities. The fiscal year 2018 appropriation increased the Pacific Salmon account and provided direction to utilize the increased funding to continue to expedite review of HGMPs. However, despite NMFS's reported progress on HGMP review with the new funding, and their admission of still facing

a large backlog, NMFS's fiscal year 2019 proposed budget requests a decrease of \$1.696 million within the NOAA Pacific Salmon account and for that decrease to apply specifically to HGMP reviews. If the fiscal year 2019 proposed budget request is fulfilled, it is sure to result in further delay of western Washington HGMP review and subsequent ESA authorization.

After HGMP review is complete, ongoing funding will be necessary to support hatchery reporting and monitoring requirements as mandated by NOAA NMFS in the Terms and Conditions and Reasonable and Prudent Measures in their Biological Opinions for each watershed's hatchery programs in order to stay in ESA compliance. Monitoring to identify genetic and ecological interactions of hatchery and natural production is an expensive unfunded mandate. To the extent that NMFS—a Federal trustee—requests additional hatchery monitoring, the requests should be accompanied by funding to implement them. As NMFS funding is freed up by completion of HGMP reviews, the funding should be redirected to the State and Tribes to support hatchery reporting and monitoring requirements.

Salmon hatcheries play a critical role in supporting salmon recovery and providing the opportunity to continue to exercise treaty-reserved rights to fish. We therefore respectfully urge Congress to increase Federal appropriations to expedite the review and approval of the HGMP backlog and provide continued support to address monitoring obligations imposed by NMFS that must be fulfilled in order to exercise our Treaty Rights.

Thank you for your time. Should you have any questions regarding this request please do not hesitate to contact Jason Gobin, Fish and Wildlife Director, or Mike Crewson, Salmonid Enhancement Scientist.

Sincerely,



Marie Zackuse, Chairwoman
Tulalip Tribes

Cc: Barry Thom, Regional Administrator, NOAA Fisheries West Coast Region

PREPARED STATEMENT OF MICHAEL VAN WIES

August 14, 2017

Senator Thad Cochran
Senate Appropriations Committee
113 Dirksen Senate Office Building
Washington, DC 20510

Senator Thad Cochran,

I live in Boca Raton, Florida. It has come to my attention that we as taxpayers are paying double for our weather research. Please look into the contract that the U.S. has with UCAR and NCAR University Corporation for Atmospheric Research, The National Center for Atmospheric Research and UCAR Community Programs are operated by the University Corporation for Atmospheric Research. A nonprofit consortium of colleges and universities that offer research and training in the atmospheric and related Earth system sciences.

This organization is funded by:

1. NSF (National Science Foundation)
2. NOAA (National Oceanic Atmospheric Administration)
3. NASA (National Aeronautical and Space Administration)
4. DoD (Department of Defense)
5. DOE (Department of Energy)
6. FAA (Federal Aviation Administration)
7. EPA (Environmental Protection Administration)
8. NW\$ (National Weather Service)
9. NHC (National Hurricane Center)

What in the world do we need to spend all of this money since we have NOAA. The UCAR and NCAR group believes in Global Warming which is a hoax. What in

the world does weather research do for us? Nothing. No one can control the weather and especially hurricanes and tornadoes.

NOAA and the NWS have the capability to forecast the weather, the paths of hurricanes, and provide alerts to the citizens. We have the National Hurricane Center in Florida. These are specialists in forecasting hurricanes. What does this extra layer of Universities do that the National Hurricane Center can not do?

The more I read about this very under the radar organization that is costing us millions of tax payer money that we need for important expenditures like the military. This whole useless costs as a taxpayer makes me mad.

Please bring this useless spending to President Trump's budget groups attention in the White House. I am sure after they take a close look at this worthless spending they will slash it out of the 2018 budget. We need the wall and a military expansion that we decimated by Obama much more than worthless so called atmospheric research.

Sincerely yours,

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Michael Van Wies

CC: President Donald J. Trump
 John F. Kelly, White House Chief of Staff
 Senator Mitch McConnell, Senate Majority Leader
 Senator Marco Rubio
 Congressman Paul Ryan, Speaker of the House
 Congressman Rodney Frelinghuysen, Appropriations Committee
 Congresswoman Lois Frankel
 Congressman Ted Deutch
 Mr. Keith Hall, Congressional Budget Office

PREPARED STATEMENT OF RADM JONATHAN WHITE, USN (RET.) ON BEHALF OF THE
 CONSORTIUM FOR OCEAN LEADERSHIP

On behalf of the Consortium for Ocean Leadership (COL), I appreciate the opportunity to submit for the record the ocean science, technology, and education community's fiscal year 2019 funding priorities for the National Science Foundation (NSF), the National Oceanic and Atmospheric Administration (NOAA), and the National Aeronautics and Space Administration (NASA). Geosciences, broadly, and ocean science and technology, specifically, strengthen our national security, support a safe and efficient marine transportation system, underpin our economy, and further understanding of complex ocean and coastal processes important to our everyday lives—today and tomorrow. For these reasons, COL (and the ocean science, technology, and education community we represent) calls on the subcommittee to make a \$1 billion investment in the security of the Nation by dramatically strengthening Federal investment in ocean science and technology through NSF, NOAA, and NASA.¹

In summer 2017, the first ship to traverse the Arctic Northern Sea Route without assistance from ice-breaking vessels completed its journey. This transformational moment drives home both the opportunity and the imperative for the United States to ready itself for the new Arctic. The region is warming at twice the rate of the rest of the Earth with far-reaching consequences for these polar residents and for those in the lower 48 States. On a global level, Arctic change will fundamentally alter climate, weather, and ecosystems in ways we do not yet understand, but we know there will be profound impacts on the world's economy and security. Rapid

¹ Aligning with like-minded science organizations and coalitions, we respectfully request the subcommittee provide no less than \$8.45 billion for NSF (including funding parity for all directorates or at least \$1.4 billion for the Geosciences Directorate); \$6.5 billion for NASA's Science Mission Directorate (including at least \$2.03 billion for the Earth Science Division); and \$6.2 billion for NOAA (including research, extramural grant programs, and education). Additionally, the ocean science and technology community is deeply concerned by the administration's fiscal year 2019 budget intention to drastically reduce non-defense discretionary funding (–\$65 billion) with draconian cuts and outright program eliminations in the geosciences, education, and extramural grants.

loss of sea ice and other changes will also bring new access to the area's natural resources, such as fossil fuels, minerals, and new fisheries, and this new access is already attracting international attention from industry and nations seeking new resources. Current Arctic observations are sparse and inadequate for enabling discovery or simulation of the processes underlying Arctic system change or to assess their environmental and economic impacts on the broader Earth system. One of NSF's "Big Ideas" is the initiative *Navigating the New Arctic* (NAA), which would establish an observing network of mobile and fixed platforms and tools across this polar region to document these rapid biological, physical, chemical and social changes, leveraging participation by other Federal agencies.

Storm surge is often the greatest threat to life and property from coastal storms and hurricanes. Researchers are quantifying how future tropical storm surges may impact U.S. coastal properties, using past patterns of coastal sea-level change. From 1990 to 2008, population density increased by 32 percent in Gulf Coast coastal counties, 17 percent in Atlantic coastal counties, and 16 percent in Hawaii, according to the U.S. Census Bureau. In 2011, 45 percent of our Nation's gross domestic product (GDP) was generated in the coastal shoreline counties along the ocean and Great Lakes. A storm surge of 23 feet has the ability to inundate 67 percent of interstate highways, 57 percent of arterial roads, almost half of all rail miles, 29 airports, and virtually all ports in the Gulf Coast area. Information on coastal property risk is vital to owners, insurers, and government.

These two examples demonstrate the connection of our ocean science and technology enterprise with the security interests (national, economic, and public safety) of the Nation. In addition:

- The U.S. coastal and ocean economy contributes \$359 billion to our GDP (2 percent of total GDP), including marine construction (\$5.8 billion), ship building (\$17.3 billion), marine transportation (\$59.1 billion, equaling 95 percent of all imports to the U.S.), offshore oil and gas (\$167 billion), living marine resources (\$7.3 billion), and tourism and recreation (\$101.1 billion, which is 72 percent of the ocean economy contributions to GDP)
- 14 percent of U.S. coastal counties produce 45 percent of the Nation's GDP, with close to one in 45 jobs directly dependent on the resources of the ocean and Great Lakes.
- In 2014, the ocean economy employed more people in the U.S. than the telecommunications, crop production, and building construction industries combined. Additionally, if the Nation's coastal counties were considered an individual country, they would rank number three in global GDP, behind only the U.S. and China. The Great Lakes alone generated nearly \$5 trillion in economic output (about 30 percent of U.S. and Canadian production combined).
- In 2014, the ocean economy's 149,000 business establishments employed about 3.1 million people, paid \$123 billion in wages, and produced \$352 billion in goods and services. This accounted for about 2.3 percent of the Nation's employment.
- The ocean's role in food security is critical—it provides 20 percent of the animal protein we depend on for food, supplies fishmeal that fertilizes the Nation's crops, and is the major driver of the weather and water cycles that bring warmth and water to inland farms.
- The U.S. is the leading global importer of seafood, with 91 percent originating abroad—half of which is from aquaculture. Driven by imports, our seafood trade deficit grew to over \$14 billion in 2016. Our ocean science research institutions are leaders in developing and supporting innovative methods to improve and encourage sustainable U.S. aquaculture that complements, not competes with, our existing commercial fisheries.
- Increasing numbers of people are calling the coast home, with populations in coastal watershed counties increasing 45 percent from 1970–2010.
- The U.S. marine transportation system is a major driver of the U.S. economy and its impact reaches into the heartland of the Nation. America's seaports are crucial generators of economic development and jobs, regionally and nationally, throughout all supply chains using ports. Long-term sustainability of such critical oceanfront infrastructure in the wake of shifting-and dynamic-environmental conditions is a significant concern addressed by ocean research institutions (typically sharing the same geographic proximity to the water).
- A 12.5 percent projected growth of science, technology, engineering, and math (STEM) jobs in the U.S. is expected from 2012 to 2022, with a 14 percent projected increase in U.S. geoscience jobs in that same period. Coupled with the greying of America's geoscience workforce (47 percent of American geoscientists in the private sector and 43 percent in the Federal Government were over the

age of 55 in 2016), it is clear that our Nation will experience major changes with our innovation workforce.

All the issues identified above—and more—can be addressed, in part, through a vibrant ocean science and technology enterprise. A diverse, well-educated, ocean-literate workforce provides the necessary base from which innovation grows. This will require a concerted effort to upgrade the infrastructure needed, which includes vessels, instrumentation, advanced computing, and observing and monitoring support. It requires an enhanced investment in at-sea and university-based research in our ocean sciences and technology enterprise. Finally, it requires a substantial and focused effort on the education and training of the next generation of scientists to ensure we have the intellectual resources to take full advantage of the new knowledge that will come from this investment in ocean sciences and technology, but it also needs those who will train the following generation and those whose work supports novel and emerging science solutions. A dynamic workforce moves our Nation forward. From business professionals who can commercialize scientific advances to technicians who maintain observing infrastructure and employees trained in scientific principles, our future depends upon how we will meet these demographic and educational challenges.

COL is calling on Congress to increase Federal investment in our national ocean science, technology, and education enterprise by \$1 billion over the next year (within the resources available under the new spending cap for non-defense discretionary spending). The level of investment in non-defense research and development today (2018) is essentially the same as it was in 2002 (in constant dollars). Making a concerted, dramatic effort to increase and sustain the Federal investment in technology, science education, research, and development will send a message to our global competitors that this country is determined to regain our science leadership position on the world stage while also addressing national, homeland, food, and economic security challenges.

Below are some suggestions for how some of these additional funds could be invested to help achieve a more secure nation via our ocean science, technology, and education enterprise.

- NSF’s Division of Ocean Sciences (OCE) supports interdisciplinary research and technology, education, and cutting-edge infrastructure that advances scientific knowledge of the ocean to support the U.S. economy; provide vital information regarding national, economic, and homeland security matters such as sea level rise, coastal erosion, ocean influences on weather (e.g., hurricanes, winter storms, floods, extended drought, etc.); and to advance U.S. leadership in ocean science and technology relative to our international competitors. OCE supports basic scientific and technological research to better understand changing ocean circulation and other physical, chemical, and biological parameters. OCE also supports research on the geology of the ocean margins and sub-seafloor to investigate natural hazards such as earthquakes and volcanic eruptions. In addition to the NSF’s NAA initiative that COL supports, an additional \$100 million allocation to support ocean and coastal research as it relates to risk and resilience due to natural hazard understanding and mitigation would be a strong step toward increased homeland and economic security. Funding should be used to support the operational costs of the current academic fleet and ocean observing initiative in their ocean and coastal research into natural hazards and to provide resources for additional graduate and undergraduate student training in research related to natural hazards through NSF traineeships, fellowships, and undergraduate research programs.
- Extramural programs within NOAA are well positioned to more fully engage the ocean science and technology community to assist Federal entities in supporting coastal and inland communities through best practices to improve coastal economic and environmental resiliency. The National Sea Grant College Program (Sea Grant) is well equipped to work with State and local government decision makers and coastal community residents to apply sound science and technology principles to improve natural disaster preparation. The Office of Oceanic and Atmospheric Research (OAR)’s Cooperative Institutes can focus on large-scale systemic research issues related to our ocean, coasts, and Great Lakes. The National Marine Fisheries Service (NMFS) and OAR should collaborate to support aquaculture research and commercial development to help the Nation address the seafood trade deficit. NOAA’s National Ocean Service (NOS) has important assets that can be more fully exploited in areas related to coastal mapping, ocean and coastal observing and monitoring through the Integrated Ocean Observing System, coastal community economic resiliency grants, and research that can best be carried out within the National Estuarine Research Re-

serve System and National Marine Sanctuary System. Additionally, support for national-scale projects that improve environmental stewardship and informed decisionmaking is critical. As the longest-standing and most comprehensive national grants program with a focus on environmental literacy, NOAA's Office of Education Environmental Literacy Program² (ELP) grants keep our coastal communities, and therefore our Nation as a whole, safe, secure, and prosperous. Increasing resources for ELP also contributes to the training of the next generation of ocean scientists through its education programs. A total of \$400 million is recommended to support a package of time-tested NOAA programs related to natural hazard research impacting the ocean, coasts, and Great Lakes and the training of a diverse, ocean science literate, dynamic workforce. These actions support our Nation's national, homeland, food, and economic security, all with an eye to the future.

The ocean science, technology, and education community recognize the constraints facing the subcommittee when it comes to allocating scarce resources. The subcommittee has equally demanding and deserving needs in law enforcement, the census, and manned space flight program, to name a few. Nevertheless, growth in the annual investment in science and technology by this subcommittee is critical to support innovation, national security, economic competitiveness, improvements in living standards, and support for public and societal well-being. Research and development is a major driver of innovation, and these expenditures reflect a nation's commitment to expanding capabilities in science and engineering, which in turn drives innovation. On January 18, the National Science Board released the biennial *Science and Engineering Indicators 2018*. The report finds that the world's nations are continuing to accelerate the growth of their technology-intensive economies. It documents how the science and engineering landscape—historically concentrated in the U.S., Europe, and Japan—is rapidly shifting as China and other countries continue to increase their research and development investments. It makes clear while the U.S. remains the global leader now, China prioritizes science and continues its rapid rise in the rankings and looks to overtake us.

Adequate and sustained investment in science is the bedrock upon which this Nation's global science primacy and innovation economy are built. The U.S. is poised to maximize its maritime experience and potential to address security through science and increase competitiveness in the international marketplace, all while looking toward the long-term viability of our base resource—the ocean. Only through the subcommittee's continued dedication to our Nation's science and education enterprise will this be possible.

Mr. Chairman, Ranking Member, and members of the subcommittee, we greatly appreciate the opportunity to share our recommendations, and I encourage bipartisan support for geoscience funding, including this \$1 billion ocean science, technology, and education initiative, in the fiscal year 2019 appropriations process and into the future.

(Testimony Addendum)

Below is a list of institutions that are represented by the Consortium for Ocean Leadership:

ALABAMA	L-3 Communications MariPro, Inc.
Dauphin Island Sea Lab	Liquid Robotics, Inc.
ALASKA	Monterey Bay Aquarium Research Institute
Alaska Ocean Observing System	Moss Landing Marine Laboratories
Alaska SeaLife Center	Stanford University
Arctic Research Consortium of the United States (ARCUS)	Teledyne RD Instruments
North Pacific Research Board	U.S. Naval Postgraduate School
University of Alaska Fairbanks	University of California, San Diego
CALIFORNIA	Scripps Institution of Oceanography
Aquarium of the Pacific	University of California, Santa Barbara
Bodega Marine Laboratory	University of California, Santa Cruz
Esri	University of Southern California
Estuary & Ocean Science Center, San Francisco State University	COLORADO
Gordon and Betty Moore Foundation	Cooperative Institute for Research in Environmental Sciences (CIRES)

²We recommend funding the Office of Education base account separately to adequately support staff without diminishing the grant program.

- CONNECTICUT
Mystic Aquarium & Institute for Research
- DELAWARE
Mid-Atlantic Regional Association
Coastal Ocean Observing System (MARACOOS)
University of Delaware
- FLORIDA
Earth2Ocean
Florida Institute of Oceanography
Harbor Branch Oceanographic Institute of Florida Atlantic University
Mote Marine Laboratory
Nova Southeastern University
University of Florida
University of Miami
University of South Florida
- GEORGIA
Savannah State University
Skidaway Institute of Oceanography of the University of Georgia
- HAWAII
University of Hawaii
- ILLINOIS
John G. Shedd Aquarium
- LOUISIANA
ASV Global, LLC
Louisiana State University
Louisiana Universities Marine Consortium
- MAINE
Bigelow Laboratory for Ocean Sciences
The IOOS Association
University of Maine
- MARYLAND
Johns Hopkins University Applied Physics Lab
National Aquarium
Severn Marine Technologies, LLC
University of Maryland Center for Environmental Science
- MASSACHUSETTS
Massachusetts Institute of Technology
University of Massachusetts, Dartmouth
Woods Hole Oceanographic Institution
- MISSISSIPPI
University of Mississippi
University of Southern Mississippi
- NEW HAMPSHIRE
University of New Hampshire
- NEW JERSEY
Monmouth University Urban Coast Institute
Rutgers University
- NEW YORK
Columbia University Lamont-Doherty Earth Observatory
IEEE Oceanic Engineering Society
- Stony Brook University
- NORTH CAROLINA
Duke University
East Carolina University
North Carolina State University
University of North Carolina, Chapel Hill
University of North Carolina, Wilmington
- OREGON
Oregon State University
- PENNSYLVANIA
Pennsylvania State University
- RHODE ISLAND
University of Rhode Island
- SOUTH CAROLINA
South Carolina Sea Grant Consortium
University of South Carolina
- TENNESSEE
Eastman Chemical Company
- TEXAS
Harte Research Institute for Gulf of Mexico Studies
Shell Exploration & Production Company
Sonardyne, Inc.
Texas A&M University
University of Texas at Austin
- VIRGINIA
College of William & Mary Virginia Institute of Marine Science
Institute for Global Environmental Strategies (IGES)
Old Dominion University
Teledyne CARIS
U.S. Arctic Research Commission
- WASHINGTON
Sea-Bird Scientific
University of Washington
Vulcan, Incorporated
- WASHINGTON, D.C.
National Ocean Industries Association (NOIA)
Southeastern Universities Research Association (SURA)
Marine Technology Society (MTS)
- WISCONSIN
University of Wisconsin, Milwaukee
School of Freshwater Sciences
- AUSTRALIA
Institute for Marine and Antarctic Studies (IMAS)
- BERMUDA
Bermuda Institute of Ocean Sciences
- CANADA
Dalhousie University
University of Victoria Ocean Networks
Canada

PREPARED STATEMENT OF MS. KRISTEN YARINCIK IN SUPPORT OF THE NATIONAL
OCEANIC AND ATMOSPHERIC ADMINISTRATION

Ms. Kristen Yarincik, Consortium for Ocean Leadership
Vice President, Research & Education and Director, National Ocean Sciences Bowl

I appreciate the opportunity to submit, for the record, testimony in support of the National Oceanic and Atmospheric Administration (NOAA)'s Environmental Literacy Program (ELP). Building community resiliency through environmental stewardship and informed decisionmaking is a critical component of keeping our Nation and its citizens safe and secure. ELP, operated by NOAA's Office of Education, provides support for national-scale projects that do exactly that, while also creating a public capable of understanding and interpreting forecasts as well as safety and preparedness instructions. I respectfully request the subcommittee fund the Environmental Literacy Program at \$8 million in fiscal year 2019. I also request that you fund the Office of Education base account separately to adequately support staff without diminishing the grant program.

ENVIRONMENTAL LITERACY PROGRAM (ELP)

The two goals of NOAA's agency-wide education strategic plan required by the America COMPETES Act are workforce development and environmental literacy, where formal and informal education and outreach in ocean, coastal, Great Lakes, weather, and climate sciences support an environmentally literate society. Additionally, report language accompanying America COMPETES cites the agency's principal education grant programs, the Bay-Watershed Education and Training and the ELP.

At the core of the ELP is the grants competition, which, since 2005, has supported 124 grants totaling more than \$70 million. The 2017 competition focused on helping communities become more resilient to extreme weather and other environmental hazards by building environmental literacy. The overwhelming response—170 applications requesting more than \$77 million—highlights the need to continue building resilience through education.

Also in 2017, the unprecedented damage from the 7th most active Atlantic hurricane season since 1851 made last year the most expensive hurricane season to date. The estimated \$200 billion in damage easily surpassed the previous record of \$159 billion, which occurred in 2005, when Hurricane Katrina made landfall. On average, weather, water, and climate events cause approximately 650 deaths, \$15 billion in damage, and 90 percent of presidentially declared disasters each year. The importance of building community resilience through education and informed decision-making cannot be understated. It's increasingly important that Federal efforts support these endeavors to build a resilient, ocean-literate, weather-ready nation.

VALUE OF EDUCATION TO NOAA'S MISSION

ELP does more than improve environmental literacy. In doing so, it grows the science, technology, engineering, and math (STEM) workforce, strengthens our economy, and ensures our national security, all while advancing NOAA's mission of science and service.

In 2017 alone, more than 200,000 youth and adults participated in ELP-supported informal education programs (with another 9,000 preK-12 students participating in ELP-supported formal education programs) and more than 46 million visited institutions with ELP-supported exhibits. The 150 institutions using ELP-supported formal and informal education initiatives reached at least 37 States, 110 congressional districts, and 574 counties.

As the longest-standing and most comprehensive national grants program with a focus on environmental literacy, ELP grants have and will continue to keep our coastal communities, and therefore our Nation as a whole, safe, secure, and prosperous. Adequately funding ELP will allow programs such as the National Ocean Sciences Bowl (NOSB), a quiz-bowl style ocean science competition for high schoolers that has received ELP funding during its 21-year history, to flourish. The NOSB, alone, has graduated tens of thousands of students from high school with a solid ocean science foundation who go on to careers that advance our Nation and keep it secure. NOSB alums have diverse careers, including coordinating NOAA Exploration and Research expeditions, enforcing port security with the U.S. Coast Guard, and developing software for Bloomberg LP.

A diverse, well-educated, ocean-literate workforce provides the necessary base from which innovation grows. A 12.5 percent projected growth of science, technology, engineering, and math (STEM) jobs in the U.S. is expected from 2012 to 2022, with a 14 percent projected increase in U.S. geoscience jobs in that same period. Coupled

with the greying of America's geoscience workforce (47 percent of American geoscientists in the private sector and 43 percent in the Federal Government were over the age of 55 in 2016), it is clear that our Nation will experience major changes with our innovation workforce. NOSB and other ELP programs help to ensure the U.S. has the intellectual resources to take full advantage of new knowledge, as well nurture those who will train the following generation and those whose work supports novel and emerging science solutions. A dynamic workforce moves our Nation forward. From business professionals who can commercialize scientific advances to technicians who maintain observing infrastructure and employees trained in scientific principles, our Nation's future depends upon how we will meet these demographic and educational challenges. ELP rises to this challenge through innovative, time-tested programs like the NOSB.

I consider investments in ELP to be investments in our future and request you include \$8 million for the program in fiscal year 2019. I also request that you fund the Office of Education base account separately to adequately support staff without diminishing the grant program.

The National Ocean Sciences Bowl (NOSB) includes 25 regional competitions that reach students in 33 States:

- Aloha Bowl (serving the students of Hawaii)
- Bay Scallop Bowl (serving the students of New York)
- Blue Crab Bowl (serving the students of southern Virginia)
- Blue Heron Bowl (serving the students of North Carolina and Tennessee)
- Blue Lobster Bowl (serving the students of Massachusetts)
- Chesapeake Bay Bowl (serving the students of northern Virginia, Maryland, the District of Columbia, Delaware, and central Pennsylvania)
- Dolphin Challenge (serving the students of northern Texas and Arkansas)
- Garibaldi Bowl (serving the students of southern California—San Diego and surrounding area)
- Great Lakes Bowl (serving the students of Michigan)
- Hurricane Bowl (serving the students of Mississippi, Louisiana, Alabama, and northwest Florida)
- Lake Sturgeon Bowl (serving the students of Wisconsin and Illinois)
- Loggerhead Challenge (serving the students of southern Texas)
- Los Angeles Surf Bowl (serving the students of southern California—Los Angeles and surrounding area)
- Manatee Bowl (serving the students of Florida's east coast)
- Nor'easter Bowl (serving the students of New Hampshire and Maine)
- Orca Bowl (serving the students of Washington)
- Penguin Bowl (serving the students of Ohio, Kentucky, and western Pennsylvania)
- Quahog Bowl (serving the students of Connecticut and Rhode Island)
- Salmon Bowl (serving the students of Oregon and Idaho)
- Sea Lion Bowl (serving the students of northern California)
- Shore Bowl (serving the students of New Jersey and eastern Pennsylvania)
- Southern Stingray Bowl (serving the students of Georgia and South Carolina)
- Spoonbill Bowl (serving the students of Florida's Gulf coast)
- Trout Bowl (serving the students of Colorado)
- Tsunami Bowl (serving the students of Alaska)