On behalf of the Consortium for Ocean Leadership (COL), which represents the leading ocean science, research, and technology organizations from academia, industry, and philanthropy (to include aquariums), I appreciate the opportunity to submit for the record our fiscal year (FY) 2020 funding priorities for the Defense Appropriations Act. As a maritime nation, our national, homeland, energy, food, water, and economic securities, as well as our public health and safety, depend on a healthy ocean — which in turn depends on ocean science and technology — a concept I refer to as “ocean security.” This understanding enables us to safely operate submarines or autonomous vehicles, have advance notice of oncoming hurricanes, let aircraft carriers know when there’s rough weather ahead, allow for the safety of maritime commerce, know how sea level rise will affect military installations, and so much more that helps protect our nation, its infrastructure, and its prosperity. I hope that as the subcommittee makes funding decisions for FY 2020, you will provide the needed support for programs that advance our nation’s ocean security, ensuring we remain the dominant maritime power, economically competitive, and scientifically literate while staying secure in our access to food, water, and energy. I respectfully request the subcommittee provide the Department of Defense (DOD) with no less than $2.8 billion for basic research, $6.5 billion for applied research, and $7.8 billion for advanced technology development. To ensure that our nation can maintain maritime superiority in an increasingly unstable world, I respectfully request the subcommittee provide the Navy with no less than the science and technology funding levels appropriated in the FY 2019 spending bill, which were $680 million for basic research (6.1), $1 billion for applied research (6.2), and $853 million for advanced technology development (6.3).

For the last 30 years, the United States has remained dominant in the ocean environment. In fact, the late Admiral James D. Watkins, chief of naval operations from 1982-1986, used to attribute our victory in the Cold War to oceanography — our superior knowledge of the undersea domain gave the United States the needed competitive advantage. This uncontested dominance is eroding and being ceded to countries such as China, India, and Russia. In fact, DOD leaders have testified that competitor nation states are meeting and beating the United States in innovative and strategic capabilities, and DOD has conceded to the attrition of our competitive military advantage in air, land, sea, space, and cyberspace. The Navy acknowledges the U.S. competitive advantage in ocean sciences has eroded and established Task Force Ocean (TFO) to remediate this erosion.

We must act now to address immediate and future threats to our knowledge advantage and remain ahead of our peer and near-peer competitors in maritime power competition. DOD’s science and technology program does just this, balancing basic research to respond to future threats through emerging science and technologies with applied research to enable successful transition of suitable scientific and technological capabilities to maintain our near-term warfighting advantage over potential adversaries. Below are some key areas of investment to ensure our nation maintains its knowledge-based maritime superiority across the world ocean.
Task Force Ocean
Navy’s Task Force Ocean (TFO) was established in 2017 to bolster the Navy’s commitment to ocean science. TFO focuses on observing the ocean environment, processing data into useful products, and strengthening the Navy’s ocean science technical workforce while advancing partnerships with academia and the private sector. I appreciate funding increases in the 6.2 account to implement TFO at-sea research priorities (Ocean Warfighting Environment Applied Research), and it is crucial that these investments be maintained in coming years.

Education
Education initiatives are crucial to further our understanding of the impact of ocean science on national security. This includes support for programs like the Navy’s University Research Initiatives (URI) Program, which advances multidisciplinary scientific research and the transition of basic research to practical applications and the related Defense University Research Instrumentation Program (DURIP), which helps academic institutions acquire national security-relevant research capabilities to train the next generation. I respectfully request $137 million for URI, including $20 million for DURIP.

Giving the next generation the tools to solidify our superior ocean knowledge isn’t just about training those who have already chosen a career in the ocean sciences. It’s also about providing those in the K-12 realm, who have yet to choose a career path, information about what job options exist. It’s crucially important for the Office of Naval Research to continue supporting programs like the National Ocean Sciences Bowl (NOSB). In its 22-year history, the NOSB, a quiz-bowl style ocean science competition for high schoolers, has introduced tens of thousands of students to the possibility of a career in ocean science at a time when most high school curriculums don’t include any oceanography courses.

National Oceanographic Partnership Program
DOD isn’t the only federal agency tasked with understanding our ocean, and federal agencies aren’t the only ones endeavoring to do so. There are more than 600 businesses engaged in ocean observation and forecasting; over 400 postsecondary institutions that provide ocean-related certificates or degrees; and in excess of 45,000 nonprofits focused on ocean and coastal activities. To share information, observations, technology, and best practices, cross-sector and interagency collaboration are necessary. To this end, the National Oceanographic Partnership Program (NOPP), a congressionally mandated program established in the National Defense Authorization Act for Fiscal Year 1997, is an ideal vehicle to advance collaborative efforts and already has been involved with funding projects such as the Integrated Ocean Observing System, the Argo Project, and the JASON project.

I strongly appreciate the Navy’s support for this program, which is promoting national goals, including assuring national security. However, a critical piece necessary for NOPP’s continued success is the role of the Ocean Research Advisory Panel (ORAP), which is also established in the FY 1997 NDAA as the only Federal Advisory Committee Act body chartered to advise all federal ocean agencies. Language in the National Defense Authorization Act for Fiscal Year 2016 repealed the requirement for the Department of the Navy to fund ORAP, making it impossible for the FACA body to execute its responsibilities. I respectfully request the committee consider including report language urging funding of ORAP so it can resume its important responsibilities advising the Ocean Policy Committee and providing independent recommendations.
In closing, our nation’s position as the unequivocal maritime power is eroding, but prioritizing investments in science and technology can help us maintain our superiority despite advancements by other nations. As pointed out in the 2018 Office of Net Assessment report, *Maritime Environment 2050: Implications for U.S. National Security*, ocean research and “accelerated mapping and associated observations and data science” can offset general transparency that is eroding surprise and stealth.

As you work to provide funding for these critical programs, COL and our member institutions are doing all we can to provide you the subcommittee allocations necessary to fully fund these programs as we continue to encourage the creation of a bipartisan budget agreement that raises the discretionary spending caps. I know you face difficult decisions that involve offsets and divestments to achieve a balanced budget. COL and our members stand ready to engage in discussion to help establish priorities around the ocean security framework to support these difficult decisions. Thank you for your exemplary leadership and dedicated work and for the opportunity to provide input into FY 2020 appropriations.

**COL Member Institutions:** Bermuda Institute of Ocean Sciences•Bigelow Laboratory for Ocean Sciences• College of William & Mary (VIMS)•Columbia University (LDEO)•Dauphin Island Sea Lab• Duke University•FAU Harbor Branch Oceanographic Institute•Harte Research Institute• Louisiana State University•Massachusetts Institute of Technology•Monterey Bay Aquarium Research Institute•Moss Landing Marine Laboratories•Mote Marine Laboratory•Old Dominion University•Oregon State University•Pennsylvania State University•Rutgers University•Skidaway Institute of Oceanography (University of Georgia)•Stanford University•Stony Brook University• Texas A&M University•US Naval Postgraduate School•University of Alaska Fairbanks• University of California (UC) Davis• UC San Diego(Scripps)•UC Santa Barbara•UC Santa Cruz•University of Delaware•University of Florida•University of Hawaii•University of Maryland Center for Environmental Science•University of Massachusetts, Dartmouth•University of Miami•University of New Hampshire•University of North Carolina (UNC), Chapel Hill•UNC, Wilmington•University of Rhode Island•University of South Carolina•University of South Florida•University of Southern California•University of Southern Mississippi•University of Texas at Austin•University of Washington•Woods Hole Oceanographic Institution• Alaska Ocean Observing System• Alaska SeaLife Center•Aquarium of the Pacific•Arctic Research Consortium of the United States• Consumer Energy Alliance• Cooperative Institute for Research in Environmental Sciences• Dalhousie University•Earth2Ocean•East Carolina University•Estuary & Ocean Science Center, San Francisco State University•Florida Institute of Oceanography•Moore Foundation•Hubbs SeaWorld Research Institute•IEEE Oceanic Engineering Society•Institute for Global Environmental Strategies•Institute for Marine and Antarctic Studies•IOOS Association• Johns Hopkins University Applied Physics Lab•Marine Technology Society• MARACOOS• Monmouth University Urban Coast Institute•Mystic Aquarium•National Aquarium•National Ocean Industries Association• NERACOOS•North Carolina State University•North Pacific Research Board•Nova Southeastern University•Savannah State University• South Carolina Sea Grant Consortium•Southeastern Universities Research Association•U.S. Arctic Research Commission• University of Maine• University of Victoria Ocean Networks Canada• University of Wisconsin, Milwaukee School of Freshwater Sciences•ASV Global, LLC•Chevron USA•Eastman Chemical Company•Esri•Exocetus Autonomous Systems•L-3 MariPro, Inc•Liquid Robotics, Inc•Sea-Bird Scientific•Severn Marine Technologies, LLC•Shell Exploration and Production Company• Sonardyne, Inc•Teledyne CARIS•Teledyne RD Instruments•Vulcan, Inc.