NAML Statement on Draft NSF Reauthorization Act of 2020

The National Association of Marine Laboratories (NAML) is encouraged by the draft NSF Reauthorization Act of 2020 recently released for comment by the House Science, Space, and Technology Committee staff. The proposed funding – with its focus on undergraduate and graduate student education, research and workforce training – invests in the future of STEM throughout the United States, which in turn informs public decision making, policy development, and drives innovation.

The bill's emphasis on the U.S. global change research program, food-energy-water, risk and resilience, and biological research collections prioritizes the key global issues of our time for the development of actionable knowledge and solutions. Further, the bill's support for reviving overlooked research infrastructure (i.e. research equipment and facilities construction) in the mid-scale range is required for a successful science and technology enterprise. NAML also appreciates the careful balance evident in the draft bill for a new directorate to promote the convergence of research and innovation.

NAML suggests that given the bill's inclusion of language related to climate, coastal risk and resilience, and higher education and training, that Committee staff also consider one or more provisions related to ocean, coastal, and Great Lakes research and innovation.

NAML's research priorities are inspired by the National Academies' *Sea Change* report as well as the National Academies' report entitled, *Enhancing the Value and Sustainability of Field Stations and Marine Laboratories in the 21st Century*. We recommend that the Committee include one or more provisions recognizing the importance of, and support for, infrastructure and networking of ocean, coastal, and Great Lakes research institutions via the NSF program, *Improvements to Biological Field Stations and Marine Laboratories* (FSML). Notably, most marine and freshwater science laboratories are interdisciplinary endeavors that enable scientists and students to integrate the biophysical and social sciences in ways that change career paths and generate entirely new fields of inquiry. Marine labs also are placed-based institutions that

embrace hands-on research in local ecosystems, experiential learning, and team collaborations that are otherwise hard to achieve in conventional university campus settings.

Research performed at marine and Great Lakes laboratories benefits society broadly, by increasing economic vitality and resilience of our coastal economy. NAML member labs conduct research on the safe and sustainable development of energy sources (offshore oil and gas, wind power, etc.), improving food security through sustainable fishing and new aquaculture initiatives, working with local communities and stakeholders to help guide actions that lead to improved resilience in the face of Sea Level Rise and storms, and are the front lines of monitoring and predicting climate and weather events that result in better predictive models thereby saving lives. Increasing support to marine and Great Lakes laboratories will bring discoveries and innovations for the benefit of the Nation.

Today's technologies—such as streaming data, ocean observation platforms, aerial/satellite remote sensing, robot-driven observation and monitoring, genomic technologies, and nanoparticle environmental sensors— are but a few of the tools that marine labs use to distinguish their intimate connection to nature and still interact with the rest of the world in ways that can fuel breakthroughs in the environmental, physical, natural, and social sciences. The intellectual capital housed in marine labs and Great Lakes research stations, including the education and training of many underserved minority students, their sentinel positioning and monitoring capabilities on the nation's coasts and inland waters, and their proximity to marine and freshwater resources, make this network of people and laboratories a unique, valuable and highly productive national asset.

The FSML program within NSF, jointly administered by the Biological and Geosciences Directorates, is an important source of support that embodies the spirit of this draft bill – to advance research, education, training, and infrastructure that will accelerate research and development, increase resilience to changing climatic conditions, and strengthen the workforce pipeline of scientific expertise essential to the Nation.

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