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Outside Witness Testimony for the House Subcommittee on Commerce, Justice, Science, and Related Agencies of the Committee on Appropriations

From: Dr. Gerhard Kuska, Chair, IOOS Association

Chairman Rogers, Ranking Member Cartwright, and Members of the Subcommittee,

This testimony supports Fiscal Year 2024 appropriations to the National Oceanic and Atmospheric Administration's National Ocean Service to ensure sustained ocean observation to improve the resilience and economic prosperity of the nation's coastal and Great Lakes communities. It is submitted on behalf of the IOOS Association, a nonprofit organization representing the 11 government-certified Regional Associations of the Integrated Ocean Observing System (IOOS) located around the Nation's coasts and Great Lakes, including U.S. territories in the Caribbean and Pacific. IOOS is the Nation's premier coastal and Great Lakes observing program, providing information that helps protect lives, economies, and our environment.

Forty percent of the population of the United States lives in coastal counties, and the population in coastal areas continues to increase. Additionally, nearly 40% of coastal residents are vulnerable communities—the elderly, children, and the poor. At the same time, the ocean, coasts, and Great Lakes are experiencing dramatic changes from coastal flooding, sea level rise, increasing coastal storm frequency and intensity, erosion, hypoxia, harmful algal blooms, ocean acidification, biodiversity loss, and more. These impacts threaten critical coastal infrastructure and water and food supplies and weaken the ability of marine ecosystems to provide critical ecological services and natural infrastructure for climate resilience. Coastal communities and businesses that rely on marine resources and transportation need information and forecasts about the ocean environment to make decisions that protect lives and ensure safety, security, and economic prosperity.

Sustained, reliable, and accessible quality data are the foundation for understanding and making decisions about our coastal oceans and Great Lakes. The national network of 11 IOOS Regional Associations generates



and delivers information that meets the needs of 17 Federal agencies as well as state, municipal, and private industry interests. In tailoring products to meet the needs of a variety of users, including but not limited to local shippers, anglers, emergency and resources managers, public health officials, aquaculture farmers, coastal communities, and recreators, IOOS is foundational for the growing information-based Blue Economy.

The Regional Associations deploy, operate, and maintain more than 300 observing assets and integrate and serve data from federal and non-federal sources through federally certified regional data centers. IOOS is a single system that supports many needs, making it a cost-effective investment for the American taxpayers. In fact, a recent assessment by the Center for the Blue Economy concluded that the value of the IOOS regional observing system, just to initial users, lies between \$192 million and \$233 million per year, creating an economic value approximately five times greater than the current annual investment in the system. This can be considered both a conservative and incomplete estimate as it did not include two of the eleven IOOS Regional Associations and did not consider the likely much larger values resulting from end uses of the array of information products and services that rely on observing data provided by the IOOS regional observing system. Further, the data and information products and services of IOOS support decision-making and innovation for the more than \$360 billion (GDP) ocean-based economy.

Like any business, the IOOS Regional Associations are feeling the impact of inflation on their ability to provide the services that their users and stakeholders have come to expect. Inflation has increased the cost of doing business (e.g., labor, electricity, parts, and sensors) by more than 13 percent since January 2021. That means, to meet the buying power of FY 2022 enacted levels of \$41 million, which the Regional Associations are currently operating under, they would need almost \$46.5 million. We are thankful for the increased funding enacted in FY 2023 (\$42.5 million), but it still does not keep up with inflation and the costs associated with the many services provided and enabled through the IOOS regions.

Additionally, after more than 20 years of service, much of the IOOS observing infrastructure – e.g., the network of oceanographic moorings, underwater profiling gliders, land-based high-frequency radars, shore stations, and more – is aging and outdated. Some of the assets are beginning to fail and cannot be serviced by manufacturers. This infrastructure network supports hurricane intensity forecasting and the assets that support a harmful algal bloom observing network, search and rescue, fisheries and aquaculture, and tracking marine mammals. The cost to replace and upgrade aging and failing assets is \$137 million spread across the 11 IOOS regions. The bipartisan Infrastructure Investment and Jobs Act (IIJA) (\$7.3 million from the first-year allocation, with total support over the five years anticipated at about \$35 million) will help the Regional Associations to begin to address the most urgent needs, but it will not fund the entire need.



Our priority is to provide robust funding for IOOS and its national network of eleven IOOS Regional Associations to further our understanding of our dynamic and resource-rich coastal areas and to prepare communities for risks associated with floods, extreme weather events, harmful algal blooms, hypoxia, and other hazards. We respectfully request that the Committee provide \$80.5 million for the Regional IOOS line and \$13 million for the IOOS Program Office under the National Oceanic and Atmospheric Administration's (NOAA) National Ocean Service in the Fiscal Year 2024 appropriations legislation.

The \$80.5 million request for the Regional IOOS program includes \$50 million for core support. This funding will provide sustained operational support for the regional systems to support, for example, safe and efficient maritime transportation and commerce, search and rescue, offshore energy development and operations, resource management and protection, environmental prediction (e.g., marine heat waves), and improving understanding and notification of hazards (e.g., hurricanes, flooding). This support will enable the regions to continue building capacity for detection and forecasting of harmful algal blooms, through projects that Congress has supported since FY 2021, toward an operational National Harmful Algal Bloom Observing Network. This request addresses rising costs due to inflation and also supports expanded engagement to diverse stakeholders and communities and strengthens the programmatic infrastructure that allows the 11 IOOS Regional Associations to leverage resources proactively to ensure efficiency, develop additional predictive capacity for users, and co-design useful applications for rapidly growing demands. The additional capacity for services enabled through IIJA and anticipated from IRA require a stable system to gain the most benefit from these important investments.

The Regional IOOS request also includes \$25.5 million in critical investments to modernize the system through technology (e.g., platforms and sensors) upgrades and enhancements to prevent loss of data and services that ensure the Nation has the information needed to detect, prepare, and respond to the changing conditions in our coastal oceans and Great Lakes. The IIJA will fund part, but not all, of the \$137 million needed to repair and modernize the IOOS regional systems. We anticipate about \$35 million from the IIJA over five years. Our \$25.5 million request of Congress addresses the unmet need of \$102 million spread over the next four years.

Finally, \$5 million of the total IOOS Regional request will support Innovation Competitive Grants. This investment will provide continued support for competitive grant programs for innovations and partnerships, including sensor development, autonomous sampling, and coastal modeling. From investments in Ocean Technology Transition (OTT) grants, IOOS regions have taken new technologies, such as for measuring ocean acidification, nutrients, harmful algal bloom toxins, and other properties, and transformed those into operational observing systems, aiding both the industry partners who produce the underlying technology and the user community who now rely on these better data. Investments in Coastal and Ocean Modeling Testbed (COMT) grants have



resulted in numerous examples of developing research models into operational models capable of delivering forecasts and higher spatial definition of variables of interest, such as for water quality management, for fisheries habitat assessment, and climate impacts assessment. Such models include the Chesapeake Bay Environmental Forecast System in the Mid-Atlantic, the West Coast Ocean Forecast System, and the LiveOcean environmental model in the Pacific Northwest.

The \$13 million requested for the IOOS National Program Office in the NOAA NOS Navigation, Observation, and Position budget line will modernize the Data Management and Cyberinfrastructure (DMAC) system to meet user needs and identify system gaps in partnership with the IOOS Regional Associations; develop a biological and marine life observing program; advance the development of coastal modeling products and predictive capabilities and coordinate research-to-operations transitions across NOAA programs; facilitate integration of non-federal efforts with NOAA, including NOAA's uncrewed system initiative; and enhance integration of IOOS across the regional network and the 17 federal agencies.

We are grateful for the Committee's support of IOOS in the FY 2023 appropriations bill, and again emphasize the importance of funding a network that provides crucial information about our coasts and waterways to millions of Americans. Preventing gaps in the nation's sustained observations is key to protecting our coastal communities and unlocking the economic potential of our oceans, coasts, and Great Lakes.

Thank you for the opportunity to provide this statement.