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Rec #	**Year**	**Recommendation**	**Implementation Date (if applicable)**
52	2021	Maintain and increase IOOS observing infrastructure and measurements and ensure they capture the coastal climate signal and its impact through sustained observations and models.	Partially implemented, 2021
51	2021	Advance linkages between regional near-shore and global ocean models and enhance integration with NOAA's Unified Forecast System.	Partially implemented, 2021
50	2021	Continue to undertake economic valuation processes of observing systems to better quantify benefits and enhance messaging for sustained observations.	Partially implemented, 2021
49	2021	Ensure use of 11 federally certified regional data centers to implement advanced data tools and further data aggregation.	2021
48	2021	Identify ways that NOAA can use technological innovations to address the needs of coastal and oceanographic communities and stakeholders, including for outreach and education purposes.	2021
47	2021	Leverage diverse STEM expertise to enhance future workforce.	2021
46	2021	Analyze NOAA initiatives with established partnership models to ensure alignment with IOOS effort.	Partially Implemented, 2021
45	2021	Expand engagement with private industries and other entities to rapidly establish partnerships to augment aging ocean observing infrastructure.	Partially Implemented, 2021
44	2021	Pursue leveraged support from other agencies and private sources through the National Ocean Partnership Program.	2021
43	2021	Collaborate with NOAA Big Data Project, and other relevant entities, regarding IOOS contributions to ecological forecasting and regional ocean forecasting efforts.	2021
42	2021	Expand the participation at all levels of BIPOC and underserved and underrepresented communities, including co-production of knowledge and incorporation of local and traditional Indigenous knowledge.	Pending
41	2021	The U.S. IOOS Office should adopt a requirements management system that begins with higher-level objectives (e.g. "IOOS observations will lead to a XX% improvement in hurricane intensity forecasts over the next X years")	partially implemented, 2021
40	2021	NOAA Leadership should develop a coherent description of the many ocean observing programs within its Line Offices, including associated budgets in a cross-Line Office roll-up	Pending
39	2021	U.S. IOOS Office should develop an annual investment strategy based on a traceable requirements management process	Pending
38	2021	NOAA Leadership should position IOOS as the oceanographic operational integrator at NOAA	Pending
37	2021	IOOS Office should create an unfunded requirements list based on a gap analysis	partially implemented, 2021
36	2021	IOOS Enterprise should develop an Observing System Recapitalization Plan to include maintenance, operations, sustainability, and modernization of the observing system	partially implemented, 2021
35	2021	NOAA should set up PAC budget lines for IOOS, for infrastructure refreshes and equipment servicing as part of a larger plan to fully fund present and future known and emerging infrastructure needs	Pending
34	2021	IOOS should, where possible without a federal budget cross-cut, assess requirements in the context of the total federal investments	Pending
33	2021	The IOOC should conduct the federal budget cross-cut mandated in both the ICOOS Act of 2009 and the Coordinated Ocean Observation and Research Act (COORA) of 2020, and ensure their membership has the expertise, resources, and influence in their agencies to accomplish this task.	Pending
32	2021	Consider new task teams to address critical U.S. government-wide priorities such as communications and messaging, ocean climate modeling, and environmental justice (underserved users).	Pending
31	2021	Generate a list of the IOOC's top ten accomplishments of the past decade, in order to provide context to the impacts of that committee on the federal ocean observing enterprise.	Pending
30	2021	Align outcomes of OceanObs'19 and Ocean Studies Board workshops focused on sustaining ocean observations with emerging priorities, programs, and concepts linked to the UN Decade for Ocean Science and Sustainable Development goals.	Pending

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29	2021	Manage a crosswalk of the status of all essential ocean, biology, climate, and other relevant variables; and suggest best practices or standards to best integrate the data from a local-to-global scale.	partially implemented, 2021
28	2018	We recommend that the U.S. IOOS Office be positioned at a level within NOAA that will enable more senior recognition during marketing and communication with partner agencies.	2020
27	2018	We note there are challenges to the integration of ocean observing systems. Increased support from the IOOC would be advantageous to resolving this concern.	n/a
26	2018	An easy “win” will be to highlight and celebrate the upcoming 20 year anniversary of IOOS in 2019.	2019
25	2018	Identify relevant data sets suitable for management and analysis by these techniques.	2019
24	2018	Support the existing cross-NOAA “big data” initiatives and encourage continued direct engagement of IOOS in these efforts.	2019
23	2018	Strive to develop and maintain connectivity to the private sector in this field to ensure currency of technology best practices and identify innovation opportunities.	2019
22	2018	Enhance IOOS Data Management and Communications (DMAC) using the “big data” topic to evaluate and advance new DMAC methods and practitioners.	2019
21	2018	In order to guide focused, effective, market-driven growth of IOOS, the AC suggests that methods for marketing of IOOS be embraced formally through structured methodology with marketing industry experts.	partially implemented, 2021
20	2018	We recommend IOOS foster frequent and regular consultation among these three segments [government, academic, and commercial] to make complementary use of both public and private funding.	2019
19	2016	Increase funding from $36.2M to $44M annually.	2020
18	2016	Support appropriation of funds for high priority ocean observation infrastructure needs.	2021
17	2016	Increase the OTT budget from $5M to $10M annually, and identify other opportunities for NOAA and the IOOC to invest in tech development and transfer in collaboration with provate sector partners.	not implemented
16	2016	Support reauthorization of the ICOOS Act of 2009.	2020
15	2016	Support Interagency ocean observations efforts and the IOOC.	2016
14	2016	Make a stronger IOOS available to communities, local governments, industry and institutions to support the resilience decision-making	2016
13	2016	Focus the attention of the nation of the role that IOOS plays in enhancing resilience, and on the fact that IOOS has been a trusted and essential source of ocean, Great Lakes and coastal information.	2016
12	2016	Improve the visibility of IOOS within NOAA, and with federal agency Interagency Ocean Observation Committee (IOOC) partners, as an essential, valuable tool in the race to acquire the information and data for shaping a resilient and sustainable future for our country.	2016
11	2016	Provide IOOS the funding and administrative support needed to maintain and expand its resilience efforts.	2018
10	2015	The NOAA Administrator, in collaboration with the IOOC, should clearly define how IOOS can effectively lead across agencies and how those agencies can be counted upon to support the IOOS vision.	2015
9	2015	The IOOS Office should be elevated within NOAA to a Program Office, as per the ICOOS Act of 2009.	2121
8	2015	IOOS “touch-points” should be identified to connect the complex organizations that make up IOOS to the IOOS Program Office and IOOC member agencies.	2015
7	2015	The IOOS Program Office, the IOOC, and the NOAA Administrator should communicate all actions to the regional associations and thus to all IOOS enterprise stakeholders.	2015
6	2015	The NOAA Administrator and IOOC should seek to celebrate IOOS success internally and externally. The IOOS enterprise touches a vast network of individuals and organizations in much the same way a championship team positively impacts a high school or college community.	2015

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5	2015	In support of the marketing and communications Guiding Principles, which are focused on engagement, embracing new approaches, and evaluation for success, outreach should include a continuum stretching from applied research to product use, with an active customer-driven focus.	2015
4	2015	In support of the planning and operations Guiding Principles, which emphasize efficiency in execution and enhancement of the IOOS office, the following suggestions are offered: Consistent focus on strategic planning, designed resilience, and flexibility at all levels with continued review. Requirements for coordination with national and international integrating systems, for example, the National Response Framework, NOAA Data Integration Framework, Spatial Data and GIS interoperability standards, Metadata Standards and other key existing (and future) standards. Flexible planning from maintenance to introduction of promising new technologies to take into account the changing constraints on the funding entities. Flexible cost savings mechanisms, such as a pool of deployable observational assets, e.g. portable weather stations, general spare parts and instruments for use in emergency situations such as hurricane or tsunami response. Flexible management to tie diverse, operational parts together to enable federal and non-federal partners to retain or increase their funding based on collaboration with the national IOOS endeavor. Flexible management to integrate federal, regional, private, and public data, products, and services. Review of IOOS assets for ranking by quality of data incoming and new methodologies for how to handle these types of information.	2015
3	2013	Empower IOOS to promote the growth and development of the enterprise, products and services, not simply to manage a system.	2014
2	2013	Encourage increased interagency governmental and non-governmental activity and trusted involvement in the enterprise.	2014
1	2013	Expect excellence and participation from collaborators and stakeholders to ensure maximum value and return on investment.	2014