

Ocean Research Advisory Panel

Public Meeting: December 3-4, 2024

Biogeochemical Observing Technologies Subgroup

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ORAP Task:

Develop a report to offer an initial set of recommendations to the U.S. Ocean Policy Committee (OPC) about **opportunities to leverage public-private partnerships to advance emerging marine biogeochemical observing technologies and advance national ocean science initiatives**.

The report identifies **barriers and challenges, recommendations for addressing those challenges, and examples of technologies that are mature for investment**.

Focus of the Report:

- **Value of Public Private Partnerships** to advance marine biogeochemical observing technologies
- **Challenges and barriers** to public-private partnerships
- **Recommendations** for addressing these challenges
- **Examples of emerging technologies** relevant to the challenges and recommendations discussed in the report

Recent Progress:

The subgroup heard from colleagues in the government (USGS) and the private sector (Woolpert) about factors that contributed to the success of the 3D Elevation Program.

Guest speakers invited to the December ORAP meeting will share their perspectives on the barriers, challenges, and potential mechanisms that expand opportunities for public-private partnerships to inform the recommendations in our report.

Challenges and Barriers to Public-Private Partnerships

Challenges and Barriers to Public-Private Partnerships

Improving the Market

- Enhancing visibility of US companies in the market
- Aggregating government demand
- Supporting R&D and investments in innovation
- Evolving an under-defined regulatory framework

Challenges and Barriers to Public-Private Partnerships

Partnership Mechanisms

- Lack of awareness of potential funding mechanisms
- Overly focused funding that provides limited support
- Onerous paperwork and delays in processing funds
- Inability to convey funds from disparate sources via one award
- Lack of or weak risk management agreements and other legal protections
- Conflicting expectations and deliverables under grants versus contracts

Draft Recommendations to Address Challenges and Barriers to Public-Private Partnerships

Draft Recommendations for Addressing Challenges and Barriers to Public-Private Partnerships

- Establish and define standards for emerging technologies
- Coordinate interagency communication and engage the private sector
- Offer incentives to leverage industry infrastructure to collect publicly-accessible measurements
- Apply more flexible funding mechanisms
- Provide intra-agency support for public private partnerships
- Ensure appropriate legal protections for all parties involved

Draft Recommendations for Addressing Challenges and Barriers to Public-Private Partnerships

Establish and define standards for emerging technologies

- The OPC, through its interagency processes, should recommend that **relevant agencies establish and define monitoring standards** for e-DNA, mCDR, and other emerging technologies for which standards do not exist or for which inconsistent standards are applied. In doing so, **agencies should consider the input of federal, state, and tribal governments, academia, industry, and stakeholders.**
- The ORAP recommends the development of a **national catalog of standard protocols** and best practices; **consistent data formats, reporting rules, and communication guidelines**; **accreditation procedures for laboratories and technical staff**; and **performance-based testing methods** that would undergird the legally robust use of methods while also supporting continuous improvement.

Draft Recommendations for Addressing Challenges and Barriers to Public-Private Partnerships

Coordinate Interagency Communication & Engage the Private Sector

- The ORAP recommends the NOPP **regularly facilitate communication** among federal agency leads and the private sector to identify priorities for investment and initiate public-private partnership opportunities.
- Convene **White House Summit** on Partnerships in Ocean Science and Technology Topics of conversation might include: ocean observation and characterization; offshore energy development; biodiversity; environmental DNA and omics; ocean climate action; exploration and mapping; and artificial intelligence and machine learning.
- The ORAP recommends the NOPP **lead coordination of regular communications and seize opportunities to convene conversations at venues** such as the Ocean Sciences Meeting organized by the American Geophysical Union.

Draft Recommendations for Addressing Challenges and Barriers to Public-Private Partnerships

Offer Incentives to Leverage Industry Infrastructure to Collect Publicly-Accessible Measurements

- NOAA cooperation with the National Academy of Sciences to **assess the need for and feasibility of an ARPA-O**; bolster agency investment in innovation prizes and competitions that lower barriers of entry for startups and small business to advance novel technologies.
- Provide a mechanism for industry to **recover the costs of collecting and publicly sharing ocean data** via the federal R&D tax credit (26 USC 41).
- Under the provisions of the Build America, Buy America Act (Public Law 117-58) consider **federally operated and federally funded ocean observing systems public infrastructure** to support secure/stable domestic supply chains for ocean research technologies.

Draft Recommendations for Addressing Challenges and Barriers to Public-Private Partnerships

Apply more flexible funding mechanisms

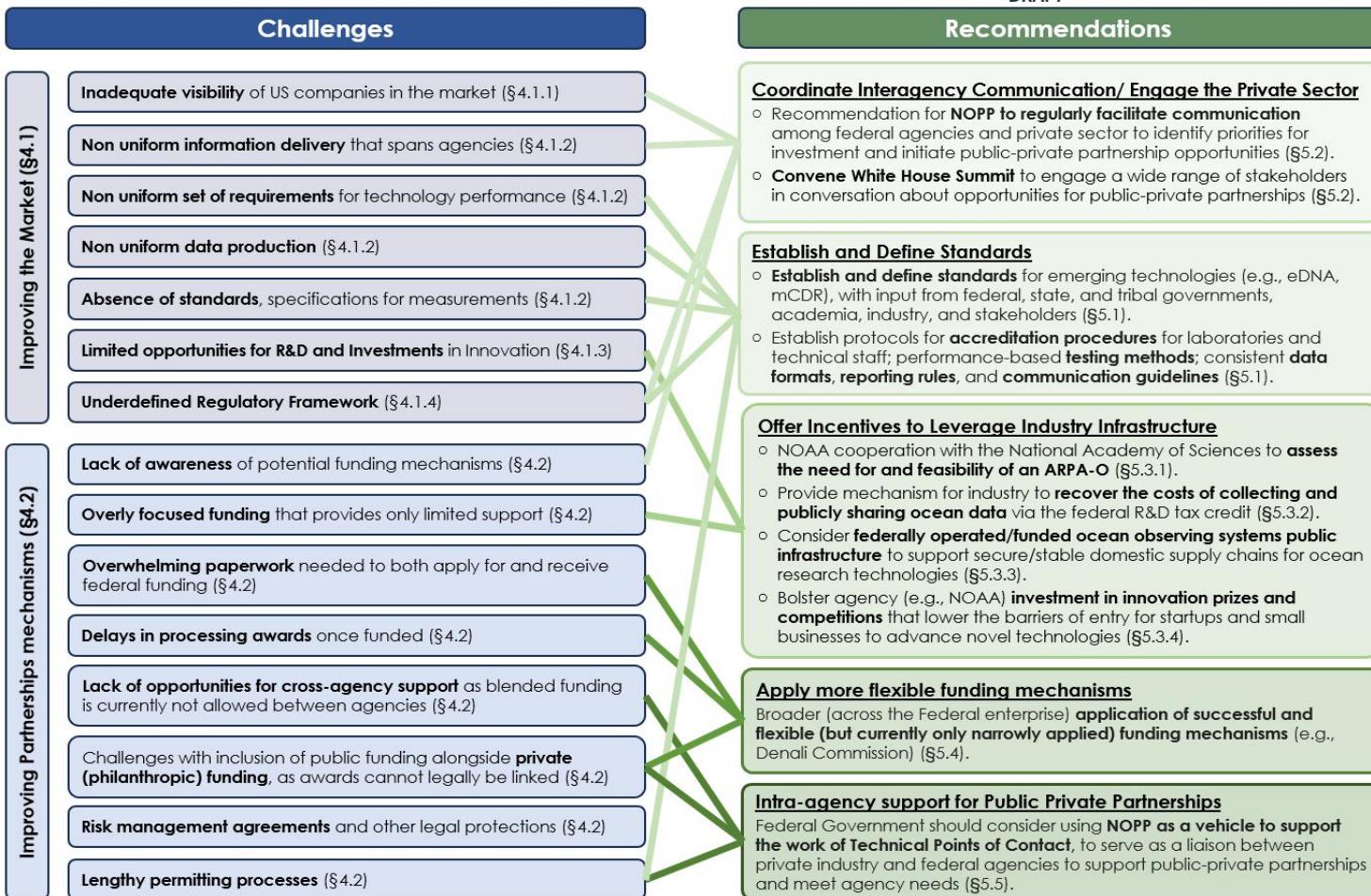
Flexible funding mechanisms that have been applied narrowly to address specific challenges should be **considered as a model for broader application across the Federal enterprise**. For example, the Denali Commission is a federal agency that allows other federal agencies to contribute funds to address the needs of rural communities in Alaska and “deliver the services of the Federal Government in the most cost-effective manner practicable by reducing administrative and overhead costs”.

Draft Recommendations for Addressing Challenges and Barriers to Public-Private Partnerships

Intra-agency support for Public Private Partnerships

Employ **Technical Points of Contact** to serve as liaisons between private industry and Federal agencies to support public-private partnerships to meet agency needs.

Use the interagency **National Ocean Partnership Program** to identify priorities for issuing contracts for research and development.



Examples of Relevant Emerging Technologies

Example Emerging Technologies

- Present opportunities to apply the recommendations to advance emerging technologies that are relevant to the challenges and barriers identified in the report
- Current and potential applications are relevant to addressing various spatial and temporal scales and the missions of multiple agencies
- Address physical, chemical, and biological aspects of the ocean
- Allow monitoring of taxa that range from microbes to whales
- Technology is mature for investment
- Market and industry maturity level are discussed in the report

NEXT STEPS

- Identify additional existing partnership mechanisms that could inform the recommendations to address the challenges and barriers discussed in the report.
- Discuss/explore additional recommendations that are within the purview of the Executive Branch to address.