

Ocean Research Advisory Panel

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Ocean Data Draft Report

DECISIONAL: ORAP decides whether to approve the report

Ocean Data Subgroup: Edward Saade, Mary Glackin, Claudia Benitez-Nelson, Ana Spalding, Amy Trice, Tim Gallaudet, Sandra Knight, Tommy Moore, Derek Brockbank, Kawika Winter

Focus of the Draft Report

Developing a National Ocean Data Strategy **(NODS)** that improves data management, grows partnerships, and advances access and usability

Why a NODS is needed ...

- The ocean is a critical resource to the United States and its **effective management provides unique opportunities for generating solutions to the diverse problems facing society.**
- These solutions require an **ocean data strategy** across a diverse range of scientific research, information, management, socioeconomic, and cultural areas.
- This strategy must use a **framework for implementing findable, accessible, interoperable, and reusable (FAIR) data** that adheres to collective and just benefits, authority to control, responsibility, and ethics (CARE) data principles.
- As such, the Ocean Research Advisory Panel (ORAP) **has drafted recommendations for the development of a strategy that encompasses both federal and non-federal data** (social, physical and biological), acknowledges the value of Indigenous Knowledge as a critical type and source of data, recognizes the need for strategic integration of data into policy and management decisions, and provides a clear pathway for equitable and just data presentation that responds to the particular needs of our most vulnerable communities.

Draft Recommendations

ORAP recommends the development of a **National Ocean Data Strategy** with an **Implementation Plan** linked to agency budget priorities and existing efforts that includes the following goals:

1. Measurably improve Federal ocean data management
2. Actively incentivize and grow partnerships
3. Rapidly advance and maximize public access and usability of ocean data

Goal #1: Measurably improve Federal ocean data management

Incorporating FAIR and CARE principles, the Federal government should assess and establish best practices for managing current and new federal data and federally funded data.

1. Review and assess ocean data programs across and within federal agencies with the goal of reducing programmatic redundancies, optimizing resource sharing and delineating program-specific roles and objectives.
2. Define policies and support work plans to reconfigure or clarify federal processes for ocean data management.
3. Create and adopt ocean data management standards, in conjunction with the ocean community, based on international, national, and related data information systems that include specific information on how data is managed, curated, validated, and quality controlled.
4. Review the disparate commercial ocean data acquisition programs within and across federal agencies with the goal of identifying gaps and developing standard policies and practices.
5. Actively pursue and ensure collection, organization, and integration of social science data into a cohesive ocean data management system.
6. Support immediate federal investment in data infrastructure to support storage, retrieval, and analytical requirements used in data-intensive decision making tools, such as artificial intelligence and computational predictive models.

Goal #2: Actively incentivize and grow partnerships

Data sharing among federal and ocean community partners must be facilitated and fostered while recognizing the sovereignty of Indigenous Peoples, Tribal Nations, and Territorial governments and the needs of vulnerable coastal communities.

1. Identify pathways to ensure more ocean community data are available to more users.
2. Convene a White House Summit on NODS inviting the ocean community to explore future areas of collaboration.
3. Ensure social science data collection is done in partnership with the ocean community.
4. Identify gaps and barriers to the integration of data, including data from marginalized and underrepresented communities, and develop strategies and partnerships to address missing data and information.
5. Evaluate, adjust, and implement funding and partnership mechanisms designed to build capacity across the ocean community to ensure long term engagement with the NODS.
6. Establish policies that respect and systematize Tribal data sovereignty and public engagement requirements across federal agencies.

Goal #3: Rapidly advance and maximize public access and usability of ocean data

Data accessibility and dissemination should be creatively designed to ensure just and equitable decision-making within the ocean community.

1. Evaluate and implement innovations and derivative products that rapidly advance the usability of data for the ocean community.
2. Develop and support innovative approaches, such as artificial intelligence and data analytics to rapidly in-fill missing data and data types in conjunction with data providers and ocean communities.
3. Evaluate current federal policies that require those outside of government to pay to share and store data federally.
4. Engage non-traditional ocean agencies, such as the Department of Treasury, to explore tax incentives and other policies that support industry sharing data with the federal government, especially if industry (e.g., offshore wind developers; case study two) are required to cover the upfront cost of data storage.

CASE STUDIES

- Case studies are included as examples of implementation pathways for the goals and draft recommendations.
- Each case study references specific goals.
- Please note that these are only examples, and serve as discussion points for the suite of potential implementation pathways that OPC might consider around the NODS.

CASE STUDY 1: USGS 3D Elevation Program (3DEP) an example of coordinated data collection and distribution/access successfully achieving its goals

- The USGS 3D Elevation Program (3DEP) initiative is accelerating the rate of three-dimensional (3D) elevation data collection in response to a call for action to address a wide range of nationally urgent needs, such as flood risk management, agriculture and precision farming, infrastructure and construction management, natural resource management and conservation, and geologic resource assessment and hazard mitigation.
- This coordinated data collection case study links directly to the ORAP draft recommendations in Goals 1 and 2 as well as 3.1, 3.2, and 3.3.
- This case study is presented as an example of federal leadership in bringing many partners together to meet demands of many users.

CASE STUDY 2: Offshore Wind

Offshore wind offers a direct example of the current challenge with our current ocean data infrastructure, including industry partnerships, rapidly emerging technologies, large volumes of data, and multiple levels of partnerships.

The offshore wind case study links directly to the ORAP draft recommendations in Goal 1 as well as 2.1, 2.5, 3.1, and 3.6.

- **PROBLEM STATEMENT:** The current federal ocean data infrastructure has not been strategically structured to accommodate the increasing volume of data and information from offshore wind development, research, and monitoring.
- **CHALLENGES:** Existing and new ocean uses are changing and range from commercial fishing and shipping to offshore aquaculture and wind to marine carbon dioxide removal. Ocean data collection that informs management and regulatory requirements to ensure protection of biodiversity are also accelerating. New and emerging technologies have made ocean data acquisition faster and cheaper than ever before.
- **OPPORTUNITIES:** The multi-sector partnership and work within the Regional Wildlife Science Collaborative for Offshore Wind (RWSC) offer a framework to systematically address data challenges by data type and many of the recommendations outlined in the Goals for a NODS. RWSC includes federal agencies, Atlantic coast states, offshore wind companies, and environmental nonprofits.

CASE STUDY 3: Indigenous Knowledge, Indigenous science, ancestral technologies, and issues of data sovereignty

Incorporation of Indigenous knowledge and science, ancestral technologies, and issues of data sovereignty are a direct example of the current challenges of ensuring FAIR and CARE principles in incentivising public-private partnerships that also includes accessibility and dissemination across multiple levels of ocean data users. The Indigenous case study links directly to the ORAP draft recommendations in Goals 1 and 2 as well as 3.1 and 3.3.

- **PROBLEM STATEMENT:** The White House has made a commitment to elevating Indigenous Knowledge in federal policy decisions (2021). Federal agencies (e.g., NOAA and others) have yet to determine clear mechanisms to honor and protect Indigenous data sovereignty within the context of their data management systems.
- **CHALLENGES:** Beyond the dearth of mechanisms to honor and protect Indigenous data sovereignty, the different ways of knowing, valuing, and relating to ocean and coastal environments poses a challenge for the inclusion of Indigenous Knowledge and the establishment of data sovereignty agreements.
- **OPPORTUNITIES:** NOAA is attempting to engage in the issues and so is the [Imila-alpa Commitments](#) (2024). The Imila-alpa Commitments document is a product of the second Cross-Pacific Indigenous exchange facilitated by NOAA's Office of National Marine Sanctuaries (ONMS) in April 2024.

CLOSING REMARKS

- A NODS developed in partnership across ocean communities positions the United States to maximize the many opportunities and mitigate the emerging challenges associated with the economic, environmental, and national security dimensions of our oceans, coasts, and Great Lakes.
- Consistent long term investment needs should be highlighted in annual Presidential Budgets and supported by agency leadership. The OMB should direct agencies to evaluate and prioritize improving data infrastructure within current budget priorities and agency missions.
- The ORAP stands ready to provide additional detail on the recommendations as well as assist on initial steps for NODS development.