

Charge to Reviewers

NOAA Ocean Exploration: Program Review
NOAA Silver Spring Campus Building #3
9 & 10 October 2024

Purpose of the Review

The National Oceanic and Atmospheric Administration (NOAA) Office of Oceanic and Atmospheric Research (OAR) conducts comprehensive Program reviews every five years. These reviews are designed to evaluate the quality, relevance, and performance of the R&D activities conducted by the various Laboratories and Programs within OAR. These reviews offer a valuable opportunity to consider how well NOAA's programs meet the emerging scientific and management challenges of a complex mission space.

Scope of the Review

This review will consider the past five years of NOAA Ocean Exploration's program activities, with a focus on three critical areas: **1) The development of a coordinated national program of ocean exploration; 2) The promotion of technological innovations and applications, and 3) The promotion of public understanding and engagement with ocean exploration topics.**

Background

NOAA Ocean Exploration and Research serves as the nation's leading entity dedicated to exploring the vast and largely uncharted deep ocean. This mission is critical to addressing the strategic needs of the United States, as the ocean plays a pivotal role in regulating climate, supporting biodiversity, and driving economic growth through the emerging New Blue Economy.

Over the past two decades, NOAA Ocean Exploration has evolved to meet the challenges of deep-sea exploration by leveraging cutting-edge technologies, fostering robust partnerships, and ensuring that the data collected are accessible and actionable for a wide range of stakeholders. The program's strategic plan for FY 2023-2027 emphasizes systematic exploration, technological innovation, and the integration of diverse perspectives to strengthen the program's impact. NOAA Ocean Exploration's expeditions conducted aboard the NOAA Ship *Okeanos Explorer* and other vessels are designed to fill critical gaps in our understanding of the deep ocean and to provide high-quality data that supports NOAA's broader mission of science, service, and stewardship.

NOAA Ocean Exploration's work is not just about exploration; it's about making exploration meaningful. The program collaborates extensively with federal agencies, state and Tribal governments, private industry, academia, Indigenous communities, and nonprofit organizations to ensure that exploration efforts are comprehensive and inclusive.

This collaboration is guided by a commitment to developing community consensus standards, advancing technological capabilities, and expanding the use of telepresence to enhance the

accessibility and impact of ocean exploration. The Program places a strong emphasis on public engagement and education, recognizing the importance of inspiring the next generation of ocean explorers. Through innovative outreach initiatives, NOAA Ocean Exploration seeks to raise awareness about the ocean's role in our lives and to foster a greater appreciation for the importance of ocean exploration.

As NOAA Ocean Exploration looks toward the future, its strategic goals reflect a commitment to expanding exploration capacity, strengthening partnerships, driving technological innovation, and fostering a diverse and inclusive ocean exploration community. This review will assess how effectively NOAA Ocean Exploration has pursued its mission goals and how it can continue to lead in the dynamic and increasingly vital field of ocean exploration.

Information for Reviewers

Reviewers for this Program Review will be members of the Ocean Exploration Advisory Board (OEAB). Each reviewer is expected to independently prepare written evaluations of at least one identified activity area. These evaluations will be compiled and analyzed by the Board, with oversight by the OEAB Chair, Dr. Vickie Ferrini. The findings and recommendations will be consolidated into a summary report, which will serve as a critical input for NOAA Ocean Exploration's strategic planning and operational adjustments.

Background References

Reviewers are encouraged to use the following reference documents to inform their evaluations:

1. [**33 USC Ch. 47: OCEAN EXPLORATION**](#): This statutory framework provides the legal basis for NOAA's ocean exploration activities. It is essential to understand how the program adheres to these legal requirements and advances the nation's exploration goals.
2. [**Public Law No. 117-263 \(FY23 NDAA\), Title CIII—National Ocean Exploration**](#): This legislation reauthorized NOAA's ocean exploration program (above), and also: authorized the Ocean Policy Committee under OSTP and CEQ; established the National Ocean Mapping, Exploration, and Characterization Council, repealed the National Undersea Research Program (previously merged with OER in 2009); modified NOAA's ocean and coastal mapping program; and modified the Hydrographic Services Improvement Act of 1998. Of these items, the creation of the NOME Council holds the most relevance for the OEAB.
3. [**NOAA Ocean Exploration's FY 23-27 Strategic Plan**](#): This strategic plan details NOAA Ocean Exploration's goals for systematic exploration, technological innovation, and public engagement. Reviewers should evaluate the program's progress in achieving these goals and its alignment with broader NOAA objectives.
4. [**OAR Strategy 2020-2026**](#): This document outlines OAR's overarching goals will help contextualize NOAA Ocean Exploration's contributions to NOAA's mission. Reviewers should consider how the program supports OAR's strategic initiatives and contributes to the broader scientific and policy-making community.
5. [**NOAA FY22-26 Strategic Plan**](#): This document outlines NOAA's goals to enhance climate resilience, improve the economy and public health, strengthen the nation's

environmental data and services, and advance understanding and stewardship of ocean and coastal resources, while emphasizing innovation, equity, and partnerships.

6. **[NOMECE Implementation Plan](#)**: This plan is crucial for understanding the broader national strategy for mapping, exploring, and characterizing the U.S. EEZ. Reviewers should consider how NOAA Ocean Exploration's activities support the systematic and coordinated efforts outlined in NOMECE.
7. **[FY2020 OER Review Summary Report](#)**: This is the summary report from the previous NOAA Ocean Exploration program review, conducted in October 2019, which evaluated the program's activities over the prior five year period and provided key findings and recommendations to guide the program's future development and effectiveness.
8. **[FY 20 OER Program Review Response](#)**: This document provides insights into NOAA Ocean Exploration's response to the FY2020 program reviews. It is important to consider how the program has addressed past recommendations and what progress has been made since the last review.

General Guidance

Reviewers should focus on how NOAA Ocean Exploration can enhance its impact and adapt to emerging challenges in ocean exploration. The Program Review will be organized around three evaluation criteria:

- **QUALITY**: Assessing how well NOAA Ocean Exploration's initiatives maintain high standards of accuracy, reliability, and operational excellence while ensuring that their outputs are scientifically sound and accessible to diverse audiences.
- **RELEVANCE**: Assessing how well NOAA Ocean Exploration's activities align with strategic goals and meet the needs of stakeholders
- **PERFORMANCE**: Assessing how effectively and efficiently NOAA Ocean Exploration's activities are organized, managed, and executed.

Considerations for Reviewers:

1. **Preparation:**
 - **Familiarize with Key Documents**: Thoroughly reviewing the foundational documents provided,
 - **Review Past Recommendations**: Examine the outcomes and recommendations from previous reviews to assess how past feedback has been addressed and what challenges or improvements remain.
 - **Set Clear Evaluation Goals**: Define what you aim to achieve in your evaluation, focusing on areas where your expertise can provide the most value.
2. **Evaluation Process:**
 - **Ask Questions**: Be inquisitive and challenge assumptions. Actively seek clarification and push for deeper understanding to ensure a rigorous evaluation.
 - **Consider Long-Term Impact**: Evaluate not only immediate outcomes but also the potential long-term effects of NOAA Ocean Exploration's activities on the broader ocean exploration community and national priorities.
 - **Focus on Outcomes**: Assess whether the program has led to measurable improvements and met diverse stakeholder needs..

- **Collaborate with Fellow Reviewers:** Engage in discussions with other reviewers to gain diverse perspectives, share insights, and ensure a well-rounded assessment.
 - **Document Your Process:** Keep detailed notes on your evaluation process, including your reasoning for each assessment and any additional questions or concerns that arise.
3. **Reporting:**
- **Highlight Key Findings:** Clearly identify and emphasize the most significant insights and observations from your evaluation, ensuring they are easy to locate and understand in your report.
 - **Prioritize Recommendations:** Organize your recommendations by priority, indicating which actions are most critical for NOAA Ocean Exploration to address in the short and long term.
 - **Be Clear and Concise:** Ensure your report is straightforward and to the point, avoiding unnecessary jargon or overly complex language to make your findings and recommendations easily actionable.
 - **Provide Constructive Feedback:** Frame your recommendations in a way that is solution-oriented, offering practical steps that NOAA Ocean Exploration can take to improve.

Ethical Considerations:

- **Objectivity:** Maintain objectivity throughout the review process, focusing on the merits of NOAA Ocean Exploration's activities and their alignment with strategic goals. Avoid letting personal biases influence your evaluation.
- **Confidentiality:** Respect the confidentiality of the review process. Do not share any materials or findings outside the review team without proper authorization.
- **Constructive Criticism:** Provide feedback that is constructive and actionable. The goal is to help NOAA Ocean Exploration improve and adapt to future challenges, so your evaluations should be forward-thinking and solution-oriented.

Schedule and Time Commitment: The review will take place on October 9th and 10th, 2024, at the NOAA Silver Spring Campus. Reviewers should ensure they have thoroughly prepared in advance by reviewing all materials and drafting preliminary notes. After the on-site review, final evaluations should be submitted by **December 2, 2024**.

Description of NOAA Ocean Exploration Activity Areas

The program review will center around three primary areas of focus. These areas are integral to NOAA Ocean Exploration's mission and are designed to ensure that the program effectively contributes to the broader goals of ocean exploration, technological advancement, and public engagement. Your evaluation should consider how NOAA Ocean Exploration's activities within these areas align with the program's strategic objectives and how they position the program to meet future challenges and opportunities.

Focus Area #1: Ensuring a Coordinated Program of National Ocean Exploration

Evaluate NOAA Ocean Exploration's efforts to encourage and coordinate a national program that effectively integrates and aligns the diverse activities of ocean exploration across federal agencies, academic institutions, industry partners, and other stakeholders. Assess how the program's operations, including campaign planning and stakeholder engagement, contribute to the broader NOMECS goals of mapping, exploration, and characterization of the U.S. Exclusive Economic Zone (EEZ). Consider the program's success in developing and implementing shared standards and best practices that enhance the coherence, efficiency, and impact of national ocean exploration efforts.

Quality Criteria may include:

- **Coordination of Shared Exploration Objectives:** Assess how well NOAA Ocean Exploration has led efforts to coordinate and integrate exploration activities across various stakeholders, ensuring alignment with the Nation's ocean exploration goals.
- **Operational Excellence:** Evaluate the effectiveness of the program in establishing and maintaining high operational standards through shared Standard Operating Procedures (SOPs) and best practices, contributing to a unified national exploration effort.
- **Data Integration and Management:** Reflect on how well has NOAA Ocean Exploration managed ocean data as a strategic asset; ensuring that these data are high-quality, accessible, and preserved for long-term scientific and public use.

Relevance criteria may include:

- **Alignment with Strategic Goals:** How well have NOAA Ocean Exploration's activities aligned with and supported the strategic goals and measures of success outlined in national and agency-level strategies, particularly in addressing key strategic guidance(i.e. NOMECS, NOAA, and the OER strategy).
- **Stakeholder Engagement and Service to the National Community:** Consider how successfully NOAA Ocean Exploration has engaged multi-sector and multi-disciplinary stakeholders to address national and international initiatives that advance ocean exploration.

Performance criteria may include:

- **Metrics of Success:** Assess the metrics NOAA Ocean Exploration has used to evaluate the effectiveness of multi-jurisdictional multi-sector exploration initiatives.
- **Impact on Ocean Exploration:** Reflect on the tangible impacts that a coordinated national program on ocean exploration has had on the state of ocean exploration, particularly in terms of advancing scientific understanding and operational capabilities.

Focus Area #2: Advancing Technological Innovation in Ocean Exploration

Examine NOAA Ocean Exploration's role in driving technological advancements in ocean exploration, including the development, testing, and deployment of new tools and systems. Evaluate how effectively the program has identified and integrated emerging technologies that meet current and future exploration needs and how these innovations have improved operational efficiency and research outcomes.

Quality criteria may include:

- **Identifying the Opportunities for Investment:** Consider how effectively has NOAA Ocean Exploration identified promising new technologies, platforms, and data management tools for support (i.e. unding, staff time, ship time, etc...)
- **Video Data Integration and Management:** Consider NOAA Ocean Exploration's approach to developing technologies and tools for integrating and managing large-scale video data from ocean exploration activities.

Relevance criteria may include:

- **Alignment with Research and Operational Needs:** Consider how technological innovations have been aligned with the most pressing challenges and requirements among the ocean exploration community.
- **Revolutionizing Data Collection:** Assess how well NOAA Ocean Exploration's investments in emerging technologies have contributed to the improved collection and processing of ocean exploration data, particularly in improving efficiency, accuracy, and the ability to analyze data in real-time.

Performance criteria may include:

- **High-Risk, High-Reward Technological Innovation:** Assess how well NOAA Ocean Exploration invested in high-risk, high-reward technologies, and how well has the program managed the balance between the risks of these innovations and their potential to achieve transformative breakthroughs in ocean exploration.
- **Enhancements to Operational Capabilities:** Reflect on how well NOAA Ocean Exploration's investments in advanced technologies have improved the program's operational capabilities, and to what extent have these enhancements enabled the achievement of key exploration and research goals, while also driving innovation across the broader ocean exploration community.

Focus Area #3: Enhancing Public Engagement and Education

Assess the effectiveness of NOAA Ocean Explorations outreach strategies, educational programs, and partnerships in enhancing public understanding of ocean science. Consider how these efforts align with NOAA's strategic goals of promoting diversity, equity, inclusion, and accessibility (DEIA), with a particular focus on expanding opportunities for underrepresented

groups through early career initiatives, internships, and educational grants. Reflect on the program's success in using innovative storytelling, accessible content, and targeted outreach to inspire and inform the public, fostering broader support for ocean exploration and stewardship.

Quality criteria may include:

- **Educational Content and Outreach:** Consider how effectively NOAA Ocean Exploration's Education Program has developed and delivered high-value educational content while being accessible, engaging, and tailored to the needs of students, educators, and the general public.
- **Engagement with Diverse Communities:** Evaluate how well NOAA Ocean Exploration has tailored its outreach efforts to engage and support historically underrepresented communities.

Relevance criteria may include:

- **Inclusive Educational Strategies:** Consider how effectively NOAA Ocean Exploration's educational strategies have engaged audiences with varying levels of scientific literacy, ensuring that content is accessible, inclusive, and relevant to all, particularly underserved communities.
- **Collaborative Partnerships:** Reflect on how well collaborations with educational institutions, non-profits, and industry partners have enhanced the reach, effectiveness, and DEIA objectives of NOAA Ocean Exploration's public engagement.

Performance criteria may include:

- **Impact of Educational Programs:** Consider how effectively has NOAA Ocean Exploration measured and demonstrated the impact of its educational programs on public awareness, understanding, and behaviors related to ocean science and conservation.
- **Success of Early Career Initiatives:** Evaluate how successful have NOAA Ocean Exploration's early career opportunities, internships, and professional development programs been in advancing DEIA and fostering a more inclusive and diverse ocean science workforce.

Notes and Comments Worksheet

Functional Area #1: Ensuring a National Program of Ocean Exploration
Reviewer:
QUALITY (<i>Assessing how well NOAA Ocean Exploration's initiatives maintain high standards of accuracy, reliability, and operational excellence while ensuring that their outputs are scientifically sound and accessible to diverse audiences.</i>)
Comments and observations/findings:
RELEVANCE: (<i>Assessing how well NOAA Ocean Exploration's activities align with strategic goals and meet the needs of stakeholders.</i>)
Comments and observations/findings:
PERFORMANCE: (<i>Assessing how effectively and efficiently NOAA Ocean Exploration's activities are organized, managed, and executed.</i>)
Comments and observations/findings:
Recommendations for Activity Area #1: n: Ensuring a National Program of Ocean Exploration (Please provide specific, actionable recommendations based on your observations/findings)

Activity Area #2: Technology: Development, Application, and Program Use
Reviewer:
QUALITY:
Comments and observations/findings:
RELEVANCE:
Comments and observations/findings:
PERFORMANCE:
Comments and observations/findings:
Recommendations for Activity Area #2: Technology: Development, Application, and Program Use: (Please provide specific, actionable recommendations based on your observations/findings)

Activity Area #3: Public Engagement and Education

Reviewer:

QUALITY:

Comments and observations/findings:

RELEVANCE:

Comments and observations/findings:

PERFORMANCE:

Comments and observations/findings:

Recommendations for Activity Area #3: Public Engagement and Education (Please provide specific, actionable recommendations based on your observations/findings)

Reviewer Feedback Worksheet – Additional Comments and Feedback on the Review Process

Reviewer:
Additional comments for OAR or NOAA Ocean Exploration
Additional comments and suggestions on conduct of the review for use in future program reviews Please help OAR improve our program review process by telling us what worked well and did not work well throughout the process. What information provided was especially useful or not useful in your evaluations? What additional information would have helped you in your evaluation? What information could have been omitted without impacting the quality of your review?

1.