NOMEC 2024 PROGRESS

NOMEC Council Updates

In 2024, the NOMEC Council and its Interagency Working Groups on Ocean and Coastal Mapping (IWG-OCM) and Ocean Exploration and Characterization (IWG-OEC) continued to support and coordinate Federal and non-Federal mapping, exploration, and characterization activities across U.S. coastal, ocean, and Great Lakes waters. Over the last year, we made substantial progress on and published several reports, supporting NOMEC milestones to maintain the NOMEC Implementation Plan (Obj. 1.2) and the Standard Ocean Mapping Protocol (Obj. 2.1), coordinate and execute mapping campaigns (Obj. 2.2), and identify strategic exploration and characterization priorities (Obj. 3.1). The Council has also bolstered Federal coordination (Obj. 1.1) through development of strategic synergies with other Interagency Working Groups (IWGs), non-Federal opportunities (Obj. 5.1) with collaborative funding mechanisms, and cross-sector (Obj. 5.2) and public (Obj. 5.3) engagement by continuing to support and help stand up new regional campaigns critical to achieving national efforts and engagements with private industry and the public to advance technological development (Obj. 4.2), regional initiatives, and updated national priorities. The relative effort made towards the milestones for each of these Objectives has been quantified and displayed in Figure 1.

Reports

1) Implementation Plan Update for the NOMEC Strategy

In December 2024, the NOMEC Council published the Implementation Plan Update for the National Strategy for Ocean Mapping, Exploring, and Characterizing the United States Exclusive Economic Zone. This updated Implementation Plan reflects lessons learned from the broader mapping, exploration, and characterization (MEC) community and highlights accomplishments made by the NOMEC Council and its IWGs since 2021. However, major challenges, such as the vast area involved, still exist in mapping the entirety of U.S. waters and exploring and characterizing priority areas. To overcome these obstacles and reach long-term goals, the NOMEC Council will prioritize coordination efforts within and between Federal and non-Federal partners for MEC activities, technological development, and collaborative funding mechanisms, expand support for regional campaigns and joint institutes, and increase public outreach.

2) 2025 Progress Report on Unmapped U.S. Waters

The IWG-OCM released the sixth annual Progress Report on Unmapped U.S. Waters in March 2025. Pulling from publicly available bathymetry data, the report presents progress toward filling basic seafloor and lake floor mapping gaps. Notably, this 2025 report includes the U.S. continental shelf extended beyond the 200-nautical mile exclusive economic zone (EEZ), which the United States proclaimed in December 2023 (88 FR 88470). This action expanded the area of interest for mapping from 3,590,600 to 3,878,700 square nautical miles. With these new areas included, 71,500 square nautical miles of new bathymetric data coverage were added to public archives in 2024, reducing the unmapped waters of the United States from 48% to 46%. As in previous years, more progress was made in areas with active regional campaigns focused on facilitating collaborative data acquisition and sharing. However, to reach long-term NOMEC Strategy mapping goals, these activities must be accelerated. For the latest report and to track progress, visit https://iocm.noaa.gov/seabed-2030-status.html.

3) IWG-OCM Standard Ocean Mapping Protocol

Following a public comment period in 2023, the IWG-OCM published the Standard Ocean Mapping Protocol (SOMP) in April 2024, which is used to inform NOMEC mapping procedures, priorities, and activities. This will facilitate data access, minimize duplicative mapping efforts, and maximize the efficient collection, processing, publishing, and stewardship of ocean and coastal mapping data into public archives. Meant to be a living document, a writing team is currently updating the SOMP with a section incorporating satellite-derived bathymetry. Comments and feedback are always welcome and can be directed to iwgocm.staff@noaa.gov.

4) IWG-OEC Strategic Priorities for Ocean Exploration and Characterization in the Pacific Islands within United States Waters

Building on the Strategic Priorities for Ocean Exploration and Characterization of the United States Exclusive Economic Zone, the IWG-OEC is identifying ocean exploration and characterization priorities in the Pacific Islands within U.S. waters 40 meters and deeper. Seventy-seven Federal experts representing 14 agencies formed five subgroups (benthic ecology, cultural heritage, non-living marine resources, seafloor hazards, and water column) and submitted thematic and geographic areas where data collection efforts should be prioritized. A Federal Register notice invited additional input from non-Federal entities. The Strategic Priorities for Ocean Exploration and Characterization in the Pacific Islands within United States Waters report is expected to be released in 2025 after further review.

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Outreach and Engagement:

1) Engagements with Interagency Working Groups (IWGs) and coordinating bodies

Throughout 2024, the NOMEC Council engaged with other Federal IWGs and member agencies with complementary goals and priorities to serve the U.S. public with high quality ocean data. The Council strategized bolstering the status of the Federal research fleet and access to the ocean for provisioning public goods and services with the IWG on Facilities and Infrastructure and laid groundwork for collaborating on data acquisition and storage and technology development for environmental DNA collections and ocean biodiversity measurements with the IWG on Biodiversity.

2) Hosted a town hall at the 2024 Ocean Sciences Meeting (February 2024)

IWG-OEC and NOMEC hosted a town hall at the Ocean Sciences Meeting in New Orleans, Louisiana. This town hall focused on discussions of NOMEC and IWG-OEC goals and priorities, importance of regional campaigns, academic collaboration for ocean exploration and characterization efforts, data standards and best practices, and habitat classification standards (e.g., CMECS).

3) Presented at the Lakebed 2030 annual meeting (September 2024)

IWG-OCM and NOMEC were involved with hosting and presenting at the 5th annual Lakebed 2030 Conference in Traverse City, Michigan. Involvement included a panel and keynote highlighting the value of high-resolution mapping for the Great Lakes, as well as presentations on a US-Canada Hydrographic Commission pilot project to develop a binational Bathymetry Coverage Report tool, NOAA Office of Coast Survey hydrographic surveys, benthic habitat mapping, and NOAA's new Center of Excellence for Operational Ocean and Great Lakes Mapping.

4) Hosted a town hall at the MTS/IEEE Oceans 2024 conference (September 2024)

IWG-OEC and NOMEC hosted a town hall at the Marine Technology Society OCEANS Conference in Halifax, Nova Scotia. Building upon the 2022 Strategic Priorities for Ocean Exploration and Characterization of the U.S. Exclusive Economic Zone, discussion focused on optimizing data and sensor interoperability to leverage multi-sector and multi-disciplinary interest and investment and foster universal standards, protocols, and best practices. This venue provided space to advance collaboration between Federal agencies, academia, and private industry.

Regional Campaign Updates

Regional campaigns across the country furthered NOMEC's mission in support of several of the goals outlined in the NOMEC Strategy throughout the past year. These campaigns coordinated cross-agency (Obj.1.1) and non-Federal (Obj. 5.1) involvement in MEC activities and efforts, executed collaborative mapping campaigns (including with the use of crowd-sourced bathymetry; Obj. 2.2), explored and characterized priority areas of U.S. waters (especially with new submersibles and innovative technology; Obj. 3.3), and engaged the public through community outreach events, internship and mentorship programs, and public presentations (Obj. 5.3).

1) Beyond the Blue: Illuminating the Pacific

In 2024, NOAA Ocean Exploration kicked off the NOMEC-endorsed Beyond the Blue: Illuminating the Pacific regional campaign, focusing on the Western Pacific Islands and Territories. While not exclusively domestically focused, this campaign has already made impactful contributions to mapping, exploration, and characterization needs within U.S. watersand territories, aligning with NOMEC goals and priorities in the region. The NOAA Ship *Okeanos Explorer* conducted six deep water mapping expeditions near the main Hawaiian Islands, Papahānaumokuākea, and Johnston Atoll. This contributed approximately 73,400 square nautical miles of multibeam sonar data in previously unmapped areas deeper than 200 meters within the U.S. EEZ. Ocean Exploration Trust Exploration Vessel *Nautilus*, another partner, also mapped 7,900 square nautical miles and conducted 18 remotely operated vehicle and 10 autonomous underwater vehicle dives within the Pacific Island region of the U.S. EEZ. All included, the region moved from 47% to 44% unmapped. This campaign also hosted community outreach events, the Explorer-in-Training internship program, and student mentorship opportunities to better engage the public.

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2) Seascape Alaska
Now in its third year, the Seascape Alaska campaign spearheaded efforts to decrease unmapped waters around Alaska from 63% to 62%, adding 11,600 square nautical miles of new bathymetric data coverage. In 2024, campaign progress slowed due to unexpected repairs needed by the NOAA Ship *Fairweather*, which was slated to collect another 3,500 square nautical miles of new bathymetry, but spent the field season in drydock. Fulfilling a portion of one of *Fairweather*'s projects, NOAA, the National Science Foundation, University of New Hampshire, and the U.S. Coast Guard Cutter *Healy* collaborated on an interagency science mission in the Chukchi and Beaufort seas to map uncharted waters along the Coast Guard-proposed Arctic Port Access Route Study corridor. This route is of critical importance as the Arctic continues to warm and ice-free waters open up new commercial shipping routes. New bathymetric data coverage for 2024 was also produced from an ongoing co-funded mapping project between the U.S. Geological Survey and NOAA south of Kodiak Island, the 2023 Seascape Alaska expeditions in the Gulf of Alaska, and 2024 contracted survey work in Kotzebue Sound.

3) Lakebed 2030
Led by Northwestern Michigan College and the Great Lakes Observing System, the binational Lakebed 2030 Initiative seeks to map the entire Great Lakes lake floor, supporting the NOMEC Strategy. In 2024, the unmapped waters of the U.S. Great Lakes was reduced from 87 to 85% thanks to NOAA multibeam sonar hydrographic surveys, bathymetric lidar, and Joint Airborne Lidar Bathymetry Technical Center of Expertise lidar. In support of ramping up efforts, the annual Lakebed 2030 in-person conference was held in September, with NOMEC and IWG-OCM involvement (see above).As a result of this conference, members from U.S. Federal and State agencies, the Canadian Hydrographic Service, academic institutions, and private industry held a kickoff meeting in December to energize a more consistent campaign and began developing a new governance framework and strategy.

4) Expanding Pacific Research and Exploration of Submerged Systems (EXPRESS)
A regional collaboration between Federal (NOAA, BOEM, and USGS) and non-Federal (MBARI and USC Sea Grant) partners, the Expanding Pacific Research and Exploration of Submerged Systems (EXPRESS) campaign is helping to inform potential offshore energy and mineral resource decisions; improving management of living marine resources and habitats; and strengthening coastal resilience, including improving offshore earthquake, landslide, tsunami, and nautical hazard assessment. In 2024, NOAA Ship *Rainier* unexpectedly spent the field season in drydock for repairs, preventing new data acquisition. Despite this challenge, data from a NOAA EXPRESS West Coast Exploration expedition series in 2022-2023 became publicly available at the National Centers for Environmental Information. In total, the EXPRESS campaign added 4,100 square nautical miles of new bathymetric data, reducing the unmapped area of the West Coast from 17% to 15%.

5) Florida Coastal Mapping Program (FCMaP)
A partnership between Federal and Florida state agencies, the Florida Coastal Mapping Program (FCMaP) focuses on faAcilitating and coordinating Florida coastal seafloor data collection. Following the completion of the FCMaP deepwater (20-200m) prioritization study in 2023, the results of the effort have been published by the authors and paved the way for a Florida Seafloor Gap Analysis, which was finalized in 2024 and conducted jointly by FCMaP and the NOAA Integrated Ocean and Coastal Mapping program. All funds for the Florida Department of Enviromental Protection's Florida Seafloor Mapping Initiative lidar and sonar were designated for contract by June 2024. In addition to these efforts, FCMaP has been a long time supporter of the Center for Ocean Mapping and Innovative Technologies (COMIT), a joint institute at the University of South Florida, and has been actively involved with COMIT's crowdsourced bathymetry program, Crowd the Bay, since 2023.

For more information:

NOMEC Website | NOMEC Strategy | NOMEC 2024 Implementation Plan

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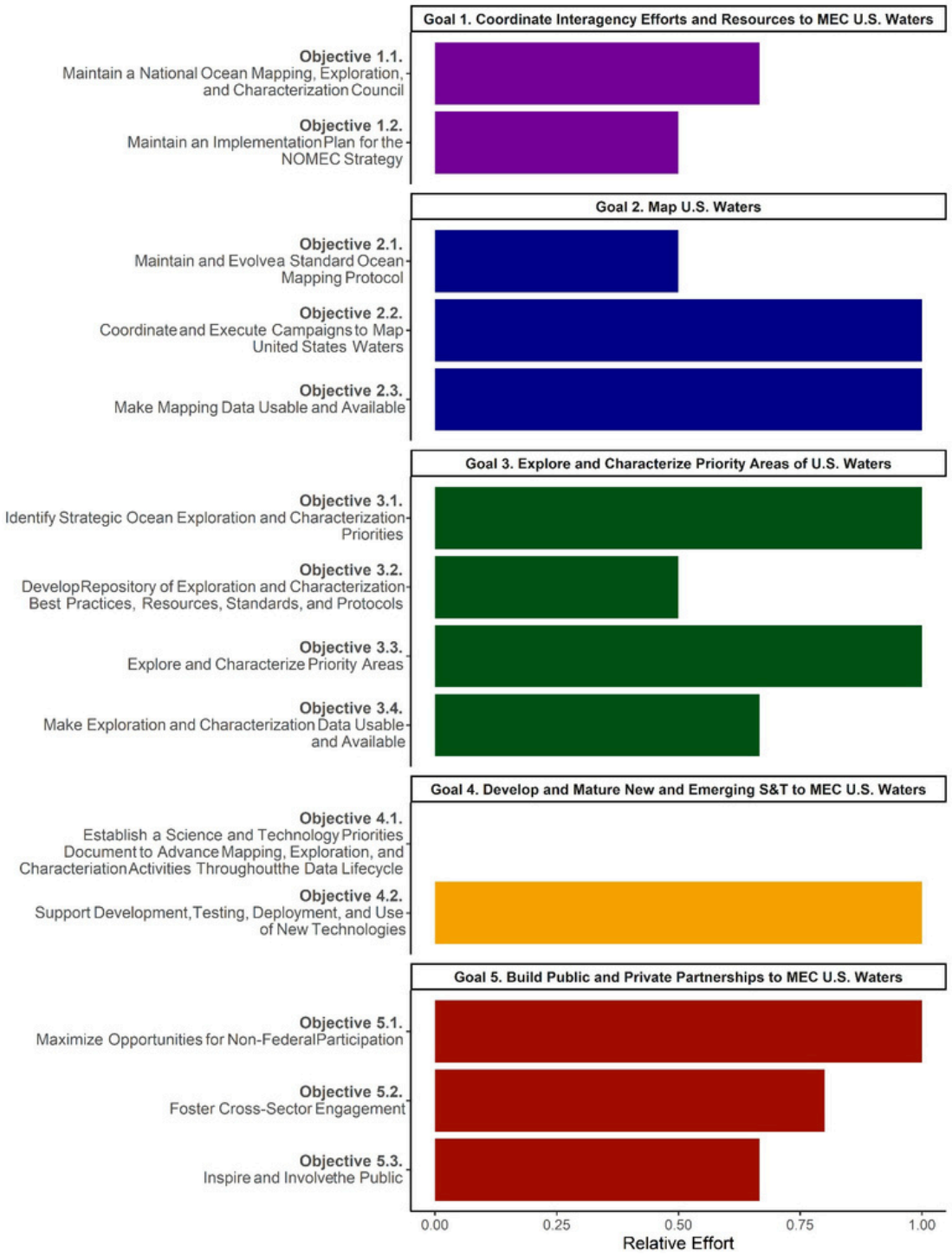

Figure 1. Relative effort supporting each objective within each goal. A binary score (0=No, 1=Yes) was assigned to each milestone to signify progress made. Relative effort was calculated by averaging the progress metrics for all of the milestones within each objective. **Note:** Progress metrics are based on the updated objectives and milestones of the 2024 Update to the Implementation Plan for the NOMEC Strategy, which was published at the end of this reporting period. Therefore, some updated objectives (e.g., Obj. 4.1) have no progress to report for 2024. Abbreviations: Mapping, Exploration, and Characterization (MEC), Science and Technology (S&T).