



BOEM BUREAU OF OCEAN
ENERGY MANAGEMENT

Deep-Sea Research ~FY25 Recap

Deep Submergence Science Committee (DeSSC)

Annual Community Meeting

December 14, 2025

Dr. Shannon Cofield | Marine Minerals Program, BOEM

Bureau of Ocean Energy Management (BOEM) Overview

BOEM Overview

Research

Emerging Technology



BOEM Mission: Manage development of U.S. Outer Continental Shelf (OCS) energy, mineral, and geological resources in an environmentally and economically responsible way.

Authority delegated by Outer Continental Shelf Lands Act (OCSLA)

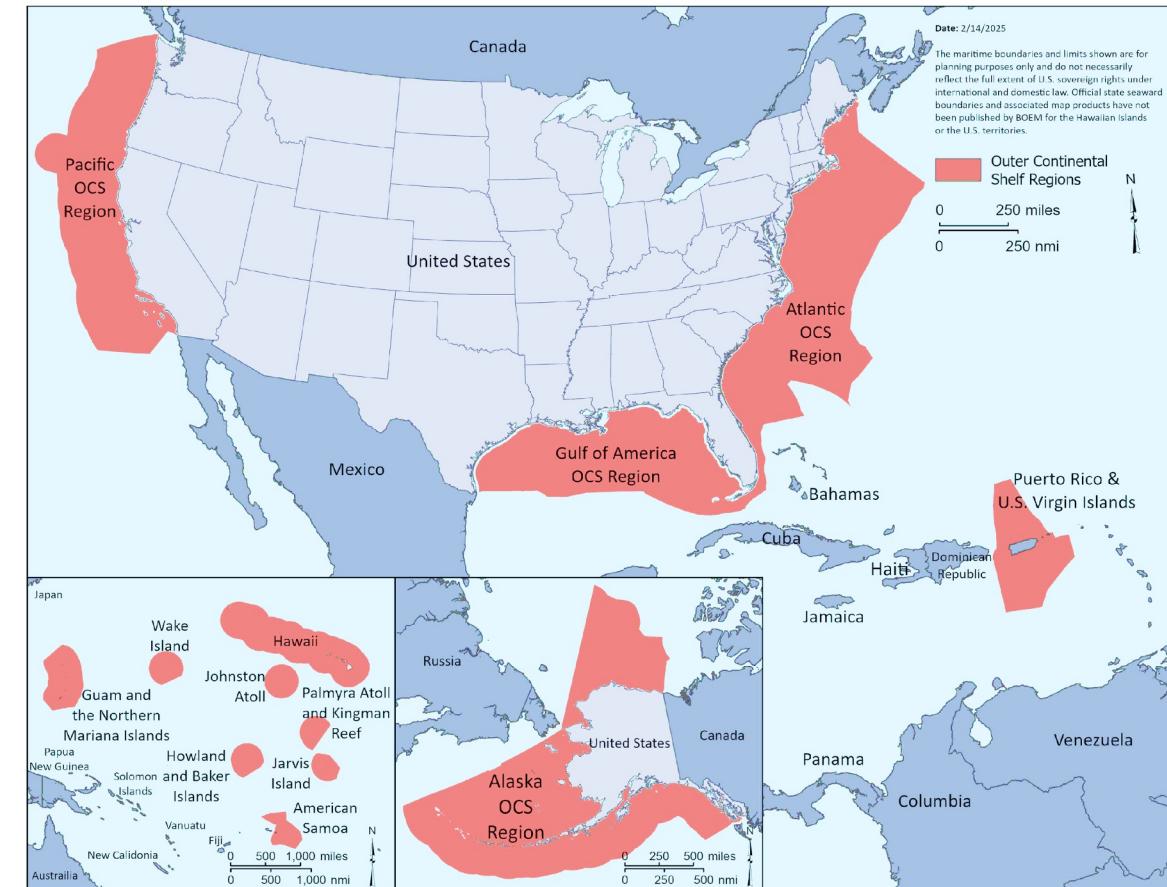
BOEM Program Areas

Environment

Oil and Gas Energy

Marine Minerals

Renewable Energy



U.S. OCS

Area = 3,169,210,000 acres
(~ 5.0 million mi² or ~ 12.8 million km²)



BOEM

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BOEM FY25 Deep Sea Research

BOEM Overview | Research | Emerging Technology

- Deep-sea research guided by data gaps, community needs, executive orders, regulatory activities (i.e., Requests for Information)
- Increased interest in deep sea: critical minerals and associated environments
- BOEM leverages partnerships across the federal government, state agencies, academia, and industry
- FY25 Research Recap:
 - Common objectives: investigating deep-sea critical minerals and associated environments

*American Samoa	E/V <i>Nautilus</i>	AUV <i>Sentry</i> & ROV <i>Hercules</i>	Mapping and Hi-Res Imagery
*Aleutian Islands, Alaska	R/V <i>Atlantis</i>	HOV <i>Alvin</i>	Mapping, <i>Alvin</i> sampling, CTD
*Hawai'i	R/V <i>Kilo Moana</i>	-	Box core sampling, CTD
BOEM-NOAA National Academy of Sciences	Desktop Study	-	Identifying data gaps/ future studies

* Follow-on from previous expedition



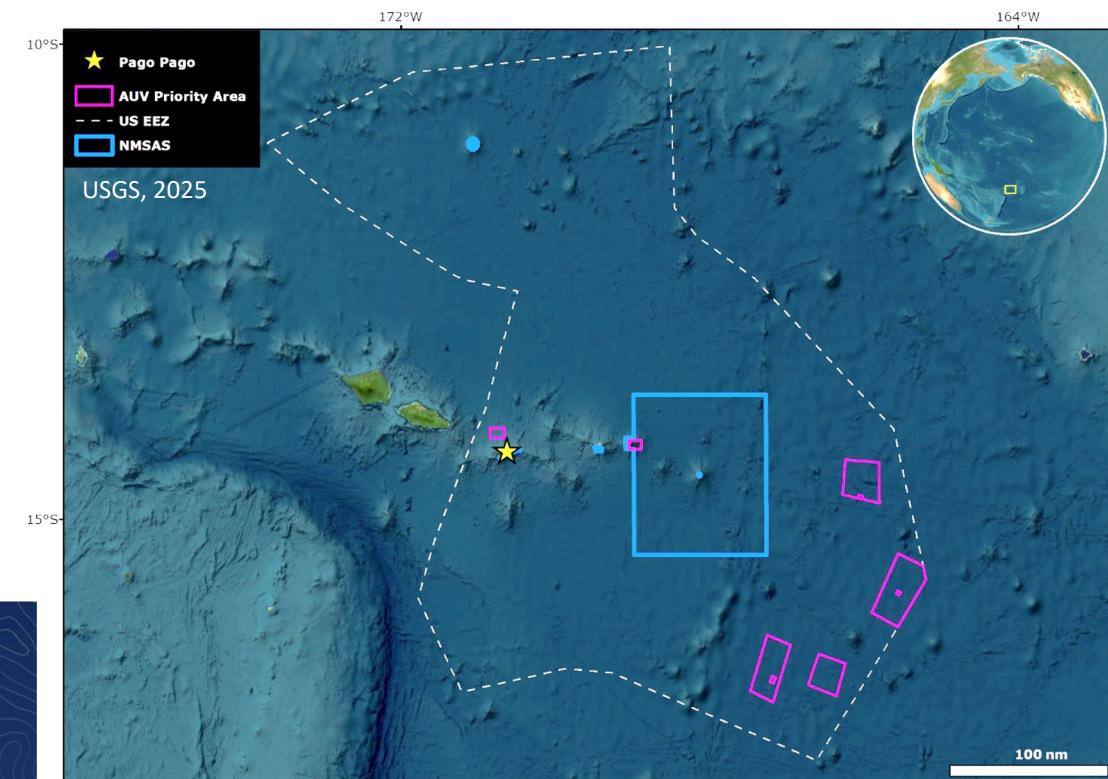
American Samoa- E/V *Nautilus* (NA 165), Sep 2024

- Partners

- NOAA Ocean Exploration Cooperative Institute (OECI), Ocean Exploration Trust (OET); U.S. Geological Survey (USGS); et al.

- Data

- Still/ video imagery (AUV *Sentry*/ ROV *Hercules*)
- High-resolution sonar/mapping data
- Biologic, geologic, eDNA
- [Expedition page \(& summary report with data access\)](#)

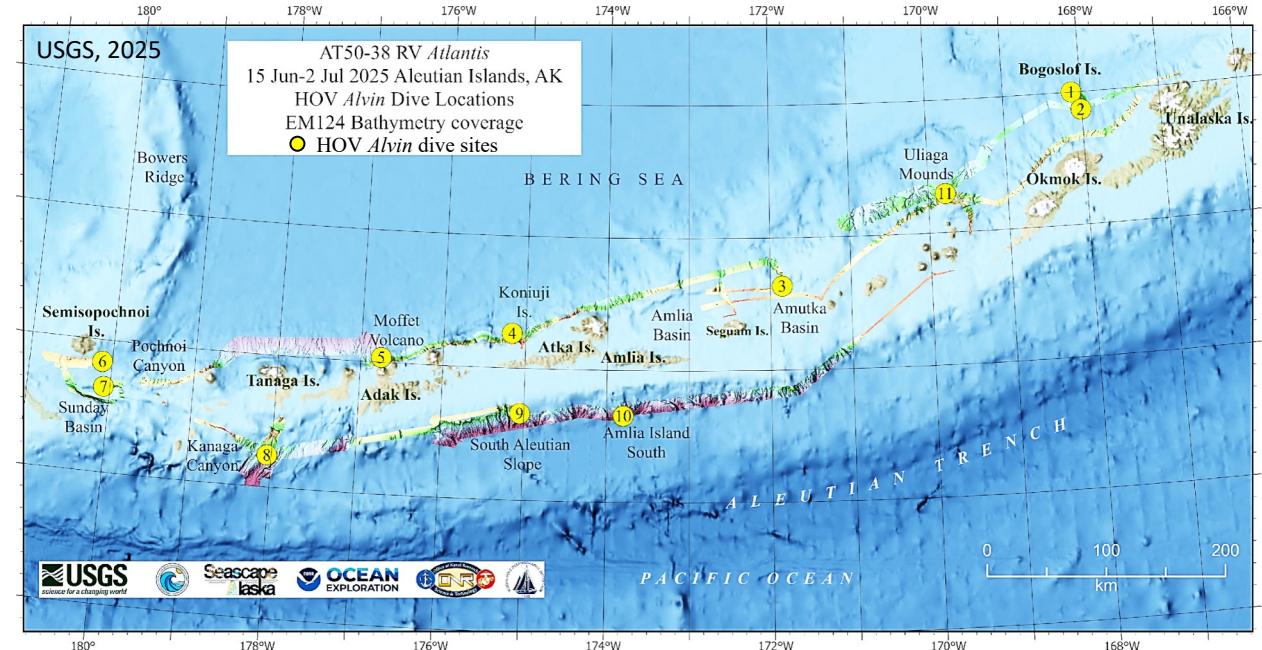


BOEM FY25 Deep Sea Research

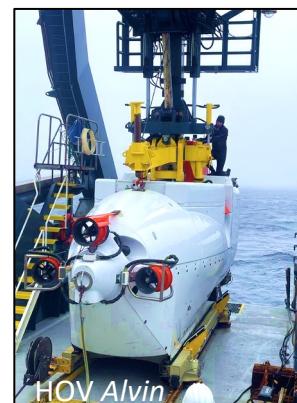
BOEM Overview | Research | Emerging Technology

Aleutian Islands, Alaska- R/V *Atlantis* (AT50-38), Jun-Jul 2025

- Partners
 - USGS-led; NOAA OECI; Office of Naval Research, WHOI, et al.
- Data
 - Mapping
 - (11) HOV *Alvin* dives (biologic, geologic, eDNA)
 - CTD (water column and radium)
 - [USGS expedition page](#)
 - [NOAA expedition page](#)
 - Final Report: ~April 2026



35 days at sea
3,631 km sailed
3,068 km mapped
18,103 km² mapped
7,192 km² newly mapped
8.5 km HOV *Alvin* distance on bottom



Photos courtesy of The Aleutian Arc: Integrated Exploration of Biodiversity at Priority Benthic Habitats. and USGS/BOEM/NOAA/ONR



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BOEM Overview | Research | Emerging Technology

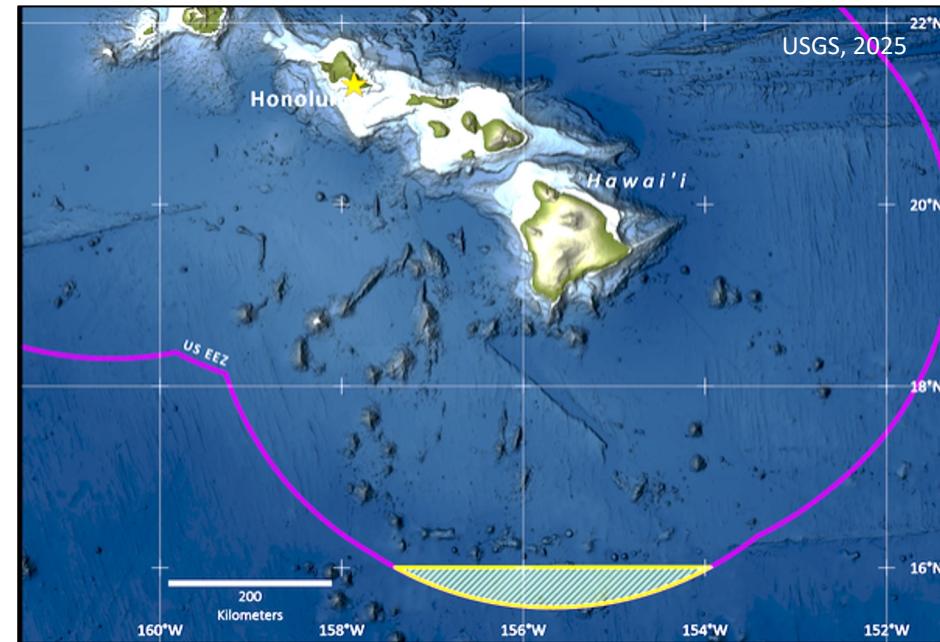
Hawai'i- R/V *Kilo Moana* (KM25-09), Oct-Nov 2025

- Partners

- USGS-led; U of Hawai'i-Mānoa; Japan Agency for Marine-Earth Science and Technology (JAMSTEC); et al.

- Data

- Box coring (geologic, biologic)
- CTD (water column, eDNA, imagery)
- [USGS expedition page](#)
- Final Report: In progress



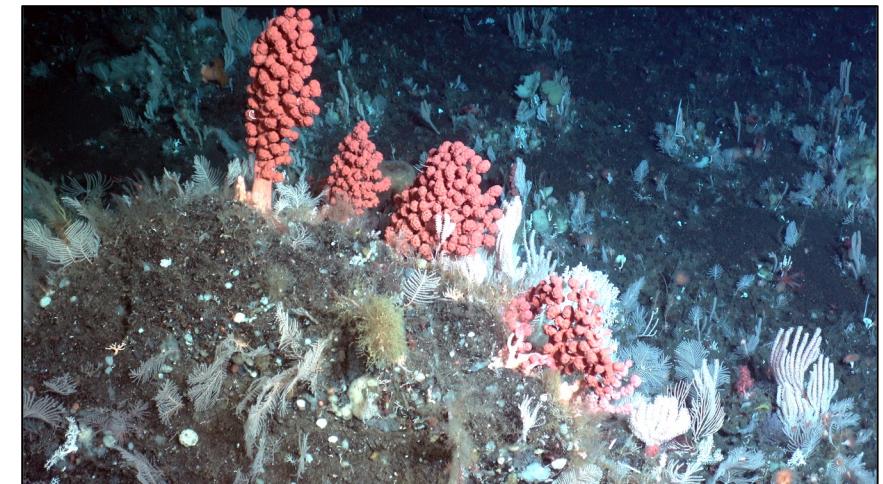
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National Academy of Sciences (NASEM) Desktop Study



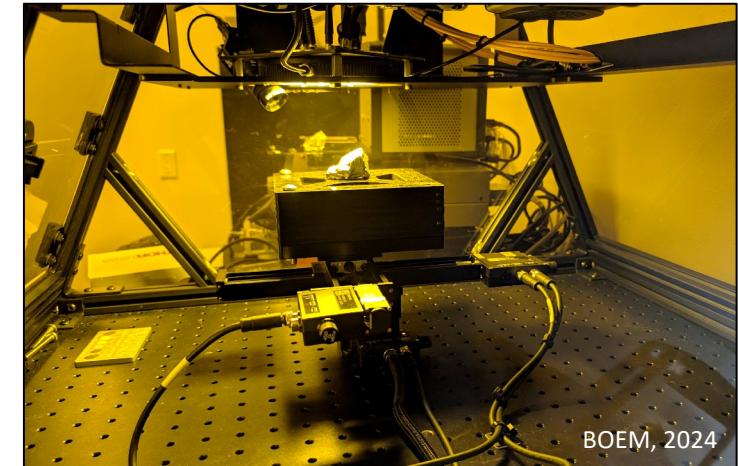
- Co-Partner
 - NOAA
- Deliverables
 - Developing a Critical Minerals Environmental Assessment Framework (CMEAF) for critical minerals activities
 - Environmental impacts
 - Social, cultural, and economic impacts
- Status
 - Committee selection complete
 - Final Report: ~Jan 2027



Amanda Demopoulos, USGS; NOAA Ocean Exploration, ONR, NOPP, BOEM, NOAA IOCM, USGS, © Woods Hole Oceanographic Institution

VIPER (Varifocal *In-situ* Prospector for Environment and Resources)

- Background
 - Impossible Sensing
 - Small Business Innovation Research (SBIR) Acquisition
 - *in situ* spectrometer for deep-sea minerals (LIBS and Ramen adapted from NASA-JPL Curiosity and Perseverance rovers)
- Status
 - Collecting mineral spectra data at SETI Institute



Increased interest from deep-sea industries

- In response to recent Executive Orders (i.e., [EO 14285](#) “Unleashing America's Offshore Critical Minerals and Resources”), increased industry interest for deep-sea technology testing and mineral exploration/ analysis

BOEM FY26 Sneak Peek

Blake Plateau

- Under moratorium until 2032; mining tests in 1970s (tracks still present)
- Opportunity to study long-term impacts on deep-sea environments
- Sampling
 - 10-day expedition
 - ROV geologic and biologic sampling
 - CTD (water column, particulate organic matter)
- Status
 - Upcoming; award in progress
 - Expedition ~Summer 2026

+ several more in the works- stay tuned!

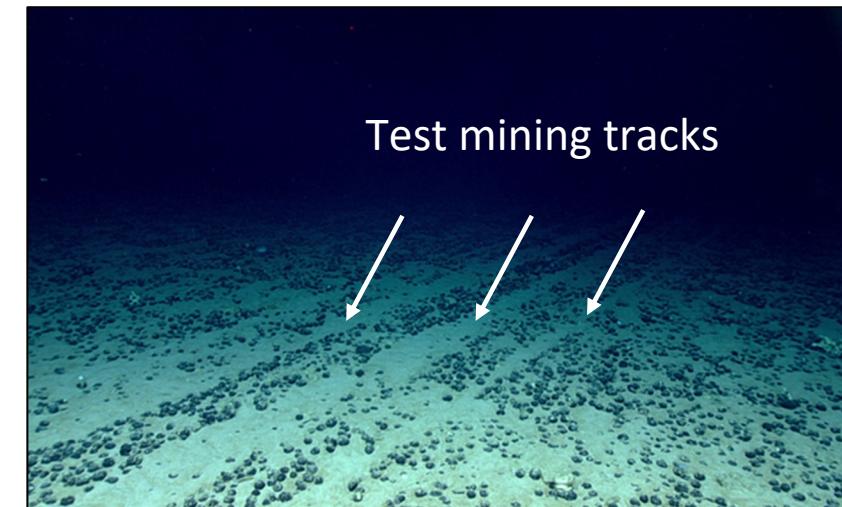
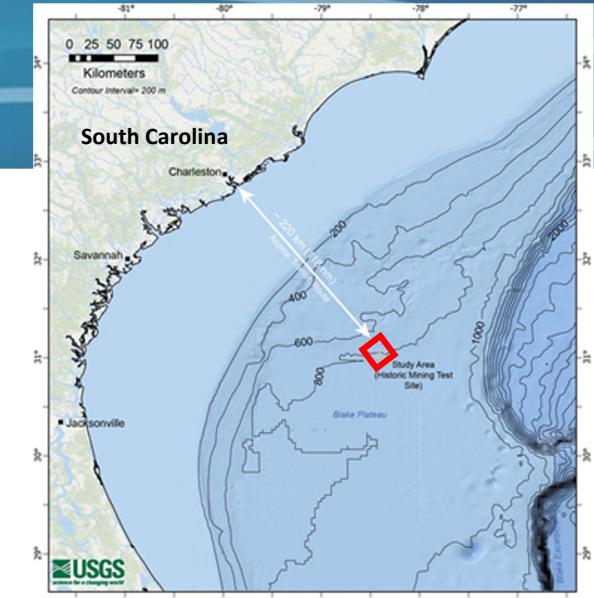


Image courtesy of the NOAA Office of Ocean Exploration and Research, 2019 Southeastern U.S. Deep-sea Exploration.



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