BOEM Bureau of Ocean Energy Management

Minerals and Ecosystems of the Remote Pacific

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On behalf of the Marine Minerals Program and the Pacific OCS Regional Office

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BOEM Information Needs

- Mineral (MMP/Pacific funds) and environmental (ESP funds) data in areas of anticipated seabed mining interest
- Initial characterization of habitats associated with critical mineral deposits
- Inform required analyses of potential impacts
- Help refine USGS prospectivity models to identify potential resources


IFREMER

PICOC Summary

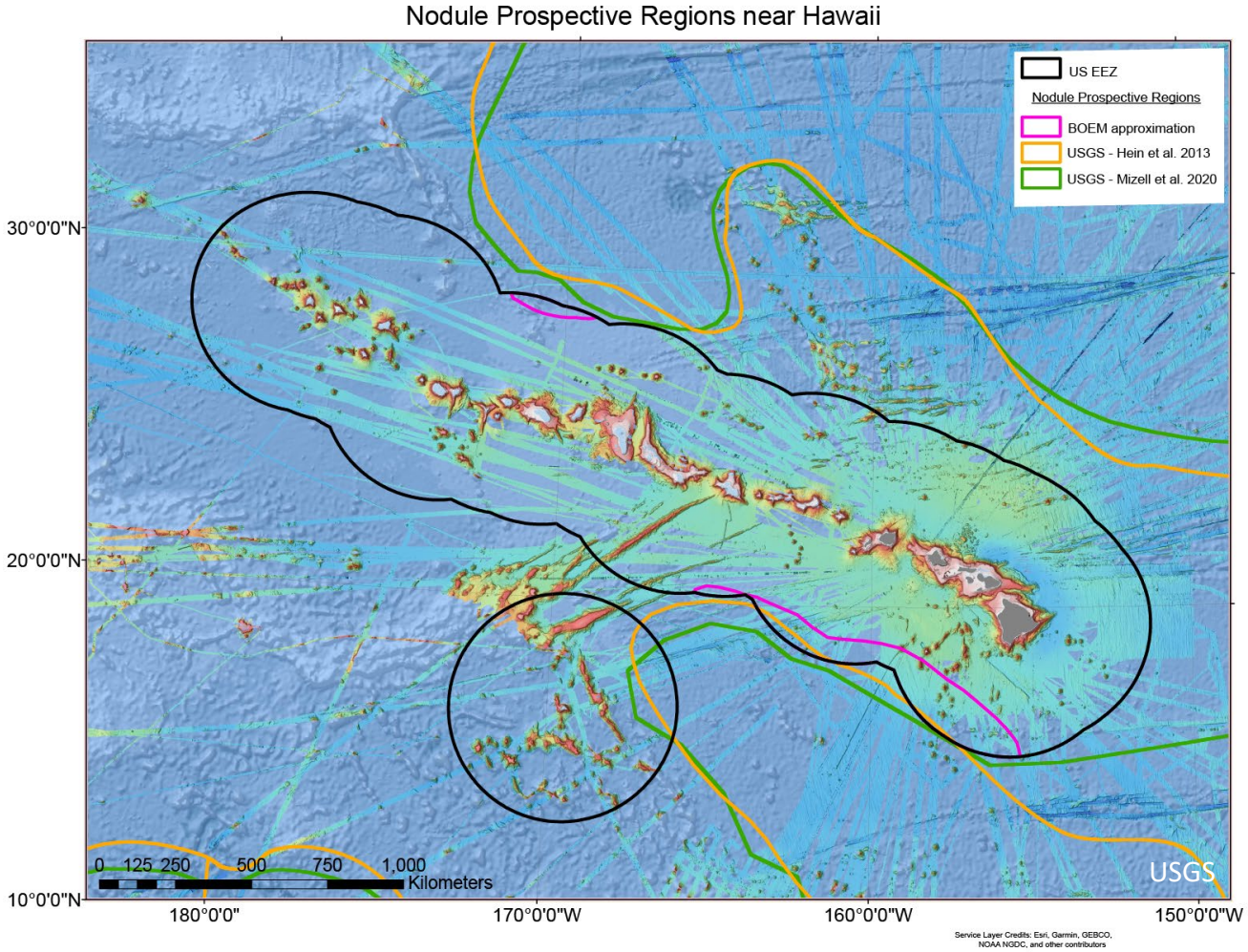
Problem	Southern extent of the Hawaii EEZ has potential for nodule resources and very limited data
Intervention	Add environmental component to a MMP/Pacific Region-funded resource evaluation cruise led by USGS – CTD, boxcore, and potential AUV operations
Comparison	Provide necessary information for required environmental analyses, support future BOEM decision-making
Outcome	Essential environmental data on habitats associated with critical mineral deposits
Context	U.S. EEZ south of the Hawaiian Islands, other areas in the U.S. EEZ anticipated to have high critical mineral resource potential

Background

- Polymetallic nodules on abyssal plains south of the Hawaiian Islands – adjacent to Clarion-Clipperton Fracture Zone
- Ni, Cu, Co, Mn
- MMP and Pacific Region are co-funding a USGS-led resource evaluation expedition – approximately $1.7M total
- Additionally, funding 'opportunistic' expeditions to areas of likely resource potential

Background

- BOEM has no active planning/leasing for critical minerals but there may be in the future
- Proactive steps towards collecting resource and environmental info in tandem - focus on areas of likely economic potential
- Need environmental data for analysis of environmental impacts and possible cumulative effects
- Deep-sea work is logistically complex and costly



Study Objectives

- Add an environmental characterization complement to multiple high-priority areas for critical minerals
  - Southern extent of Hawaii EEZ
  - 2 TBD 'opportunistic' cruises
- Specific ESP funding to
  - Measure environmental parameters (e.g., DO, turbidity, pH) to assess the oceanographic regime associated with critical mineral occurrences
  - Characterize the diversity and distribution of associated biological communities, including any sensitive or important habitats

Methods

MMP funding will provide vessel, boxcore, autonomous underwater vehicle (AUV), and resource assessment expertise.

- CTD – water column profiling
- Boxcore – physical sediment samples for geological and biological analyses
- AUV* – sensor suite for high-res mapping and oceanographic measurements

ESP funding sought to:

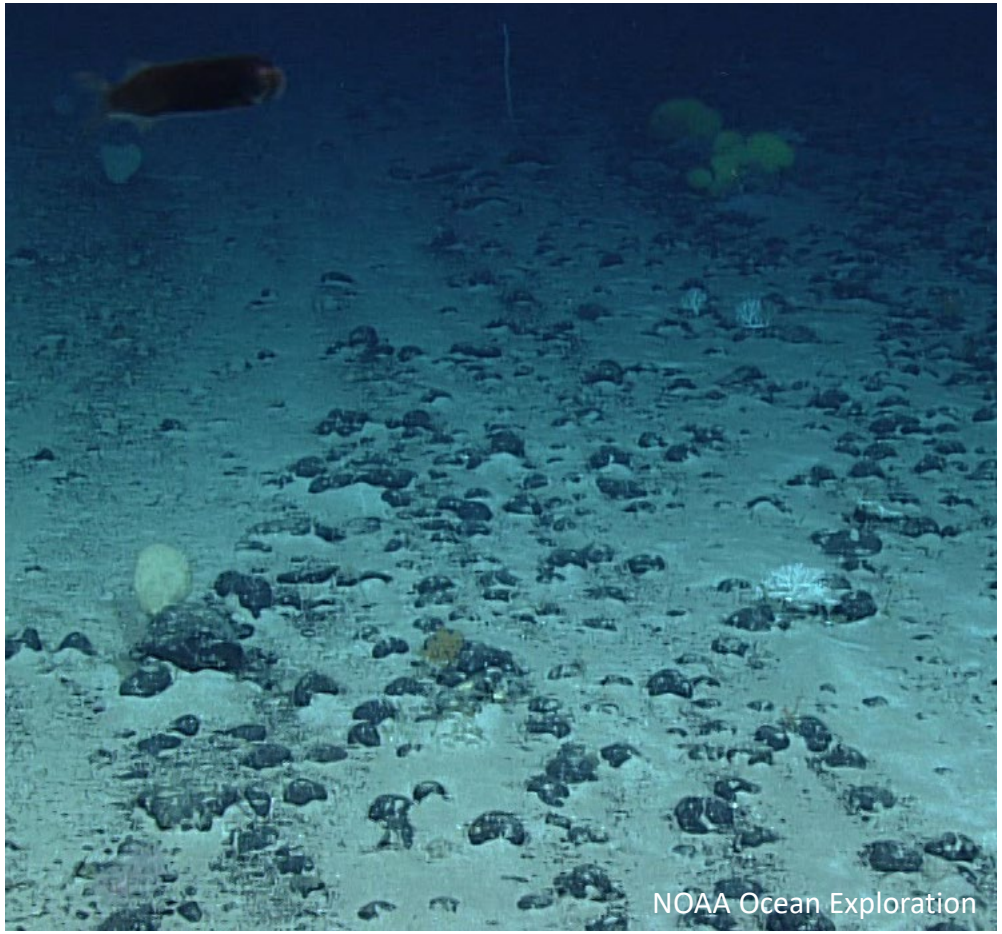
1) leverage assets for environmental work
2) provide necessary environmental expertise

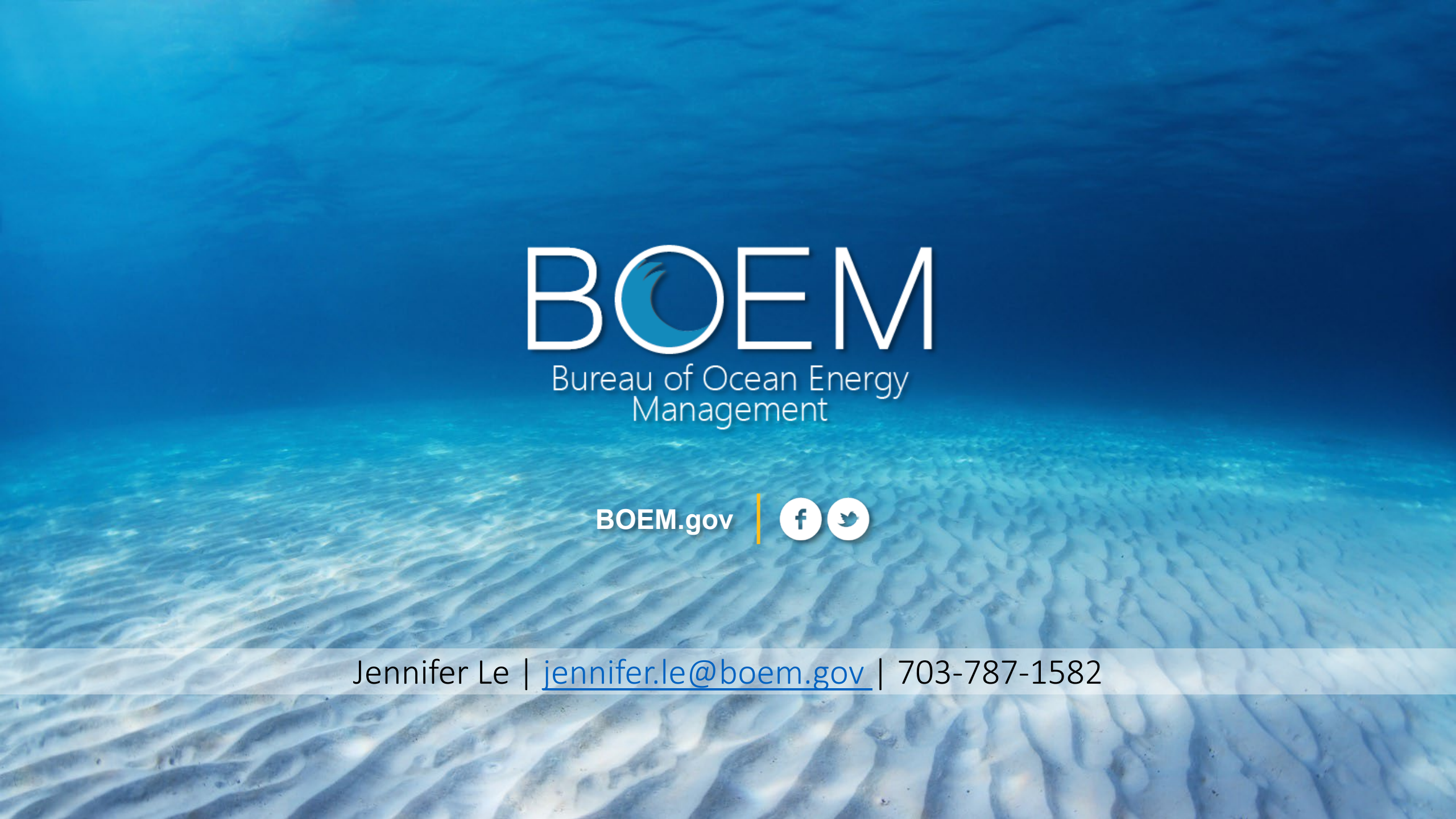

NOAA Ocean Exploration

*not confirmed for opportunistic cruises

Research Questions

1. What physical features exist throughout the nodule field, or other critical mineral occurrence?
2. What are the environmental characteristics of the nodule field?
3. What are the diversity, abundance, and distribution of the biological community, including infauna? Are there indicator taxa and/or sensitive habitat, e.g., corals, sponges?


NOAA Ocean Exploration



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