

COBRA: A research accelerator for the crustal ocean biosphere

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Bigelow

Laboratory for
Ocean Sciences



WOODS HOLE
OCEANOGRAPHIC
INSTITUTION

Crustal Ocean Biosphere Research Accelerator a new *virtual* “network of networks”

Launched October 1 2021

5-year program

<http://cobra.bigelow.org>



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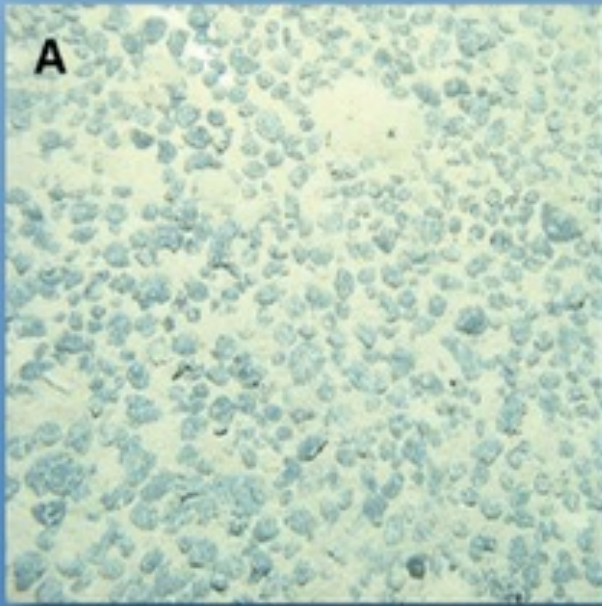
Geoff Wheat



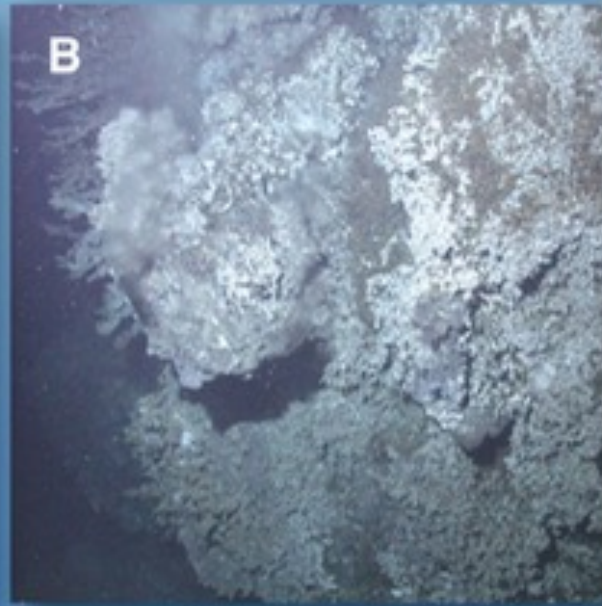
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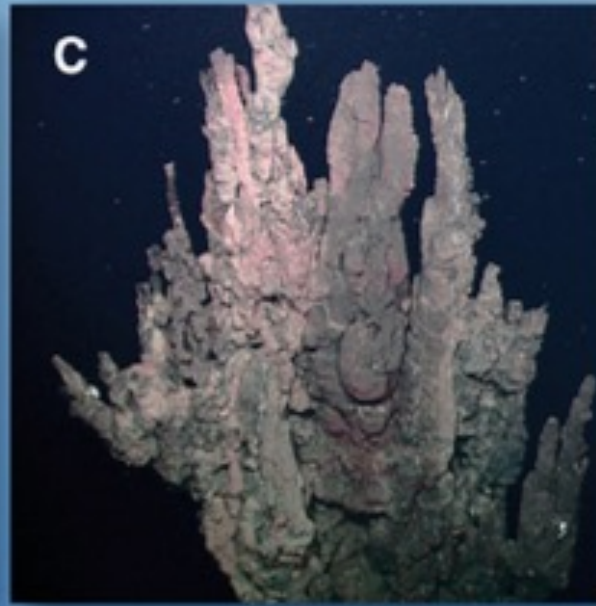
Crustal Ocean Habitats



A
Ferromanganese
Nodules



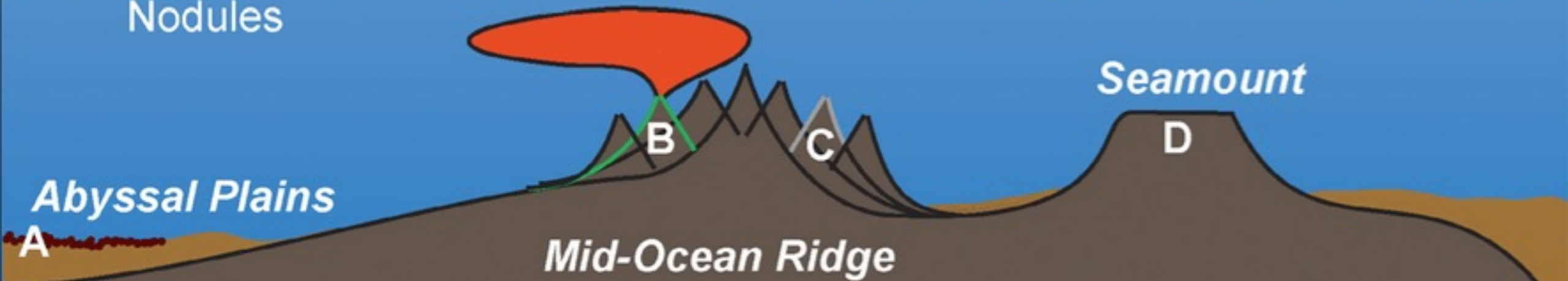
B
Active Sulfides



C
Inactive Sulfides



D
Cobalt Crusts



Ecosystem Services

PROVISIONING

- Primary production
- Genetic resources

SUPPORTING

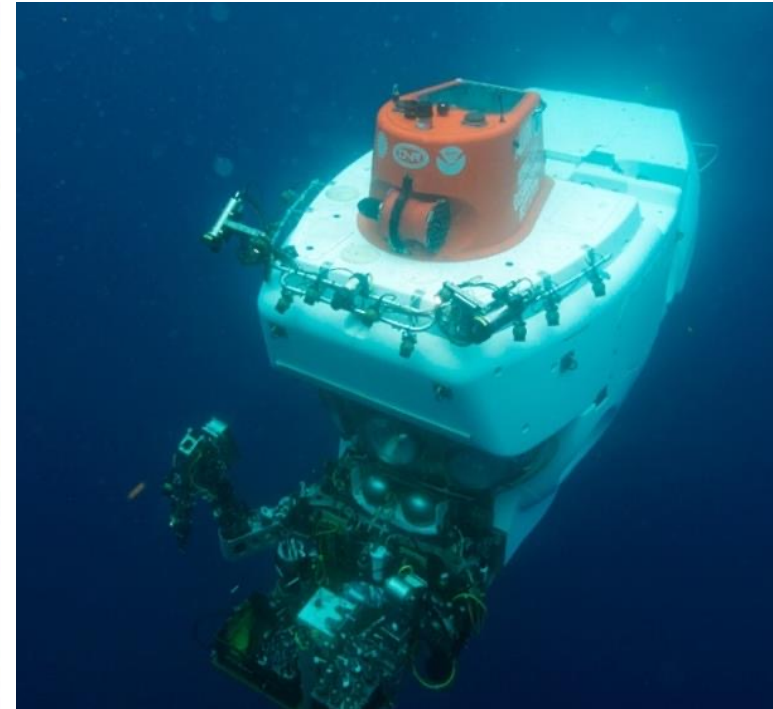
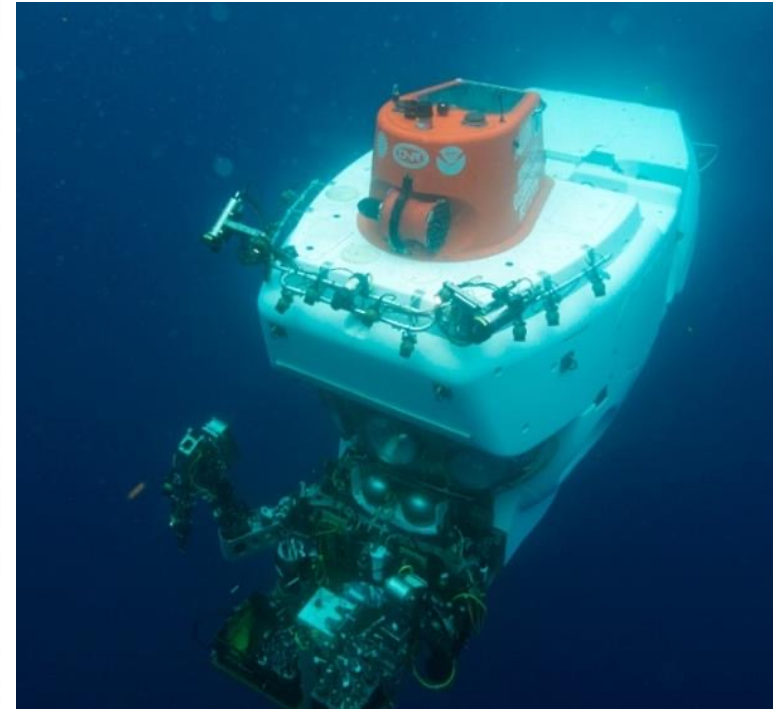
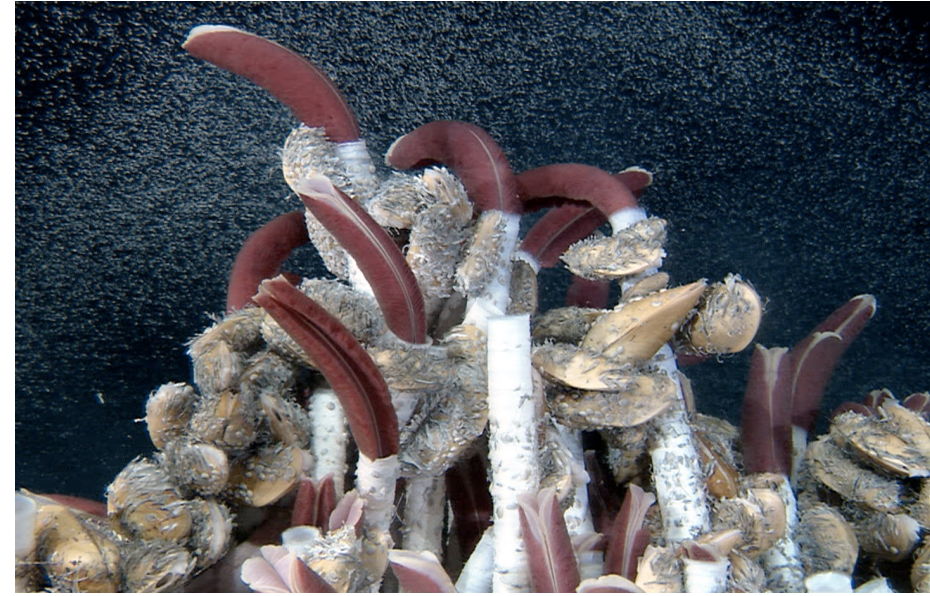
- Nutrient & metal cycling
- Animal habitat & symbioses

REGULATING

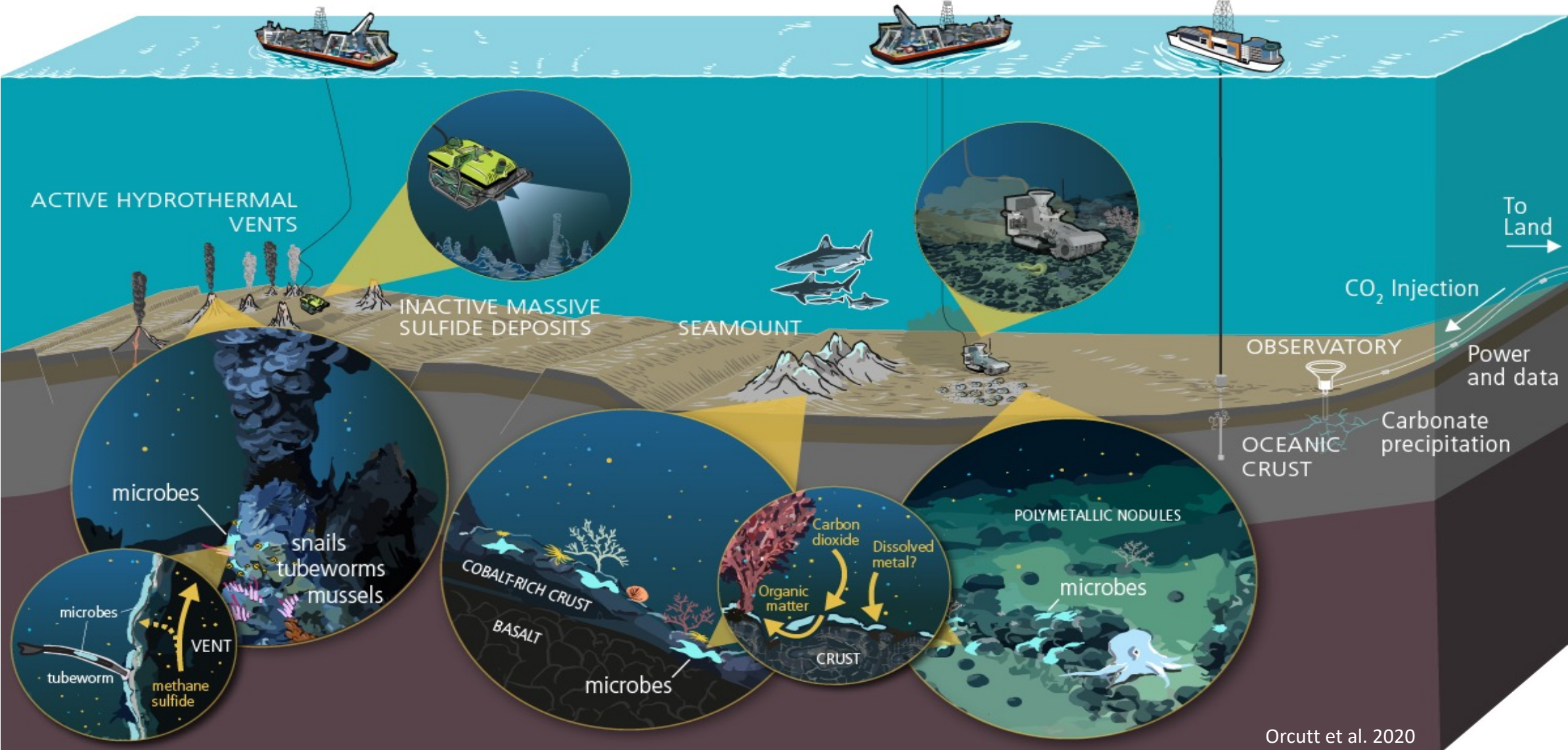
- Waste remediation
- Carbon sequestration

CULTURAL

- Habitat cultural & educational value
- Basis of scientific research value



Emergent human uses



What do we need to do NOW?

- Measure the services of crustal ocean biosphere provided to humanity, so that they can be valued
- Determine resilience to perturbation
- Determine cost-effective strategies to provide early warning to prevent serious harm
- Expand the field of deep-sea scientists & stakeholders
- Engage stakeholders from science, industry, policy, etc.

Initial Partnerships & Networks



UNIVERSITY OF BERGEN
Center for Deep Sea Research



Cluster of Excellence
Ocean Floor



Global Marine
Minerals Project



What will COBRA do?

Mission: Accelerate research on the structure, function, resilience and ecosystem services of the crustal ocean biosphere to inform decision making

COORDINATE

research of the crustal ocean biosphere

ACCELERATE

characterization of the crustal ocean biosphere

TRANSLATE

findings for policy-makers & industry

TRAIN

future ocean leaders & stakeholders

What will COBRA do?

Mission: Accelerate research on the structure, function, resilience and ecosystem services of the crustal ocean biosphere to inform decision making

COORDINATE

research of the crustal ocean biosphere

- Annual virtual symposia
- Quarterly annual workshops
- Special conference sessions/townhalls
- Newsletter

What will COBRA do?

Mission: Accelerate research on the structure, function, resilience and ecosystem services of the crustal ocean biosphere to inform decision making

- Use virtual meetings for synthesis & developing new opportunities
- Leverage telepresence expeditions
- ECR research exchanges

ACCELERATE

characterization of the crustal ocean biosphere

What will COBRA do?

Mission: Accelerate research on the structure, function, resilience and ecosystem services of the crustal ocean biosphere to inform decision making

TRANSLATE

findings for policy-makers & industry

- Support development of white papers, policy briefs
- Support attendance at policy meetings
- Coordinate meetings/info sessions with policy makers

What will COBRA do?

Mission: Accelerate research on the structure, function, resilience and ecosystem services of the crustal ocean biosphere to inform decision making

- Annual “how to” paid trainings for ECR with telepresence partners, with focus on how to make deep-ocean access more equitable
- Peer-to-peer mentoring
- ECR on Executive Committee

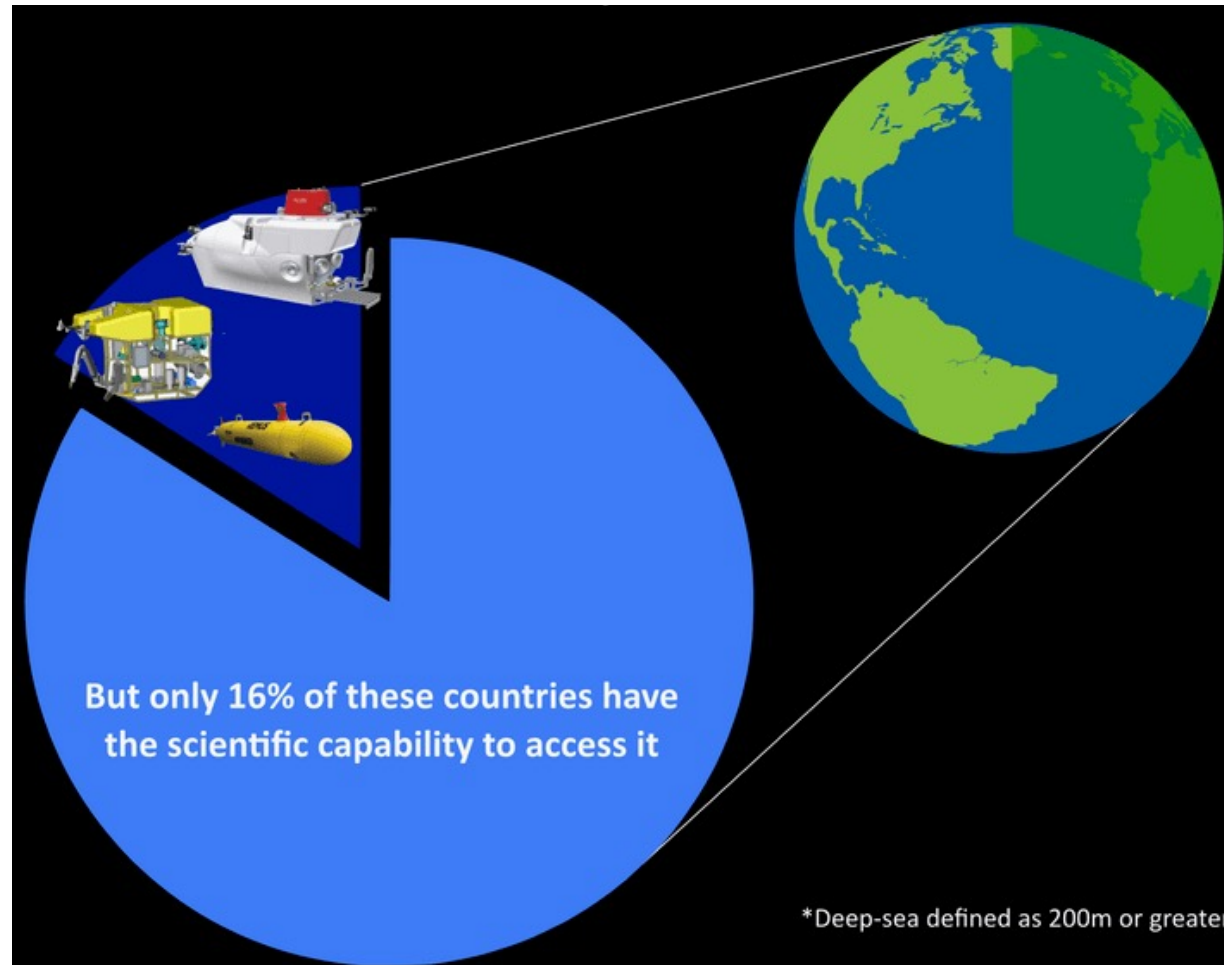
TRAIN

future ocean leaders & stakeholders

98% of the ocean is considered 'deep sea'

70% of countries have a deep sea within their EEZ (>200m depth)

Only **16%** have **access for scientific study**



COBRA Deep-Sea Expedition Planning MASTER CLASS

Goal: to empower **early career researchers*** with the skills and tools to successfully design, propose, and execute deep-sea oceanographic field research that informs policy making and is effectively collaborative, just, equitable, diverse, and inclusive

*ECR = senior graduate students, postdocs, junior faculty & professionals

COBRA Deep-Sea Expedition Planning MASTER CLASS

10 week VIRTUAL training program | March – May 2022:
each week has recorded lectures + one 2 hour
synchronous discussion section + short assignments

Learn from experts on how to plan and run an expedition
from start to finish while interfacing with an expedition of
the E/V *Nautilus* of the Ocean Exploration Trust

\$2,000 stipend; open to international participants

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JOIN US!

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