



PRESS BRIEFING:
**Overhaul to take
Human Occupied
Vehicle Alvin to
greater extremes**

Thursday, 10 December
1:00 pm US Eastern Time

AGU FALL
MEETING

SHAPING
THE FUTURE
OF SCIENCE

PANELISTS

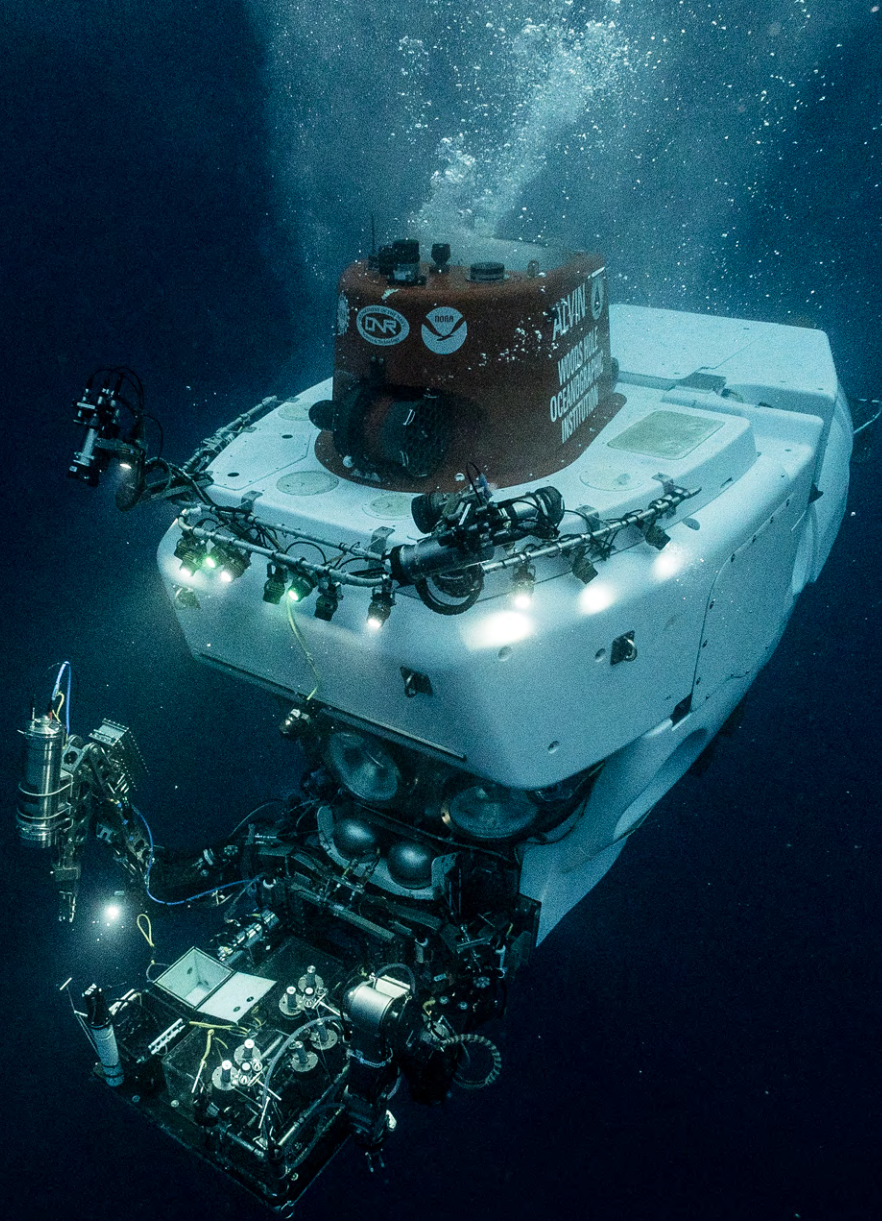
- **Chad King**, Monterey Bay National Marine Sanctuary
- **Anna-Louise Reysenbach**, Portland State University
- **Adam Soule**, Woods Hole Oceanographic Institution
- **Bruce Strickrott**, Woods Hole Oceanographic Institution

INFORMATION FOR REPORTERS

- Slides from this presentation are available in the Fall Meeting Media Center:
<https://www.agu.org/Fall-Meeting/Pages/Attend/Media-Center>
- A recording of this event will be posted to AGU's YouTube channel:
<https://www.youtube.com/c/AGUvideos>
 - Playlist "Fall Meeting 2020 Press Conferences"
- An informal, 30-minute discussion room via Zoom will follow this event:
 - Link will be posted in this event's chat box
 - Meeting ID: 962 1469 2326
 - Passcode: agupress
- Questions: Email news@agu.org

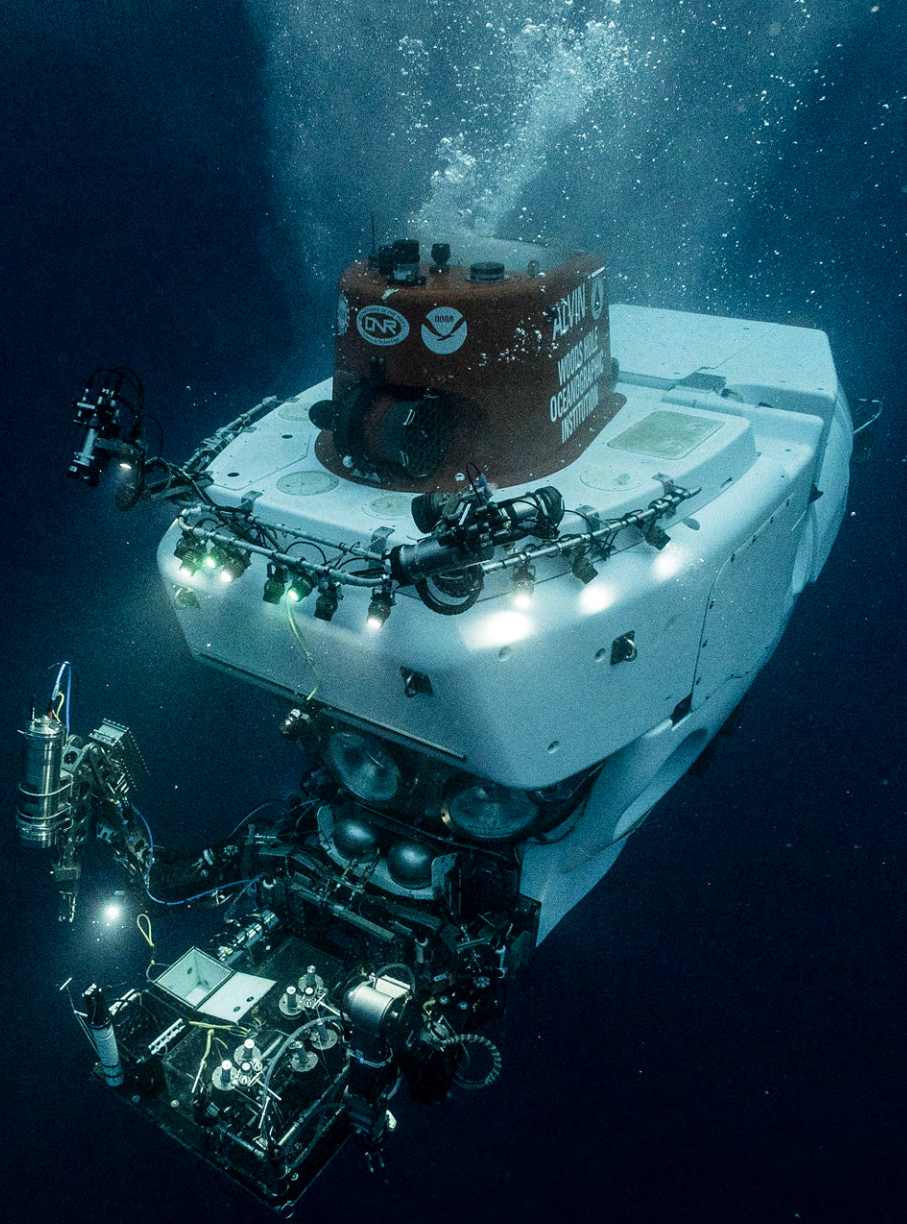
Alvin Overhaul

65000



Bruce Strickrott

Woods Hole Oceanographic Institution
Alvin Program Manager



The *Alvin* program began with the creation of a machine capable of taking humans to the deepest part of the ocean

Alvin commissioning June 1964





Driven by the vision of WHOI Geologist **Allyn Vine**

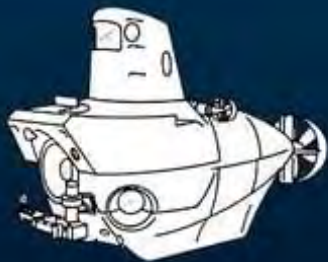
“It is very difficult to design an instrument that can be surprised.”



Alvin: 56 years of continuing evolution in design



1964



1968



1970



1977

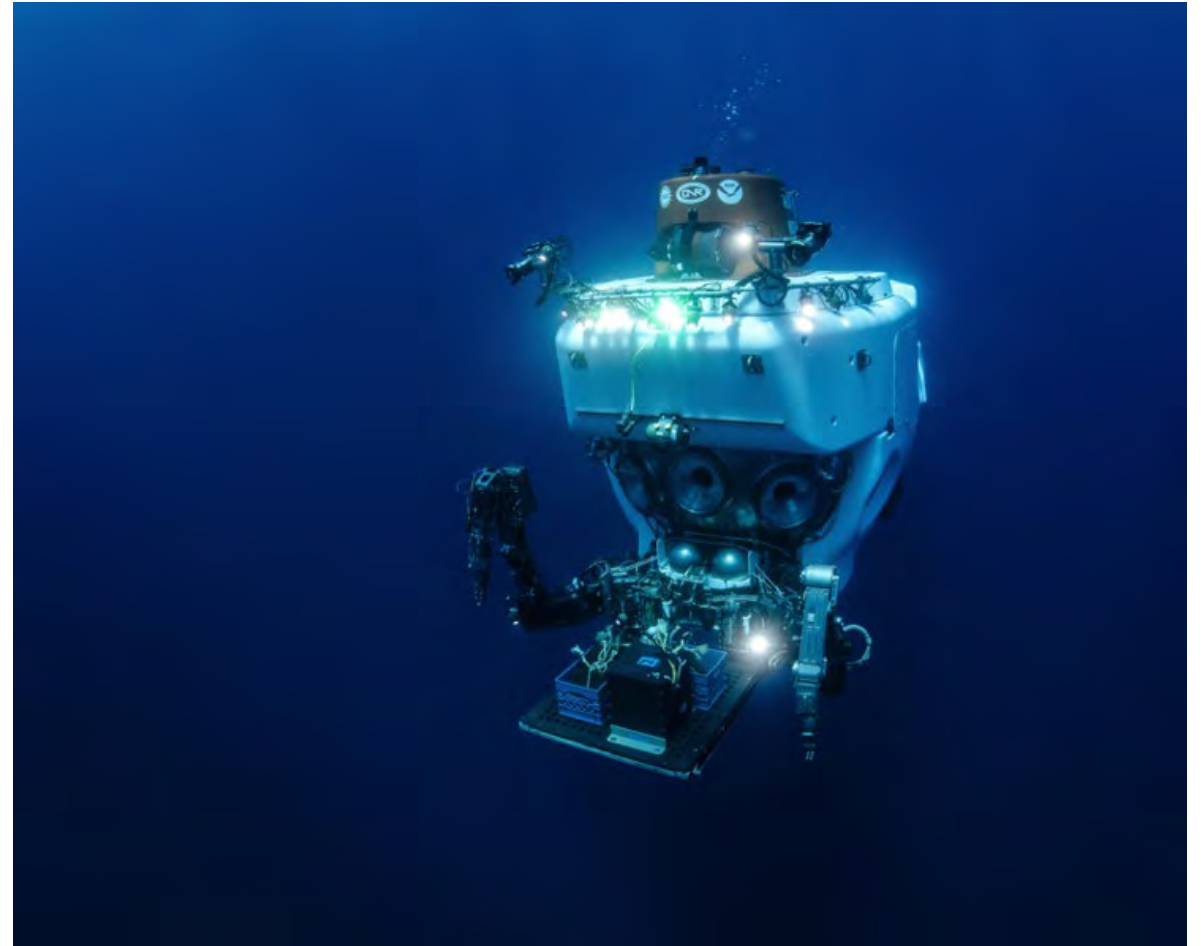


1984



1989

May 2013 Completion of stage one of the 6,500 meter upgrade



March 2020

Alvin returned to Woods Hole to complete final systems conversion for 6,500 meter operations





September 2021

Completion of Stage two and departure for dives to 6,500 meters

New hi-tech system will enable exciting new research and discoveries in the deep sea

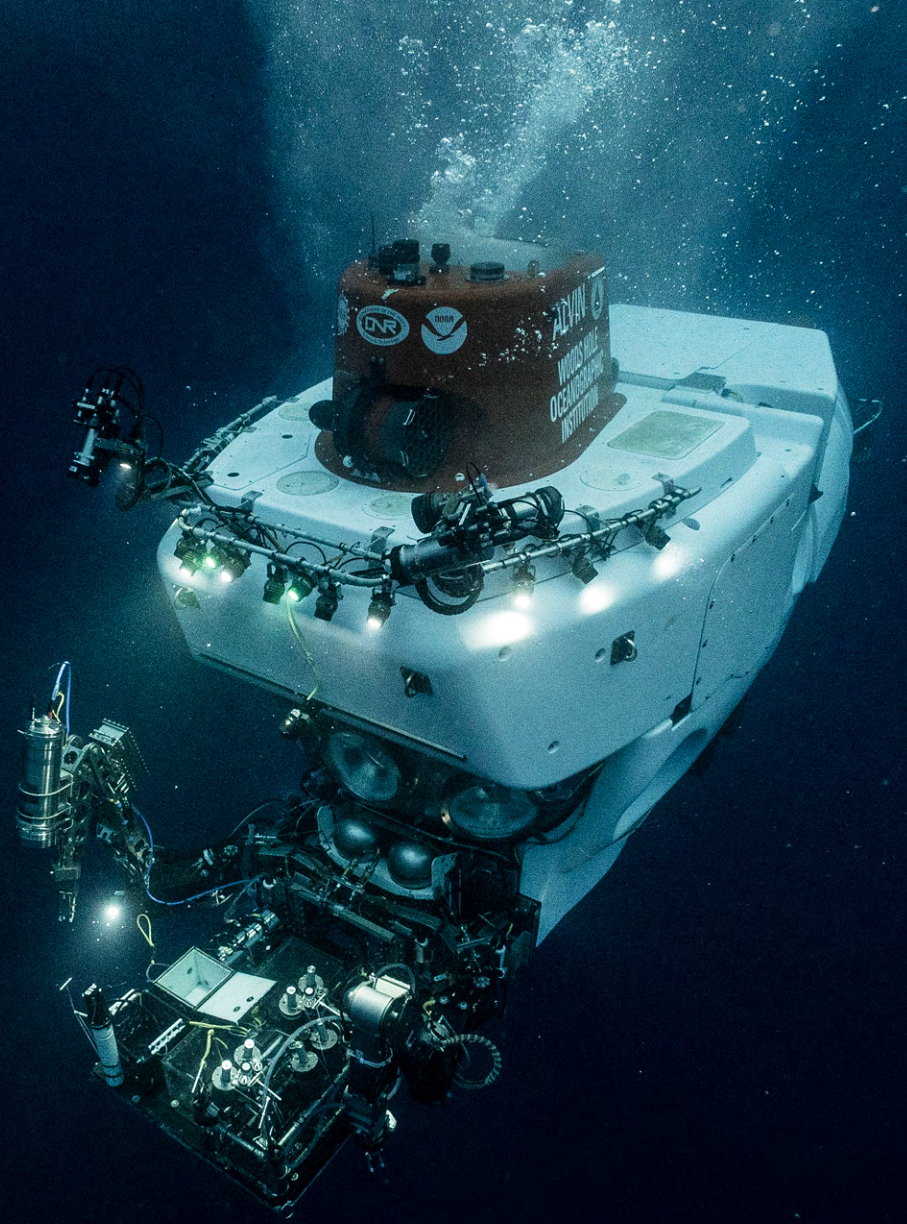
A new state-of-the-art submersible

Plus WHOI's world class expertise in engineering and ocean research, will enable direct human access to the deep sea for decades to come



Anna-Louise Reysenbach

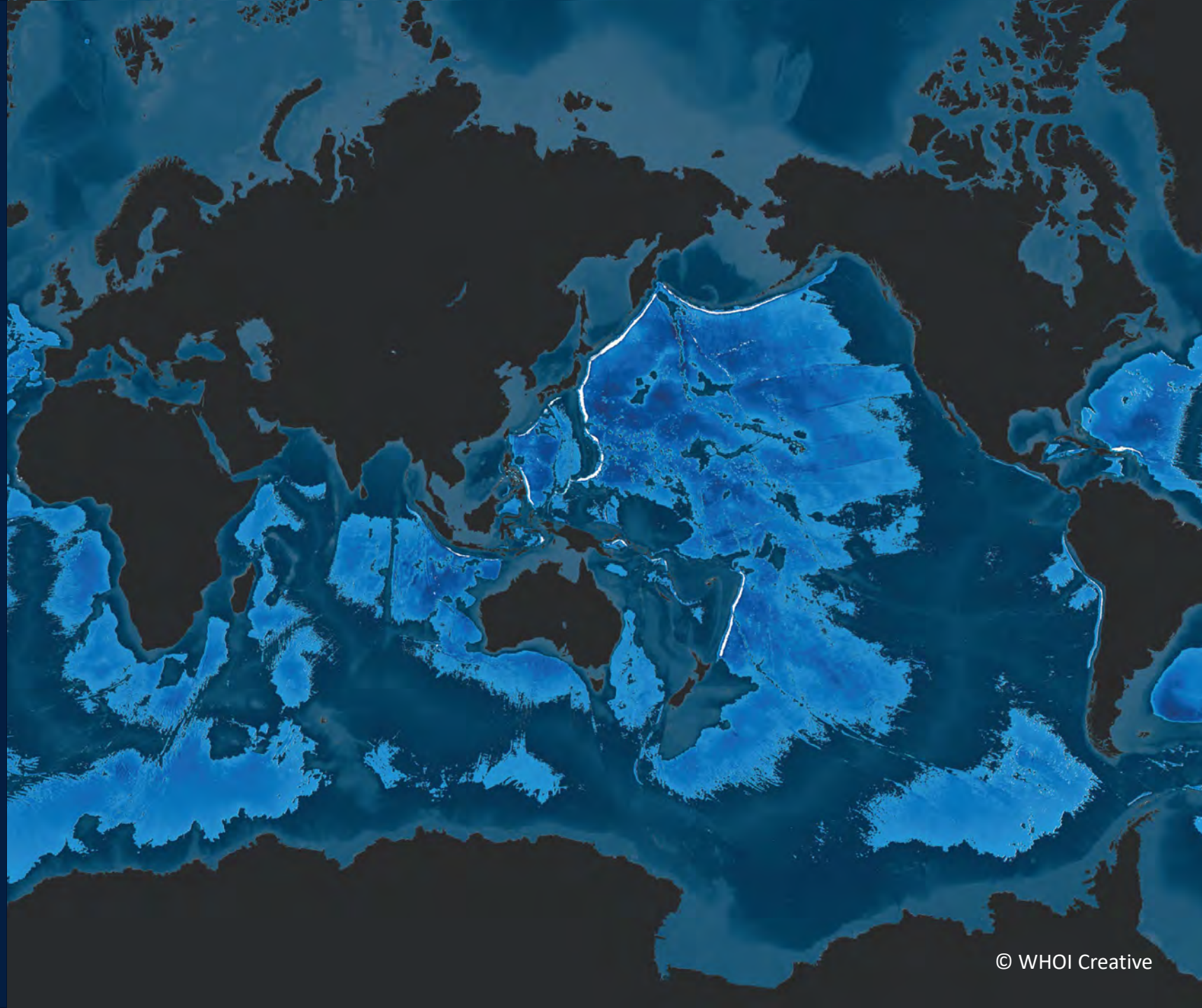
Portland State University
Chair of DeSSC



WORKSHOP

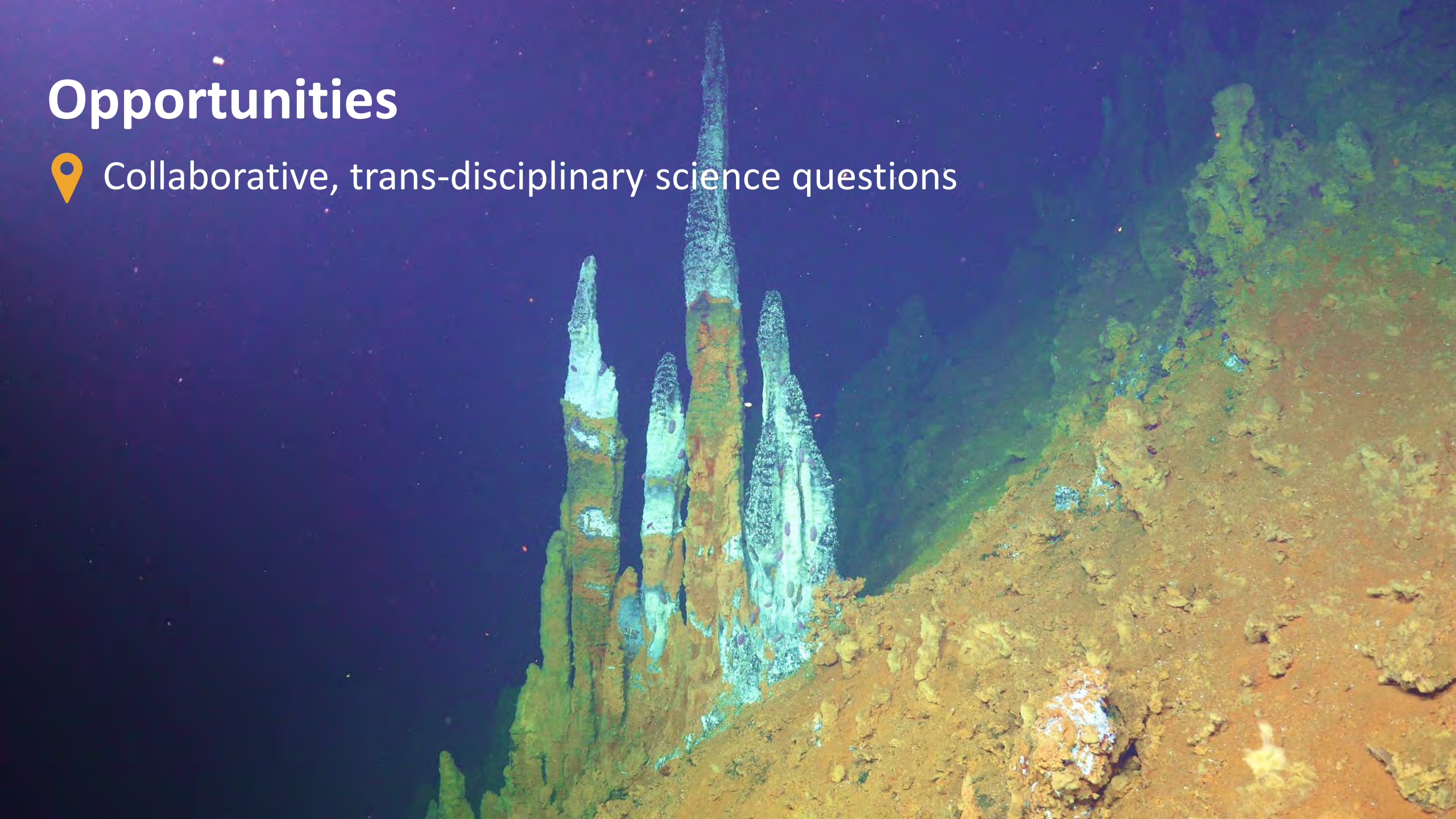
Expanding Deep Sea Horizons: Scientific Priorities in Abyssal Research

go.whoi.edu/Alvin-Abyss



Opportunities

📍 Collaborative, trans-disciplinary science questions



Opportunities

📍 Biodiversity discovery



Societal and environmental relevance

Enceladus
Saturn



Triton
Neptune



Europa
Jupiter



Titan
Saturn



Ganymede
Jupiter

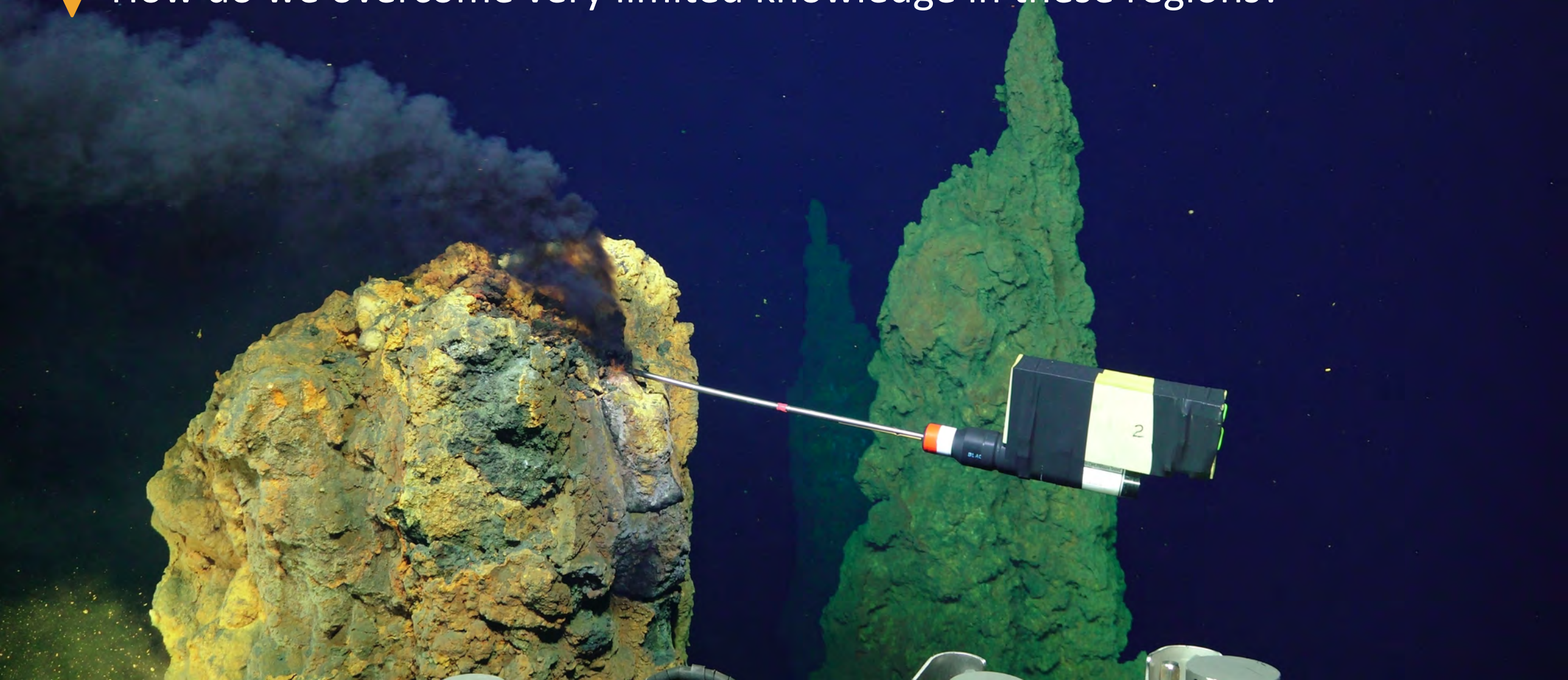


Callisto
Jupiter



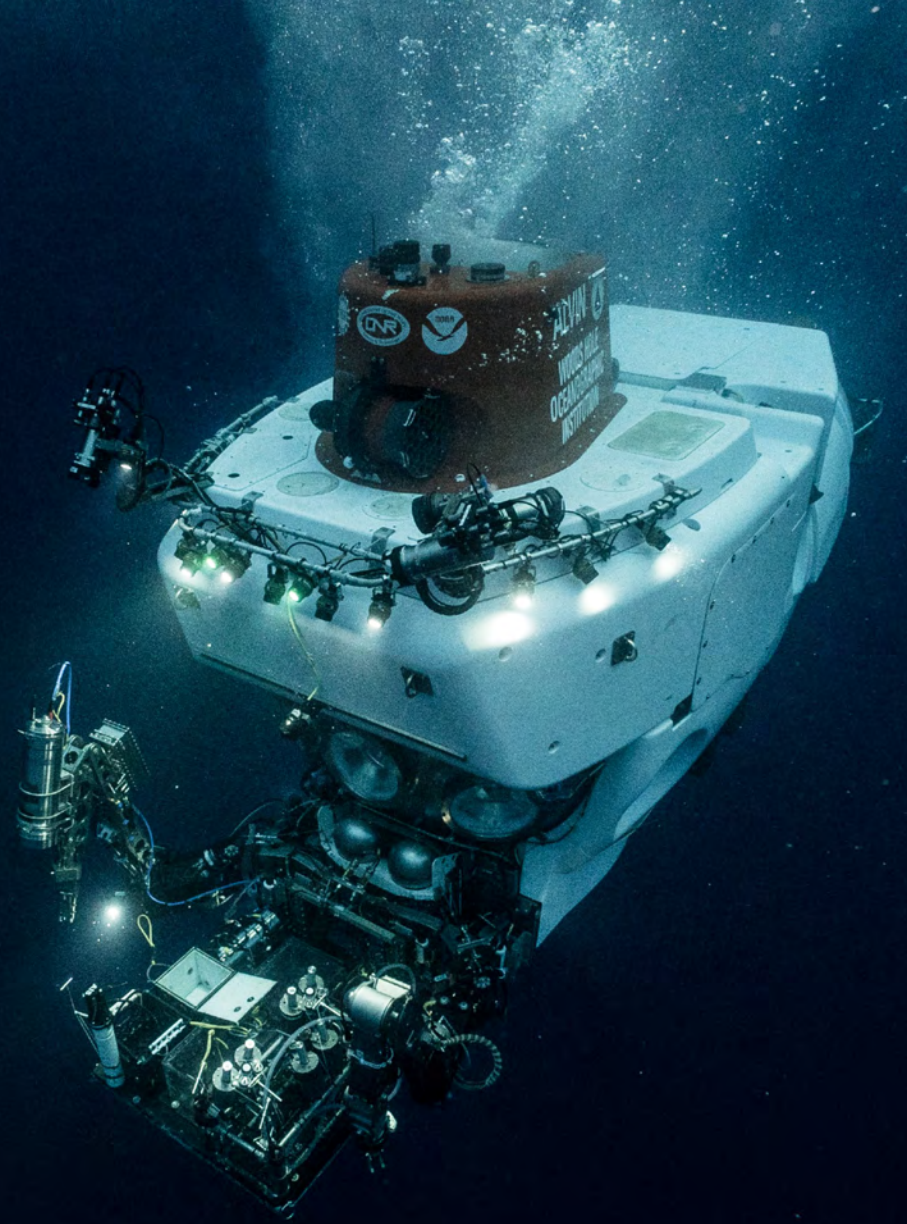
Challenges

📍 How do we overcome very limited knowledge in these regions?



Chad King

National Oceanic and Atmospheric Administration
Monterey Bay National Marine Sanctuary



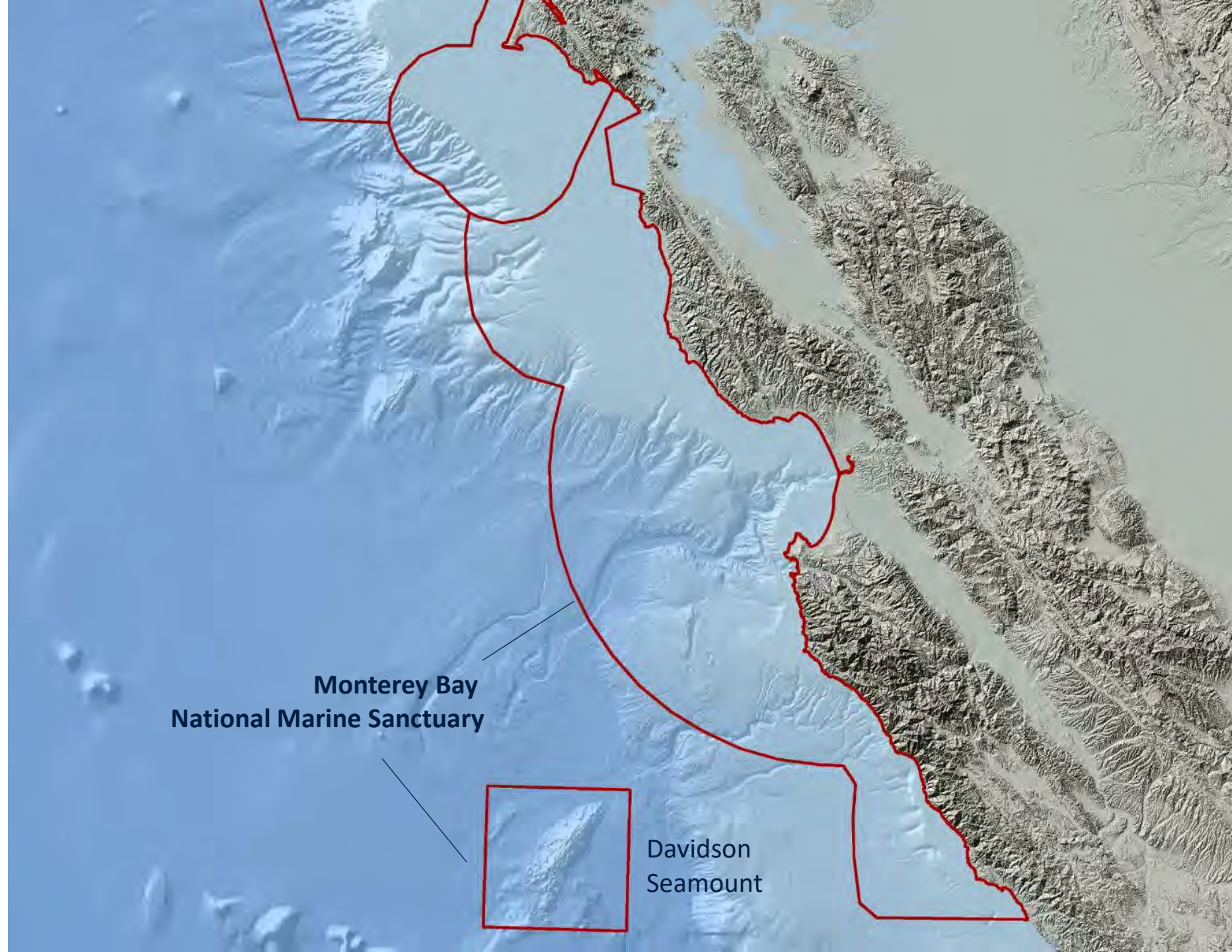
Monterey Bay National Marine Sanctuary

Established 1992

Almost 6,000 square miles

276 miles of shoreline

Over 2 miles deep



Davidson Seamount

One of the largest seamounts
on West Coast of U.S.

26 miles long

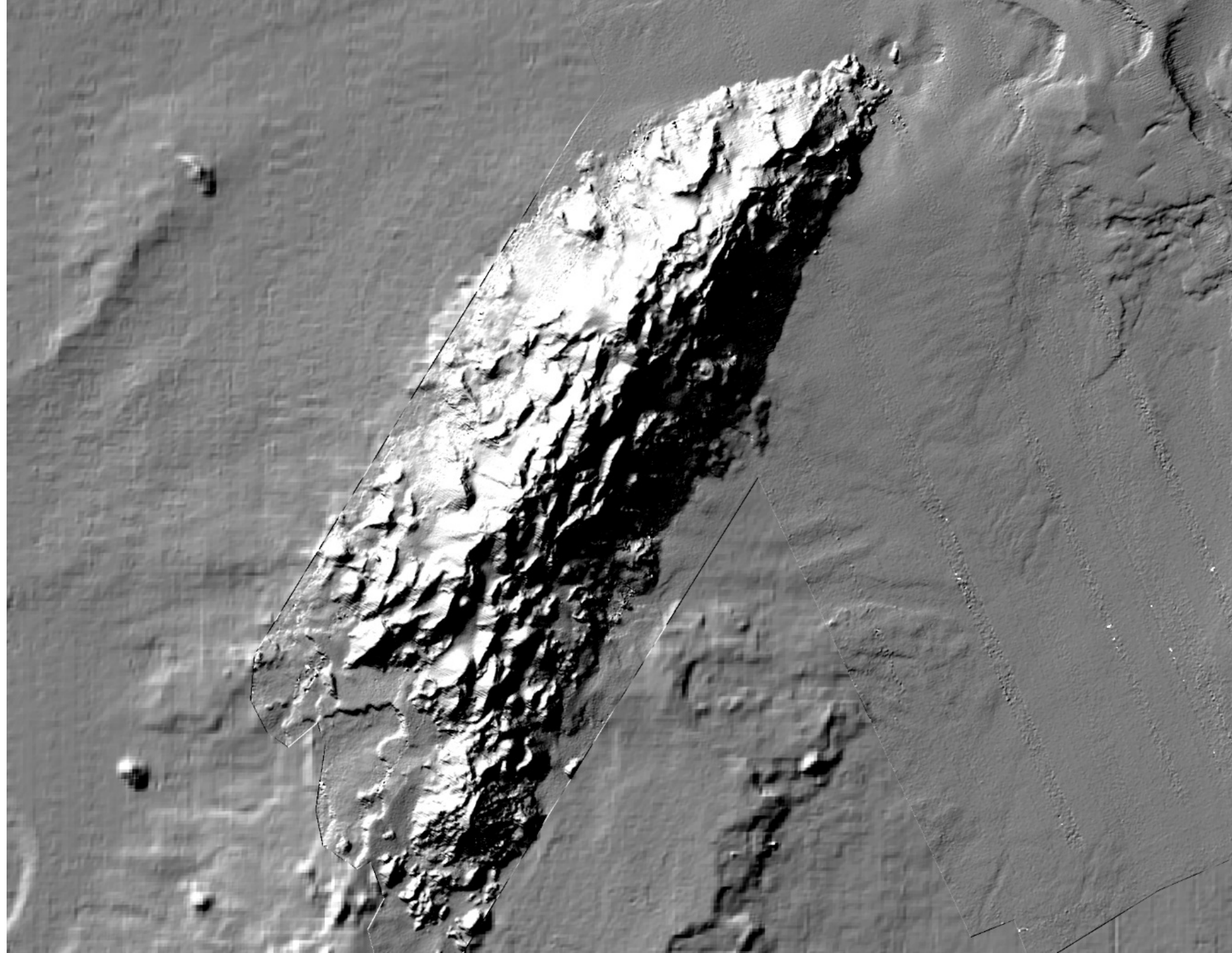
8 miles wide

1,250 meters at summit

3,875 meters at base

Last erupted ~9.8 million years
ago

One of the best studied
seamounts in the world

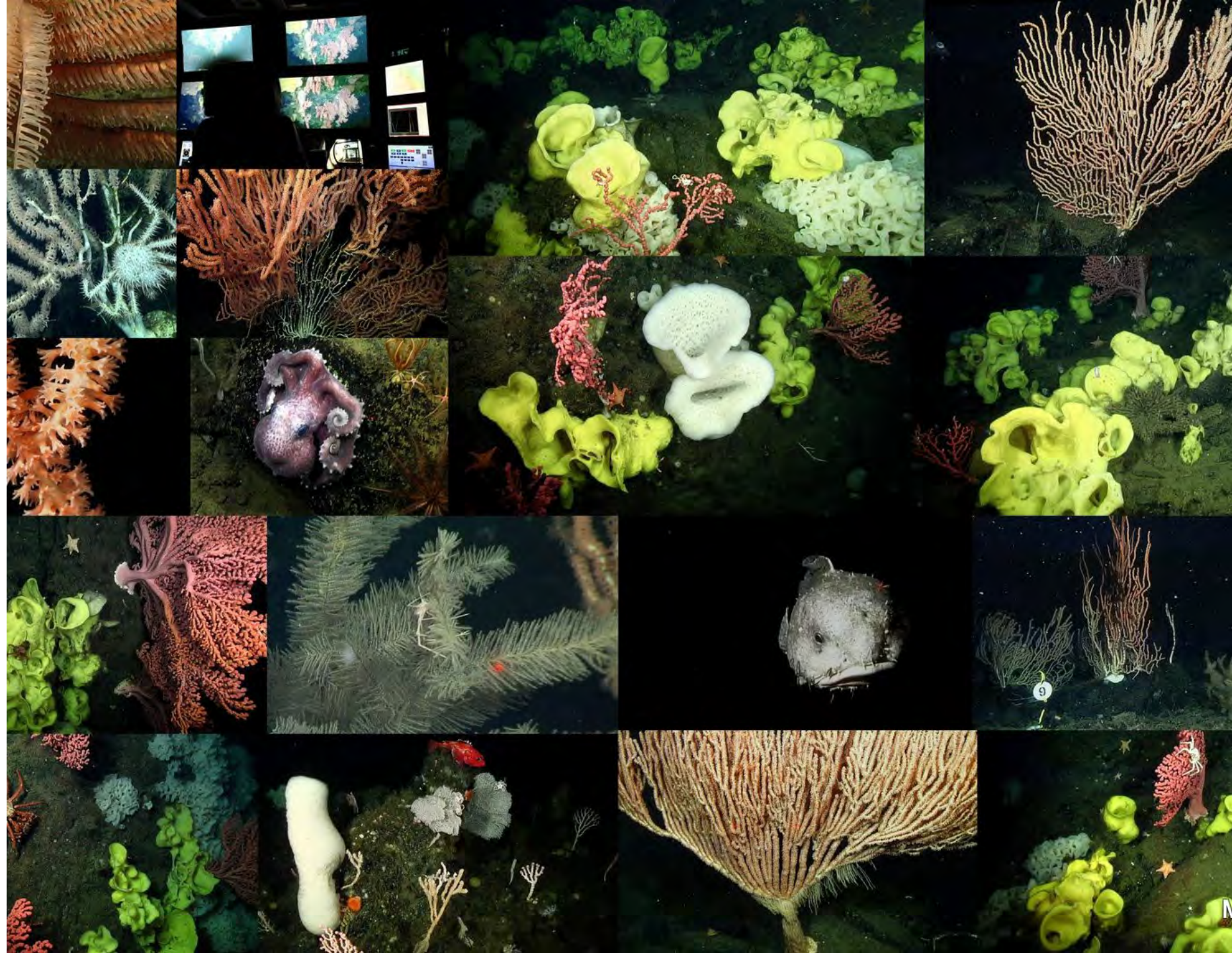


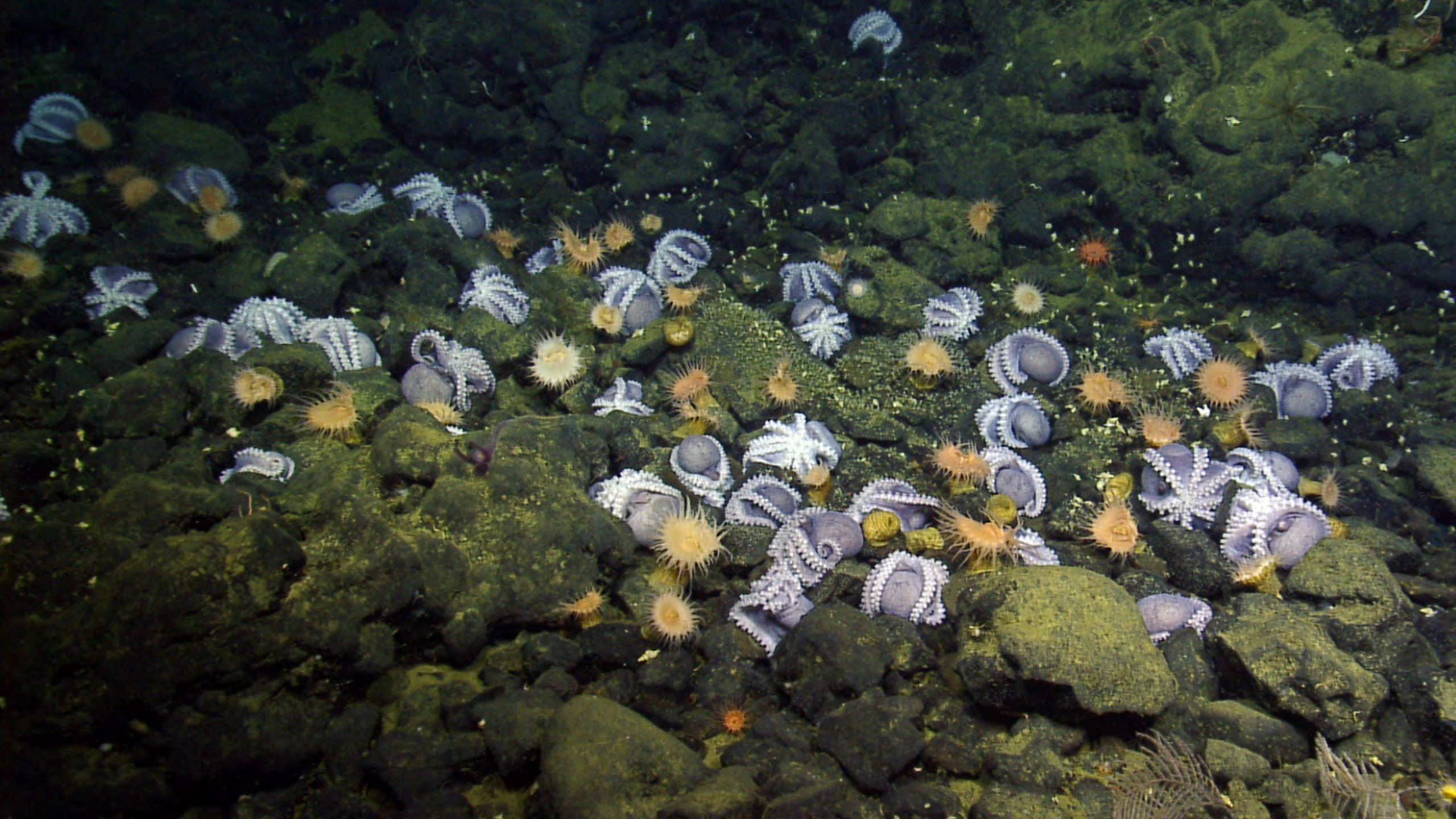
Davidson Seamount

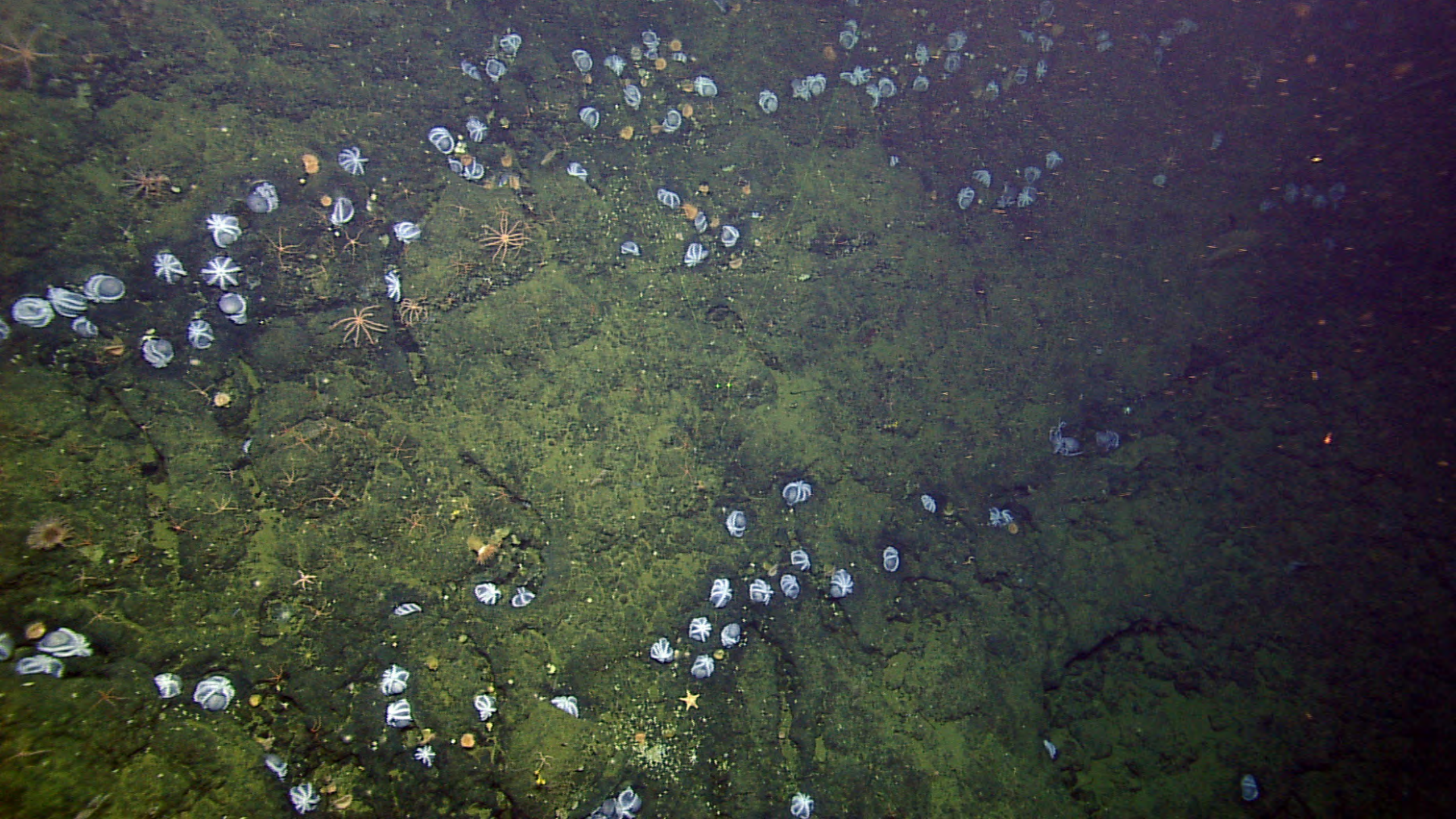
Long-lived deep-sea corals and sponges

Hundreds of species

“Oasis in the Deep”



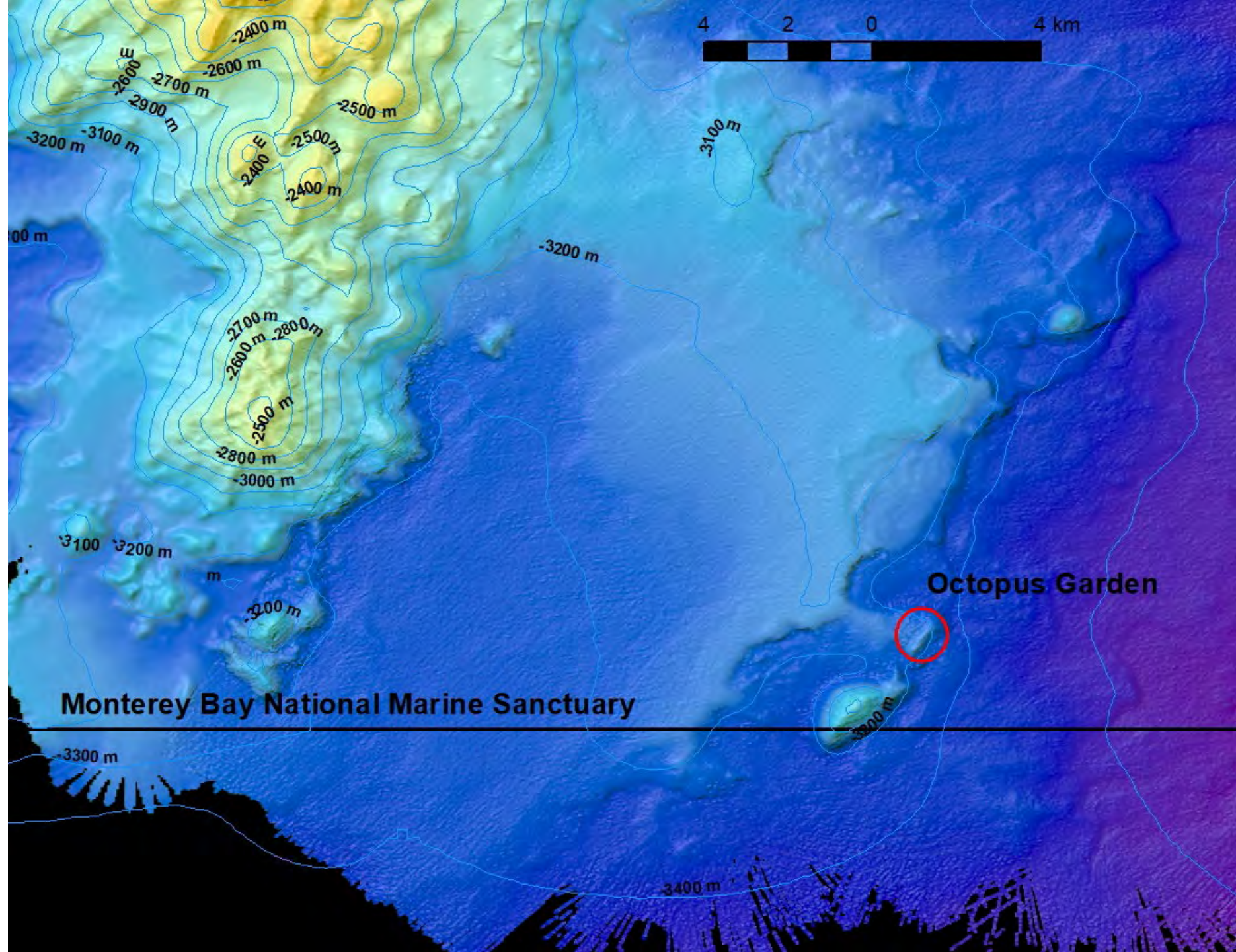




March 2019



Octopus Garden

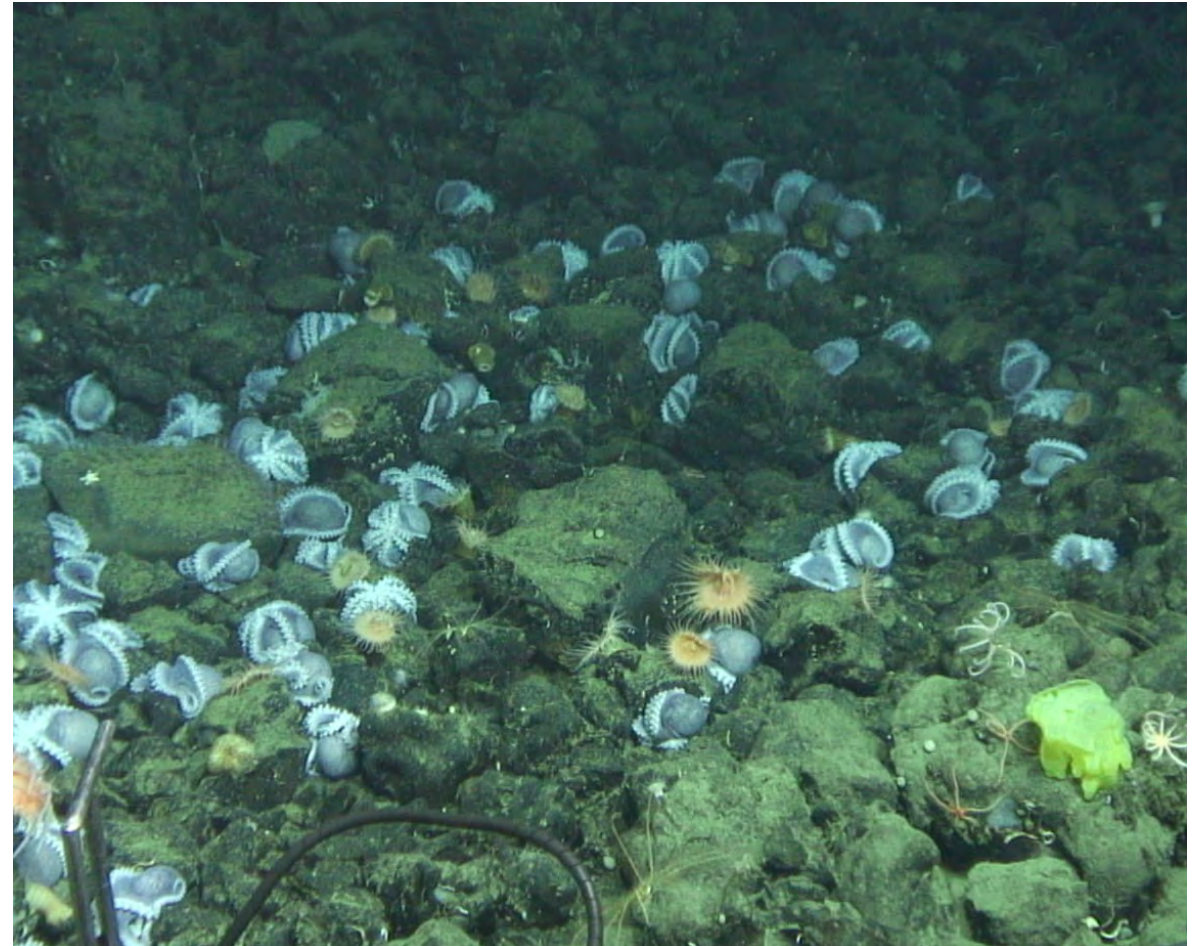
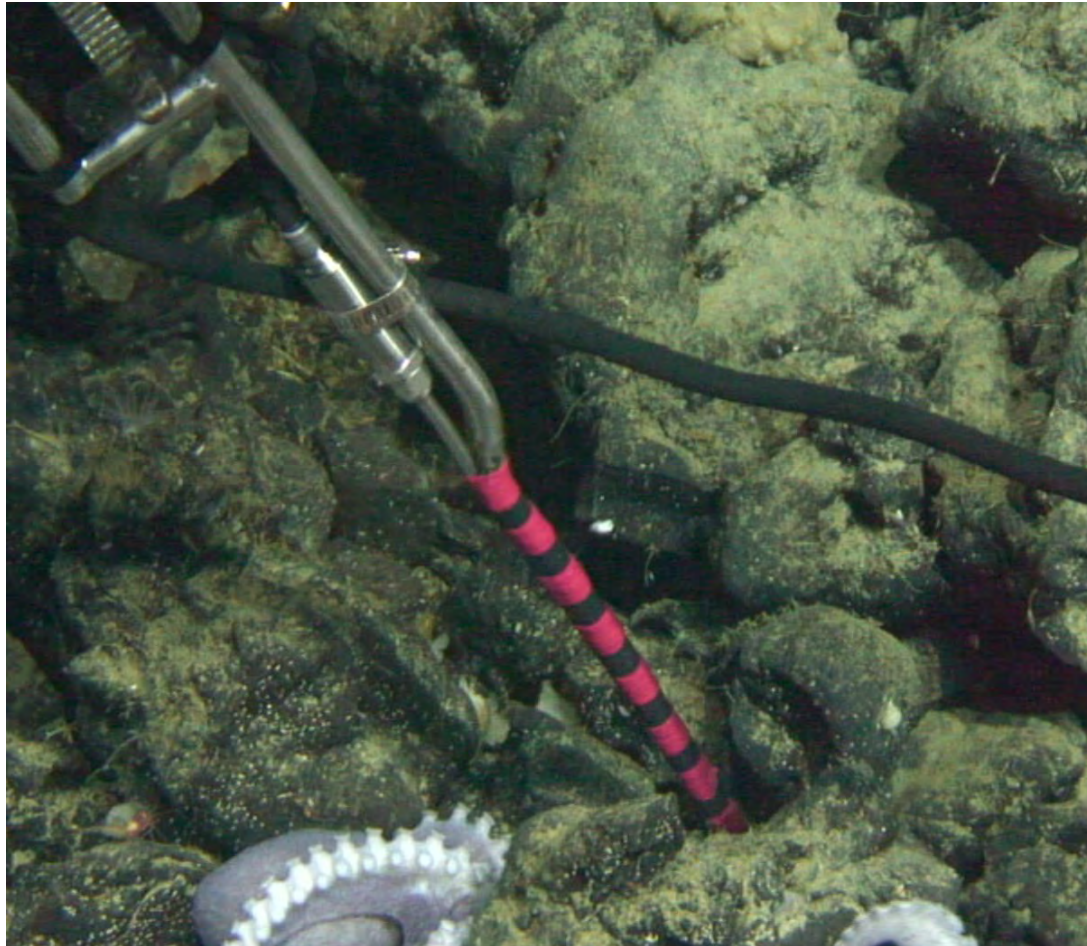


Octopus Hatchlings



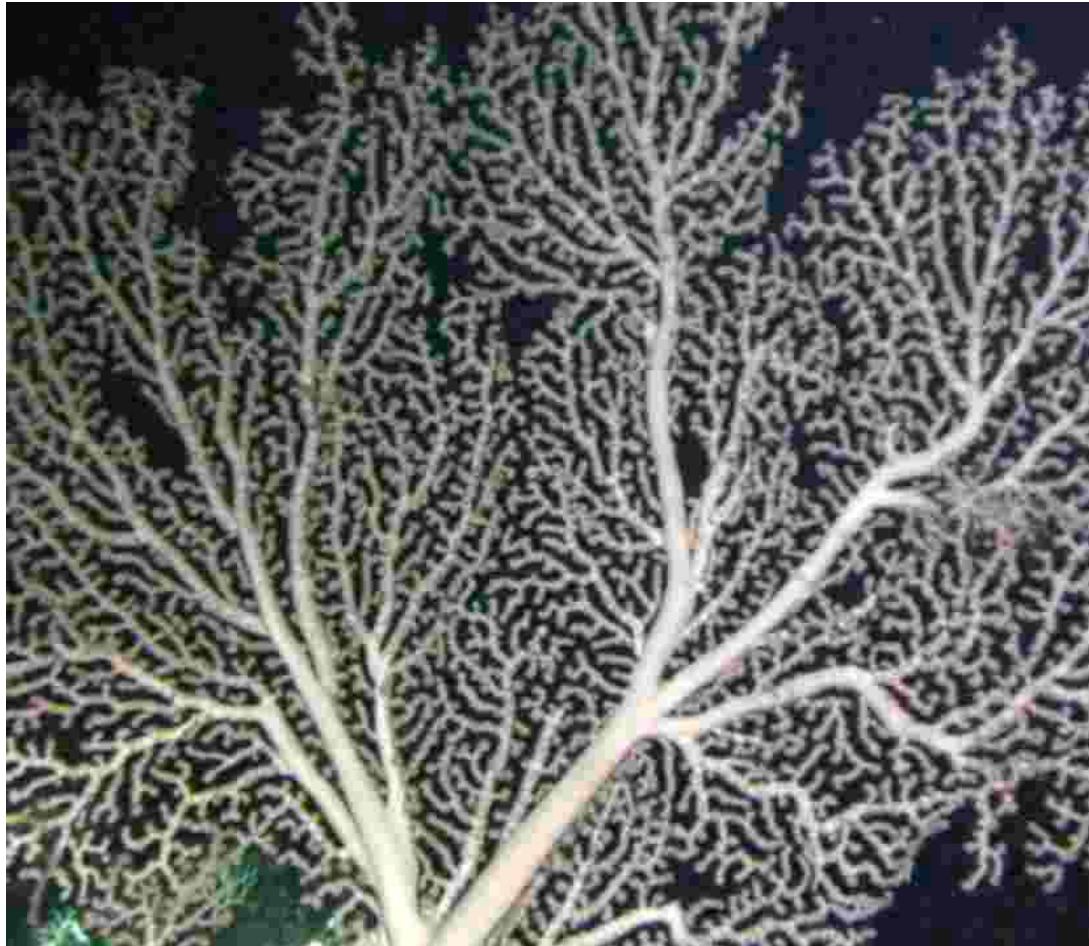
Confirmation of warm water

up to 7.5 degrees Celsius (ambient is 1.7)



Alvin Dive

Davidson Seamount Summit



***Alvin* dives fueled additional exploration**

Whale fall

New species of
bone-eating worm

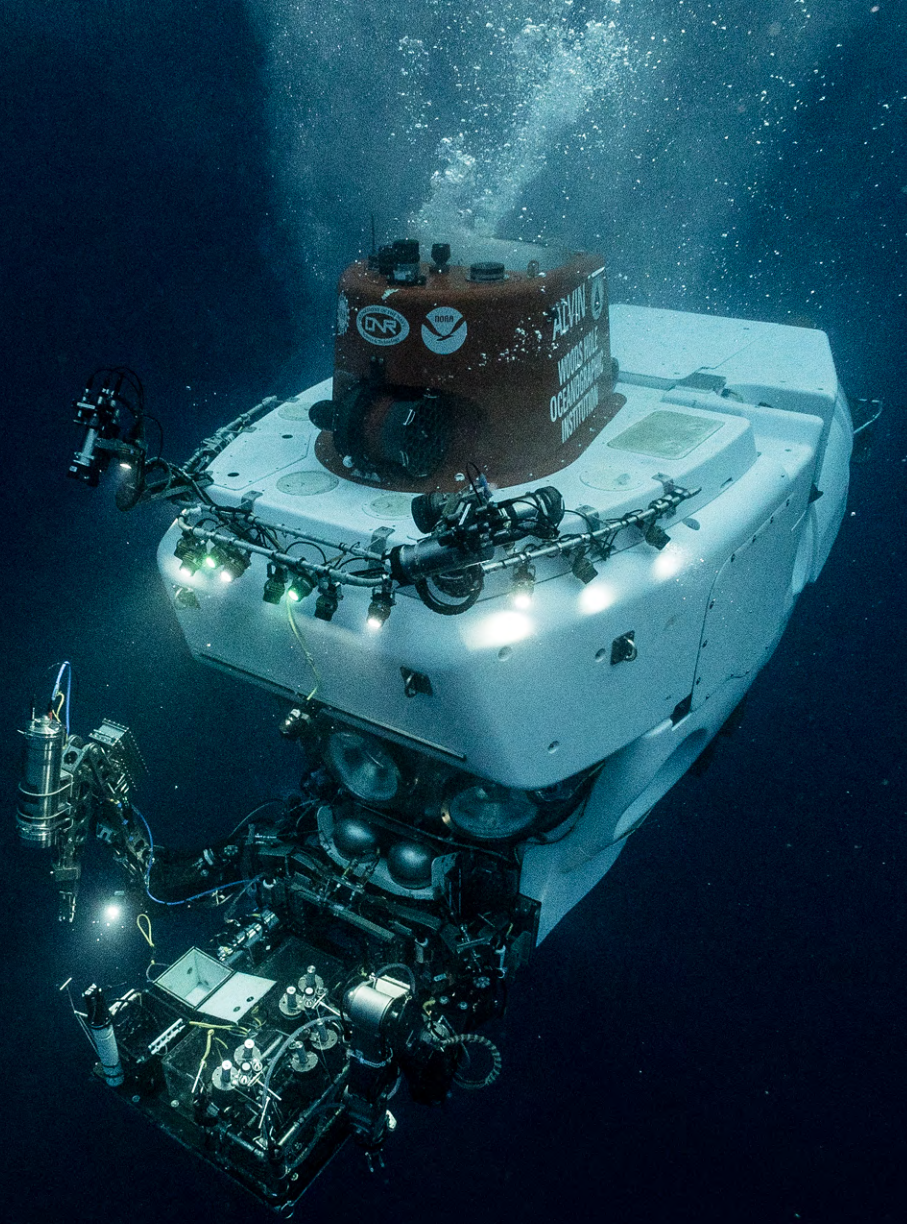
Second nursery
(3,600 + octopus)

Long-term
measurements

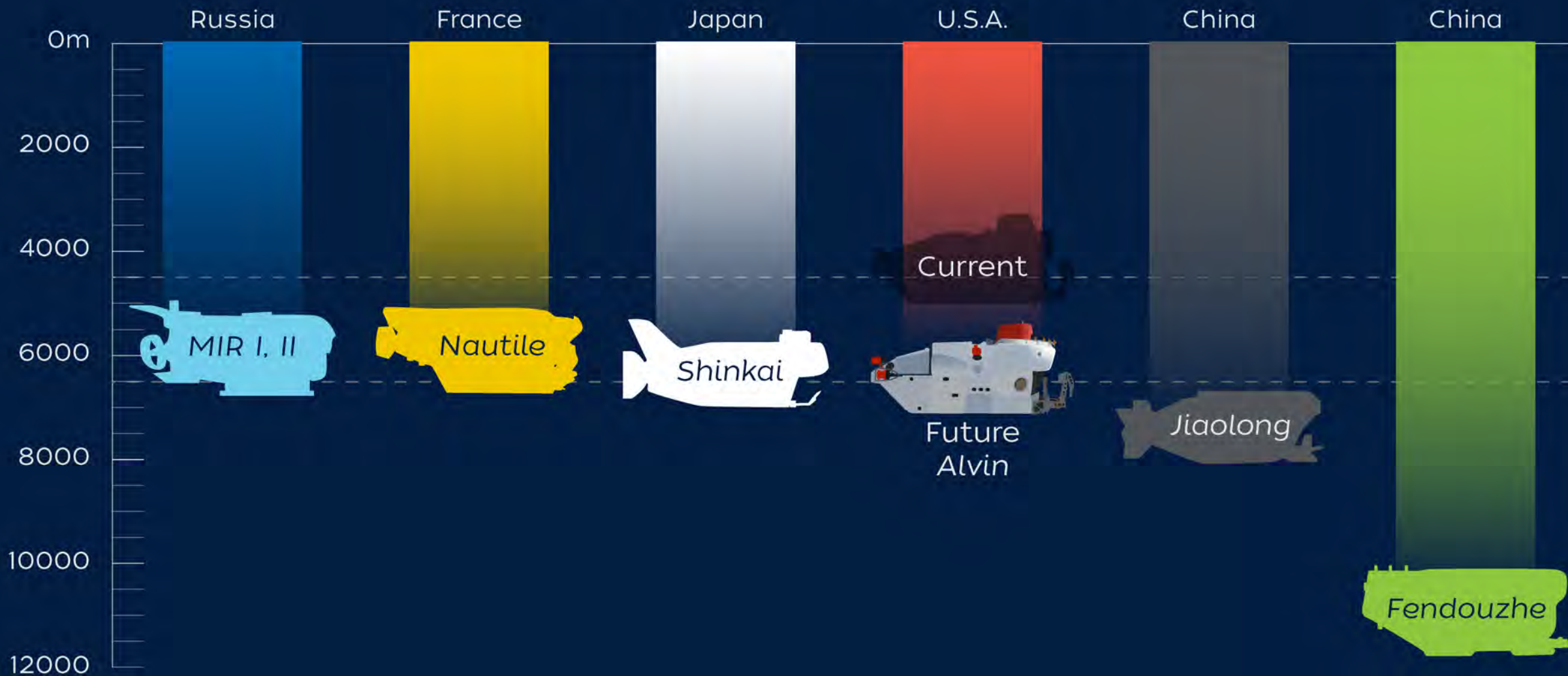


Adam Soule

Woods Hole Oceanographic Institution
Chief Scientist for Deep Submergence



DEPTH RATING

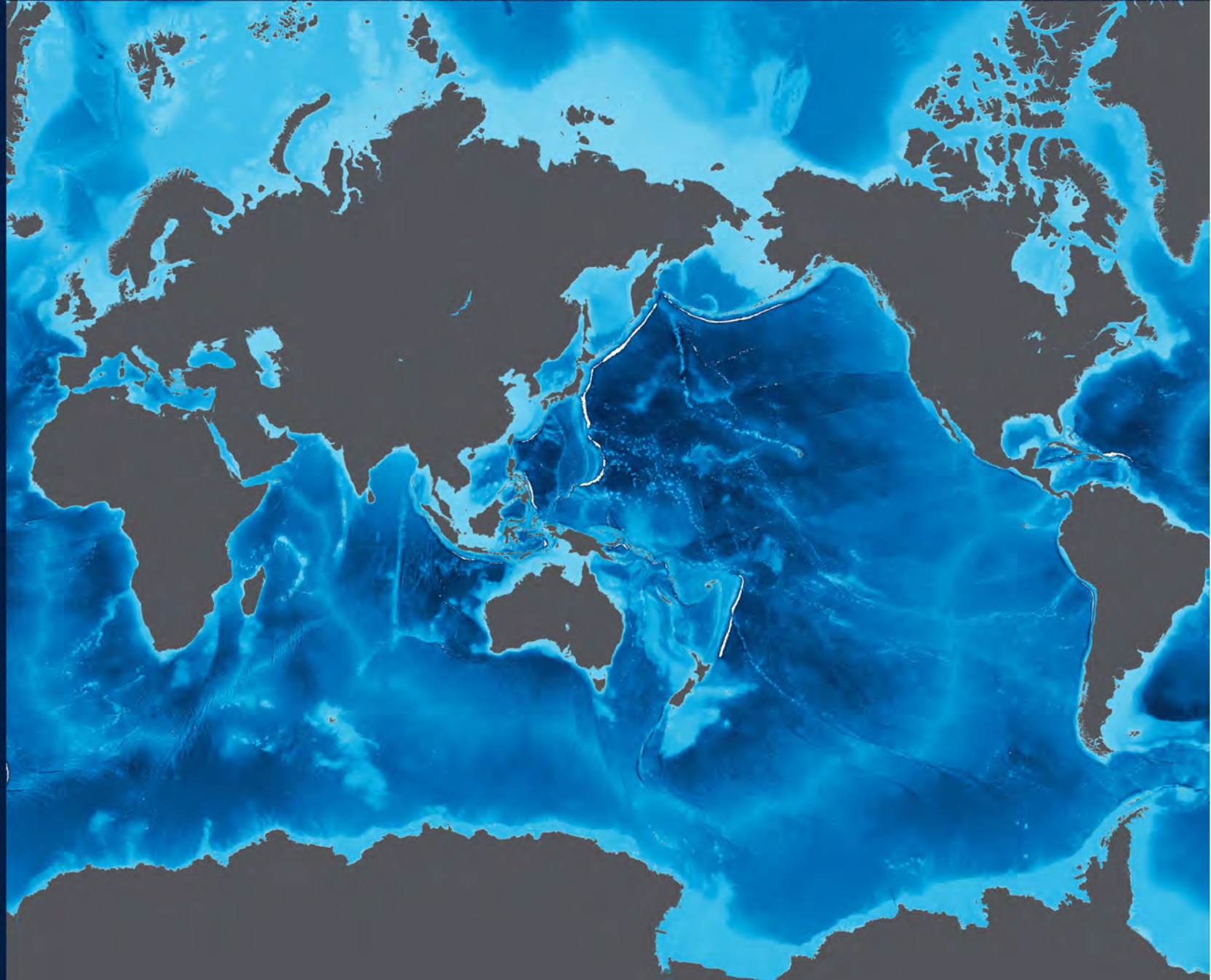
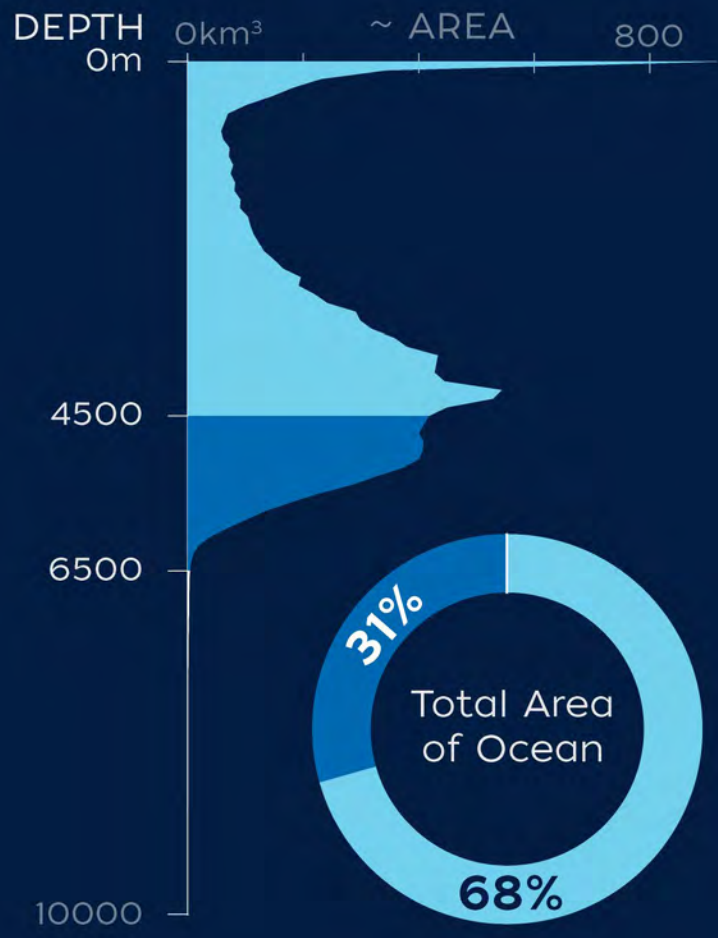


OF DIVES



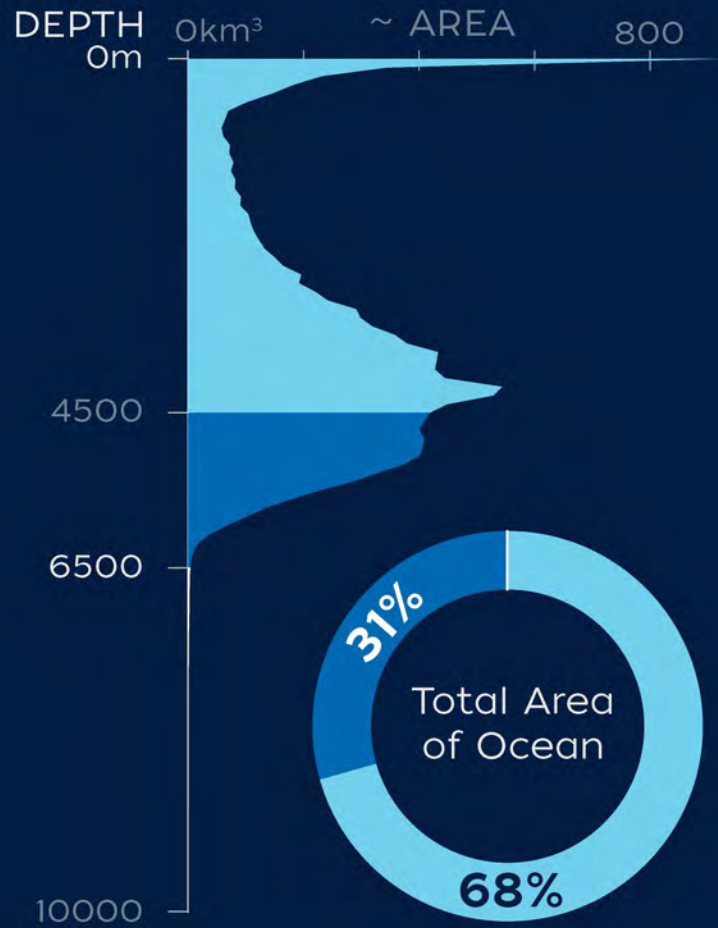
FUTURE

Depth Range of HOV Alvin



FUTURE

Depth Range of HOV Alvin



Alvin belongs to everyone

In 400 dives since *Alvin*'s last overhaul, 44% of the science observers were making their **first** trip to the seafloor.





Rosa León Zayas
Willamette University

Ready for science



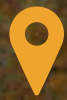
Testing *Alvin* in the Puerto Rico trench



Emily Chin

Scripps Institute of
Oceanography

Ready for science



Exploring vents at the Mid-Cayman Ridge



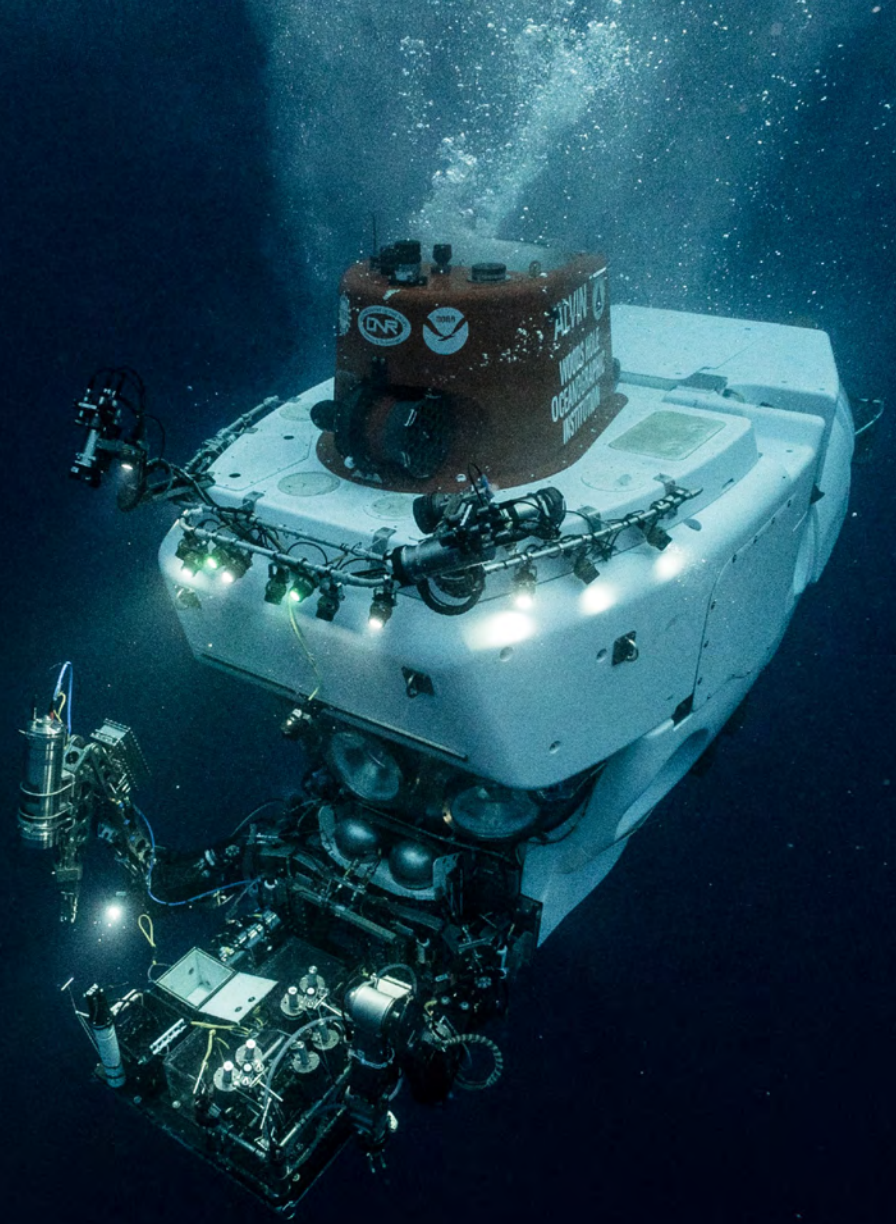
Media Contacts

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QUESTIONS

Please write your questions in the Q&A box and AGU will ask it on your behalf.

Reminder: A 30-minute, informal discussion will commence in Zoom after this event ends.