

FUTURE 2024

FUTURE of US Marine
Seafloor/Subseafloor sampling capabilities
workshop

March 26-28, Woods Hole, MA

•FUTURE 2024 Workshop PIs (NSF OCE #2341096)

- Masako Tominaga (WHOI, PFPE, and MISO)
- Maureen Walczak (OSU and MARSSAM)
- Brendan Reilly (LDEO and LDCR, Columbia Univ.)
- Kevin Konrad (Univ. Nevada, Las Vegas)
- Matt Schrenk (Michigan State Univ.)



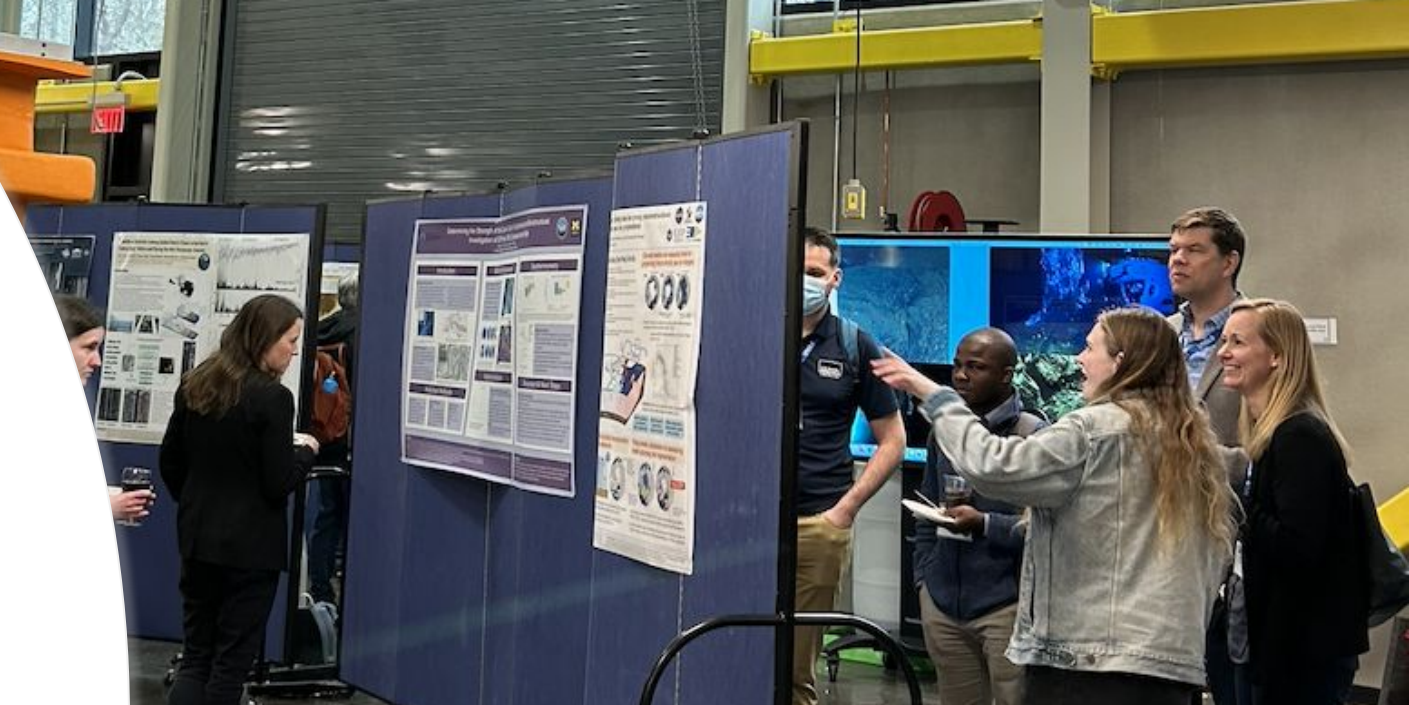
Sharing knowledge while enlightening collaborative seafloor/subseafloor sampling research opportunities among generations, science disciplines, and science/engineering/operations teams in the US

•**132** in-person participants from **63** US Institutions (including NSF PDs (5), speakers (10) +Future 2024 PIs (5))

“Early Career Scientists” (=~ 52 %)

- 25 of them are obtaining PhD 2024~
- 31 of them obtained PhD 2012-2023

•**68** remote participants from both US and non-US Institutions.



Science-driven assessment of the US oceanographic/sampling capabilities

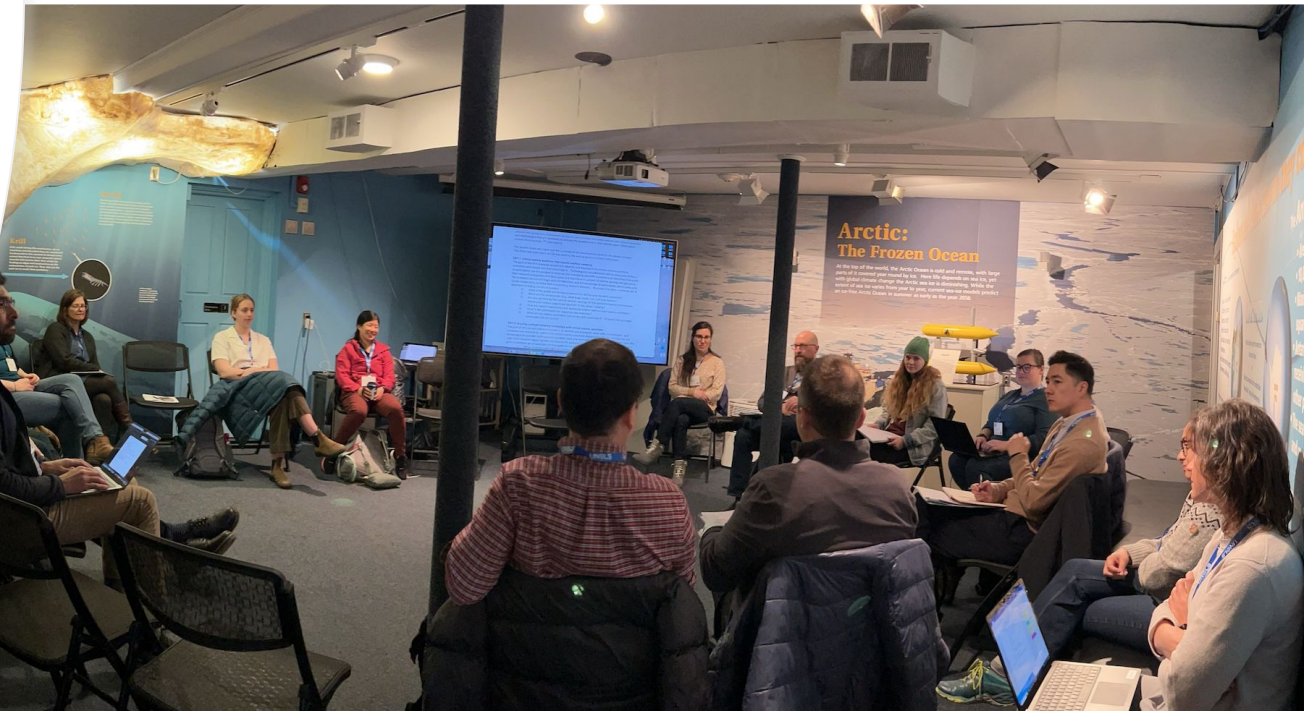
- **Sediment Sampling via Coring and Drilling. Evolving and Reinventing.** (Alan Mix, OSU)
- **The Legacy & Challenges (and Future) of Seafloor Sampling** (Dan Fornari, WHOI)
- **Discoveries and Opportunities in Illuminating Geohazards: The essential role of seafloor and subseafloor sampling and monitoring** (Demian Saffer, UTIG)
- **Exploration and Discovery in Gulf of Mexico Hypersaline Brines** (Mandy Joye, UGA)
- **Sediment Coring from the US Academic Research Fleet** (Mo Walczak, OSU)
- **A Brief Overview of US Seafloor Rock Sampling Infrastructure** (Kevin Konrad, UNLV)
- **Fluid and Volatile Sampling at and below the Seafloor** (Susan Lang, WHOI NOSAMS)
- **An Introduction to Seafloor Sample Repository and Data Systems** (Brendan Reilly, LDEO LDCR)
- **Getting What We Need in the US Academic Research Fleet** (Bruce Applegate, UNOLS Chair-elect, SIO)
- **Tension Member Considerations for Seafloor and Subseafloor Sampling** (Rick Trask, NSF Wire Pool)
- **Capabilities and Limitations of Piston Coring in the Academic Research Fleet** (Chris Fanshier, MARSSAM)
- **National Deep Submergence Facility AUV Sentry program** (Sean Kelley, NDSF)
- **NDSF HOV Alvin program** (Bruce Strickrott, NDSF)
- **NDSF ROV Jason program** (Matt Heintz, NDSF)
- **OOI Regional Cabled Array: Nearing 10 years of Real-time Ocean observations** (Dana Manalang, UW)
- **Sub-seafloor observatories** (Patrick Fulton, Cornell Univ.)
- **Lander based seafloor drilling: An important tool in the Geosciences sampling toolbox** (Ross Hein)
- **The seafloor drill rigs MARUM-MeBO** (Tim Freundenthal)
- **R/V Kaimei and seafloor sampling capabilities** (Nobu Eguchi, MarE3 JAMSTEC)
- **Sensitivity of the West Antarctic Ice Sheet to 2 Degree Celsius warming** (Molly Patterson, Binghamton Univ.)

Workshop presentations are available at:

<https://www.unols.org/event/conference-workshop/2024-future-workshop>

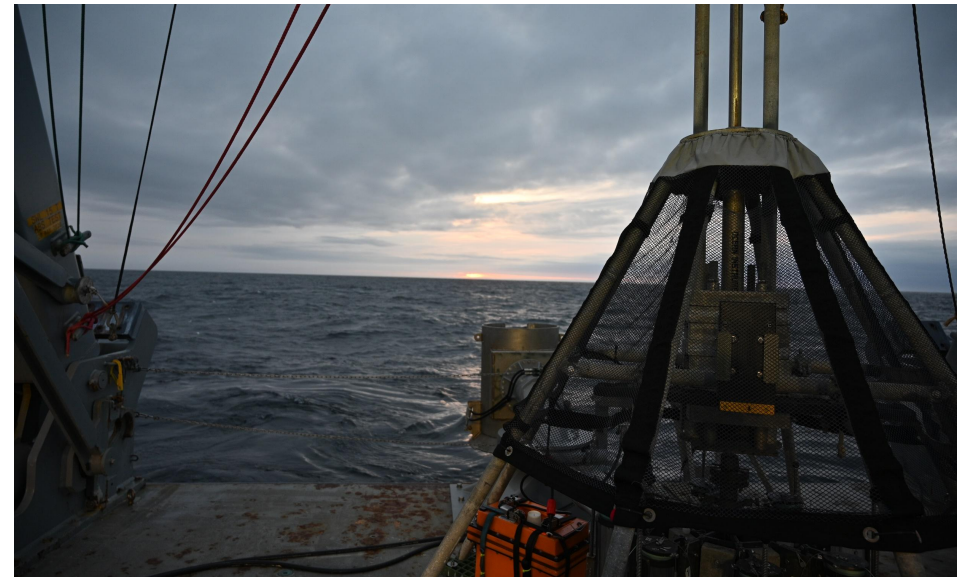
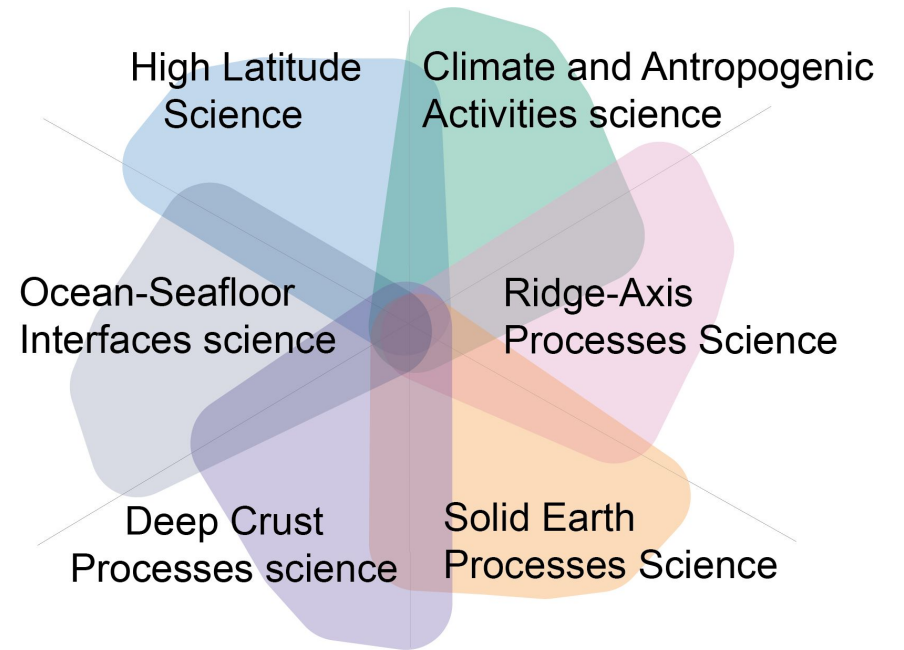
Science-driven assessment of the US oceanographic/sampling capabilities

- Day-1:** Critical science questions that require seafloor sampling.
- Day-2:** Aligning seafloor sampling technology with critical science questions.



Workshop tasks going forward:

- Publish a workshop paper that curates all the discussion points from the 6 science-themed breakout sessions.
 - Paper draft started during the writing hackathon at the end of the workshop including many active contributors from ECRs
 - Open comment period (~ May).
- In the publication, we will also identify cross-cutting science-driven technology needs and elucidate achievable advances in the next 5, 10, and 20 years.
- Publication is to be submitted by the end of September.



Sunrise but not sunset!