Seafloor/Subseafloor Sampling Working Group

DeSSC Fall 2025

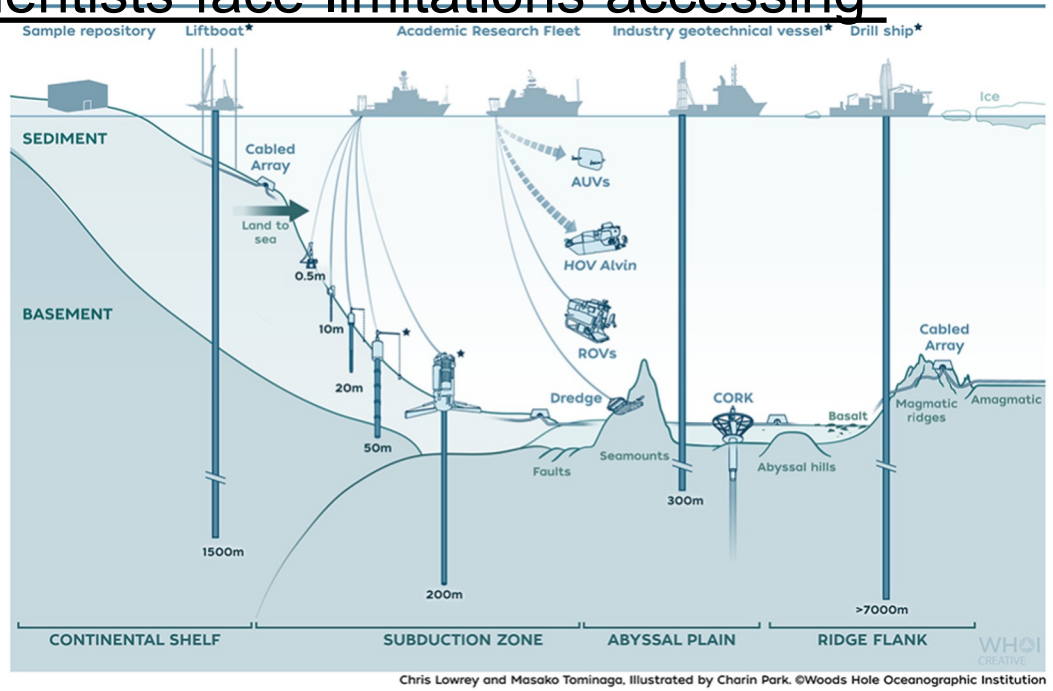
Background

- **FUTURE 2024 Workshop held in March 2024.** All presentations (less OOI) are available online at: https://www.unols.org/event/conference-workshop/2024-future-workshop)

- ***Publication now out in AGU Advances:*** https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2024AV001560

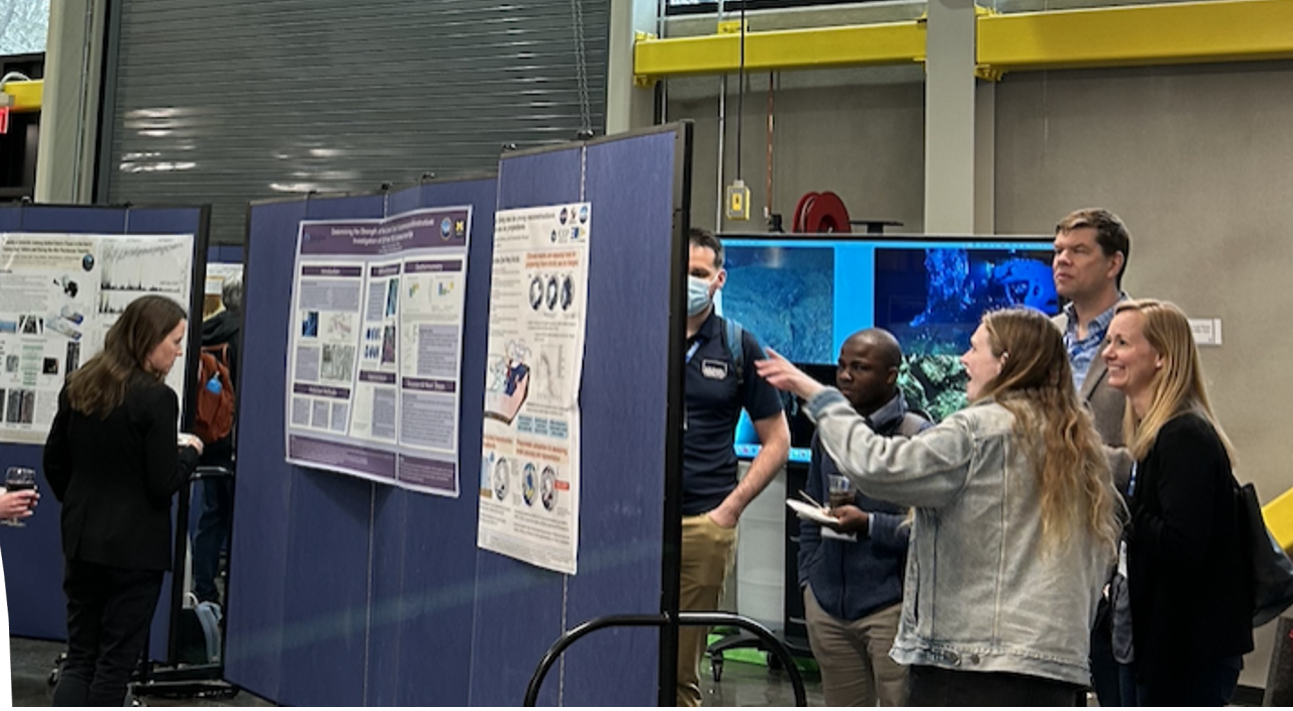
- ***Featured in Eos*** https://eos.org/editor-highlights/scientists-face-limitations-accessing-seafloor-information

- **UNOLS Council 2024 – 2025** – Following outcomes of FUTURE workshop, discussion of need to bridge UNOLS capabilities with SODCO mission as well as improve cross-communication between the diverse operators, facilities and committees that support seafloor sampling as well as. Desire to create central communication hub between these technical experts and seafloor science community. Finalized structure and initial goals, and initial composition of working group in Spring 2025 meeting.



Initial Focus Topics (from FUTURE 2024)

- Vessel overboarding capabilities
- Reestablishing longer piston coring capabilities
- Achieving 5,000 m+ dredging (and coring) capability
- ***Establishing US lander-style seafloor robotic drilling systems***
- ***Expanding underwater robotic capabilities***
- Maximizing the value of returned samples
- Polar region science support
- Maintaining Marine Science Operations Workforce and Advancing Science Through Transfer of Institutional Knowledge



*Landscape has again changed, and **much is uncertain**. Long-term goals may yet include strategic investment and growth in capabilities, however near-term goals need to focus on maximum efficiency and preservation of essential capabilities.*

In that context, inaugeral objectives evolved:

- (i) inventory and assessment of community assets that we currently have, including workforce, infrastructure, samples, and data
- (ii) how to bring about community-wide solutions to a common "threat", e.g. potential loss of knowledge and our A-team workforce.

Initial Configuration:

- To address initial focus topic areas, propose core selected to collectively cover a breadth of scientific and operational expertise as well as relevant UNOLS/NSF oversight entities:

Expertise	Operations	Oversight
Sedimentary geoscience	Globals	UNOLS Council
Hard rock geoscience	Regionals	FIC
Geophysics	Coastals	DESCC
Geochemistry	Polar/Icebreakers	Safety Committee
Benthic (micro)biology	Coring/Dredging	LARS Working Group
Sample & data repositories	AUV/ROV	MSROC
High-latitude	Winch and Wire	ARV
Open ocean	Seismic	AICC
Nearshore	Imagery	SODCO
	Observatories	

- Expert guests from science and vessel/facility operation community will be additionally invited to provide information and guidance on key issues

Seafloor Sampling Working Group

Amy Baco-Taylor
(FSU, benthic biology, AUV/ROV science, UNOLS Council, DeSSC)

Hannah Gray
(USAP marine technical services, Palmer/Gould and support boats at stations)

Sean Kelley
(WHOI, NDSF Sentry AUV/science AUVs)

Amy Leventer
(Colgate U., coring, polar science, ARV)

Kevin Johnson
(SOEST, national/international program operation, ocean drilling, seafloor sampling)

Andrew Naslund
(SIO shipboard technical services, Global/Ocean class deck operations)

Molly Patterson
(Binghamton Univ. SUNY, coring/drilling, polar regions)

Brendan Reilly
(LDEO, Director of the seafloor sample repository, paleomagnetism, coring, drilling, polar regions)

Ethan Roth
(OSU, Marine Ops., RCRV, UNOLS LARS working group lead)

Paul Walczak
(UW, Regional Class Vessels and operations, coring/dredging)

Amy Wagner
(Sacramento State, paleoceanography, sedimentology, UNOLS Council)

Maureen Davies-Walczak
(Co-chair: UW, coring, drilling, paleoclimate, UNOLS Council)

Masako Tominaga
(Chair: WHOI, underway and deep submergence geophysics, open water/polar region, seafloor sampling, UNOLS FIC)

Alice Doyle
(UNOLS Deputy Executive Secretary)

Tara Celemente
(UNOLS Technical Services Manager)

Progress in Fall 2025

- Meeting 3 times (Aug. 5th, Oct. 2nd, and Nov. 10th)
- Retain documentation and understand current capabilities/asset inventory (archived in UNOLS office doc repository)
- Highlight immediate needs e.g. retention of the workforce, sampling repository discussion, etc.
- Individual institutions are fragile, but *to the extent that we operate as a system* we have capacity for significant resilience.

Working Sub-group		
Maintaining Marine Science Operations Workforce	Tara Clement Hannah Gray Alice Doyle	Tech pool & Tech exchange programs Persons-basis introductions of USAP techs to the community
Maximizing the Value of Returned Samples	**Brendan Reilly** **Kevin Johnson** **Maureen Davies-Walczak**	Survey and survey report completed, highlighting: • Collaboration with SODCO • Centralized discoverability • Consistent archival practice
Vessel's Overboard Handling Capabilities	**Andrew Naslund** **Ethan Roth** **Paul Walczak**	Overboard Handling System specification spreadsheet (in progress)
Reestablishing Longer Piston Coring Capabilities	[inc.]	
Achieving 5,000 m+ Dredging (and coring) Capability	[inc.]	
Establishing US Lander-Style Seafloor Robotic Coring Systems	[inc.]	
Expanding Underwater Robotic Capabilities	**Sean Kelley** **Amy Baco-Taylor** **Amy Wagner**	Sub-seafloor-vehicles inventory (in progress)
Polar Region Science Support	**Hannah Gray** **Molly Patterson** **Amy Leventer** **Alice Doyle**	Archiving USAP MT manuals (in progress) ARV project files (complete) Polar Marine Seafloor sampling equipment inventory (complete)

Seafloor Sampling WG

1 group · 2 people · University National Oceanographic Laboratory Services (UNOLS)

Type | People | Modified | Source

Name

- Vessel Overboarding Capabilities
- AC_Geo_DrillShip_design
- Meeting Notes
- USAP MT Manuals
- ARV Project Files
- Meeting Files
- Maintaining Marine Science Operations Workforce
- Polar Region Science Support
- Maximizing Value of Returned Samples
- Expanding Underwater Robotic Capabilities
- Committee Members
- AGU Advances - 2025 - - The FUTURE of the US Marine Seafloor and Subseafloor Sampling Capabiliti...

Sub-Seafloor-Vehicles

File Edit View Insert Format Data Tools Extensions Help Ask Gemini

A1 | Vehicle

	A	B	C	D	E	F	G	H
1	Vehicle	Country	Owner	Type	Class	Status	Max Depth (Meters)	Deck Spa
2	Sentry	United States	WHOI	AUV	AUV	Active	6000	Med
3	Dorado AUV	United States	MBARI	AUV	AUV	Active	6000	Low
4	LRAUV	United States	MBARI	AUV	AUV	Active	1500	Low
5	REMUS 6000	United States	WHOI	AUV	AUV	Active	6000	Low
6	Orpheus	United States	Orpheus Ocean	AUV	AUV	Active	6000	Low
7	Eagle Ray	United States	USM	AUV	AUV	Active	3000	Low
8	Mola Mola	United States	USM	AUV	AUV	Active	2000	Low
9	Alvin	United States	WHOI	HOV	HOV	Active	6500	NA
10	Neried Under Ice	United States	WHOI	HROV	Work	Active	5000	Low
11	Jason II	United States	WHOI	ROV	Work	Active	6500	Large
12	mROV 1 (In prod)	United States	WHOI	ROV	Work	In Design	4000	Med
13	mROV 2 (In Prod)	United States	NOAA	ROV	Work	In Design	4000	Med
14	Subastion	United States	Schmitt	ROV	Work	Active	4500	Embedde
15	Lu`u`kai	United States	SOEST	ROV	LightWork	Active	6000	Med
16	Doc Ricketts	United States	MBARI	ROV	Work	Active	4000	Embedde
17	Hurcules	United States	OET	ROV	Work	Active	4000	Embedde
18	Deep Discoverer	United States	NOAA	ROV	Work	Active	6000	Embedde
19	Ventana	United States	MBARI	ROV	LightWork	Active	1800	Embedde
20	Odysseus	United States	Pelagic	ROV	Work	Active	6000	Med
21	Odysseus 4k	United States	FIO	ROV	Work	Active	4000	Embedde
22	Global Explorer	United States	Oceaneering	ROV	LightWork	Active	3000	Med

Seafloor samples from a single cruise can come in many flavors (images, geophysics, biological, fluid, sediments, rocks…). We need systemic custodianship of all data and physical materials.

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