



SMARTEX

Seabed Mining and Resilience
to Experimental Impact

SMARTEX is a multi-disciplinary project researching the oceanography, biogeochemistry, seafloor structure and biology of the Pacific abyss through observations, experiments, and modelling approaches.

Project highlights – July 2024

Biodiversity

- SMARTEX researchers estimate up to 8,000+ species exist across the CCZ, with **more than 88% still being undescribed** (Rabone et al., 2023).
- **Multiple new species have been formally described**, and more than 150 potentially new species are identified (Bribiesca-Contreras et al., 2021; Neal et al., 2022, 2023; Wiklund et al., 2023).

Biogeography

- SMARTEX provides new insights into species' distributions, including delineation of two **new biogeographic provinces** (Simon-Lledó, et al., 2023) and finding **enhanced biodiversity on hard substrates** for megafauna (Uhlenkott et al., 2022, 2023; Mejía-Saenz et al., 2023).
- **Microbial functioning varies** between sediment and nodules, and at local scales (cm to 100s m) (Hollingsworth et al., 2021).
- **Highly mobile species display variation** in their distribution across the CCZ (Bribiesca-Contreras et al., 2021; Drazen et al., 2021).

Connectivity

- New **insights into basin-wide genetic connectivity** of benthic fauna helps our understanding of ecosystem resilience (Bribiesca-Contreras et al., 2021; Neal et al., 2022; Stewart et al., 2023).
- **New pathways to the biological carbon pump** were discovered (Hoving et al., 2022; Simon-Lledó et al., 2023).



Seafloor life at 4,100 m depth in the CCZ captured by the ROV ISIS. Credits: NOC, NHM: SMARTEX

Publications



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Latest expedition



RV James Cook
expedition JC257

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