MODULE 3, LESSON 3

BIOLOGY OF POLYMETALLIC SULPHIDES

READING LIST

REQUIRED READING

Baker, E.T., et al. (2018). Hydrothermal vents and methane seeps: Rethinking the sphere of influence. Frontiers in Marine Science, 5, 80.

Clark, J.F. (2017). The biology of deep-sea hydrothermal vents: A review. Marine Ecology Progress Series, 592, 1-22.

Giere, O. (2017). Meiobenthology: The microscopic motile fauna of aquatic sediments. Springer.

Mullineaux LS, Metaxas A, Beaulieu SE, Bright M, Gollner S, Grupe BM, Herrera S, Kellner JB, Levin LA, Mitarai S, Neubert MG, Thurnherr AM, Tunnicliffe V, Watanabe HK and Won Y-J (2018) Exploring the Ecology of Deep-Sea Hydrothermal Vents in a Metacommunity Framework. Front. Mar. Sci. 5:49 doi: 10.3389/fmars.2018.00049

Van Dover, C.L. (2017).a Impacts of deep-sea mining on microbial ecosystem services. Frontiers in Marine Science, 4, 358.

Van Dover, C.L., et al. (2017).b Biodiversity loss from deep-sea mining. Nature Geoscience, 10(6), 464-465.

Van Dover CL (2019) Inactive Sulfide Ecosystems in the Deep Sea: A Review. Front. Mar. Sci. 6:461. doi: 10.3389/fmars.2019.00461

Van der Most N, Qian P-Y, Gao Y and Gollner S (2023) Active hydrothermal vent

Ecosystems in the Indian Ocean are in need of protection. Front. Mar. Sci. 9:1067912. doi: 10.3389/fmars.2022.1067912

http://web.vims.edu/bio/shallowwater/benthic_community/macrofauna.html last accessed, 12th December, 2023.

OPTIONAL READING

Andersen, C., Theissen-Krah, S., Hannington, M., Rüpke, L., and Petersen, S. (2017). Faulting and off-axis submarine massive sulfide accumulation at slowspreading mid-ocean ridges: a numerical modeling perspective. Geochem. Geophys. Geosyst. 18, 2305–2320. doi: 10.1002/2017GC006880.

Boschen, R. E., Rowden, A. A., Clark, M. R., and Gardner, J. P. A. (2013). Mining of deep-sea seafloor massive sulfides: a review of the deposits, their benthic communities, impacts from mining, regulatory frameworks and management strategies. Ocean Coast. Manag. 84, 54–67. doi: 10.1016/j.ocecoaman.2013. 07.005.

Boschen, R., Rowden, A., Clark, M., Barton, S., Pallentin, A., and Gardner, J. (2015). Megabenthic assemblage structure on three New Zealand seamounts: implications for seafloor massive sulfide mining.Mar. Ecol. Prog. Ser. 523, 1–14. doi: 10.3354/meps11239.

Cherkashov, G., Poroshina, I., Stepanova, T., Ivanov, V., Bel'tenev, V., Lazareva, L., et al. (2010). Seafloor massive sulfides from the northern equatorial midatlantic ridge: new discoveries and perspectives. Mar. Georesources Geotechnol. 28, 222–239. doi: 10.1080/1064119X.2010.483308.

Edwards, K., Rogers, D., Wirsen, C., and Mccollom, T. (2003b). Isolation and characterization of novel psychrophilic, neutrophilic, alpha- and gamma- Proteobacteria from the deep dea. Environ. Microbiol. 69, 2906–2913. doi: 10 1128/AEM.69.5.2906

Huang J, Chen P, Zhu Y, Wang J, Song L, Han X and Huang Y (2023) Biogeography and potential ecological functions of prokaryotes in the hydrothermal and non-hydrothermal field sediments of the Indian Ocean Ridges. Front. Mar. Sci. 9:1072569. doi: 10.3389/fmars.2022.1072569

Popoola, S.O., Han, X., Wang, Y., Qiu, Z., Ye, Y., Cai, Y (2019)a. Mineralogical and Geochemical Signatures of Metalliferous Sediments in Wocan-1 and Wocan-2 Hydrothermal Sites on the Carlsberg Ridge, Indian Ocean. Minerals, 9, 26.

Popoola, S.O., Han, X., Wang, Y., Qiu, Z., Ye, Y (2019)b. Geochemical Investigations of Fe-Si-Mn Oxyhydroxides Deposits in Wocan Hydrothermal Field on the Slow-Spreading Carlsberg Ridge, Indian Ocean: Constraints on Their Types and Origin. Minerals, 9, 19.

Popoola, SO.., Akinnigbagbe AE (2021). Integrated Geochemical Investigations on Fe-Mn Nodules, Polymetallic Sulfides and Fe-Mn Oxides Recovered from Marine Sediments of Carlsberg Ridge, Northwest Indian Ocean. Adv Environ Stud 5(1):394-403.

Van Dover, C.L.., A. Colaço., P.C. Collins., P. Croot., A. Metaxas., B.J. Murton., A. Swaddling., R.E. Boschen-Rose., J. Carlsson., L. Cuyvers., T. Fukushima., A. Gartman., R. Kennedy., C. Kriete., N.C. Mestre., T. Molodtsova., A. Myhrvold., E. Pelleter., S.O. Popoola., P.-Y. Qian., J. Sarrazin., R. Sharma., Y.J. Suh., J.B.