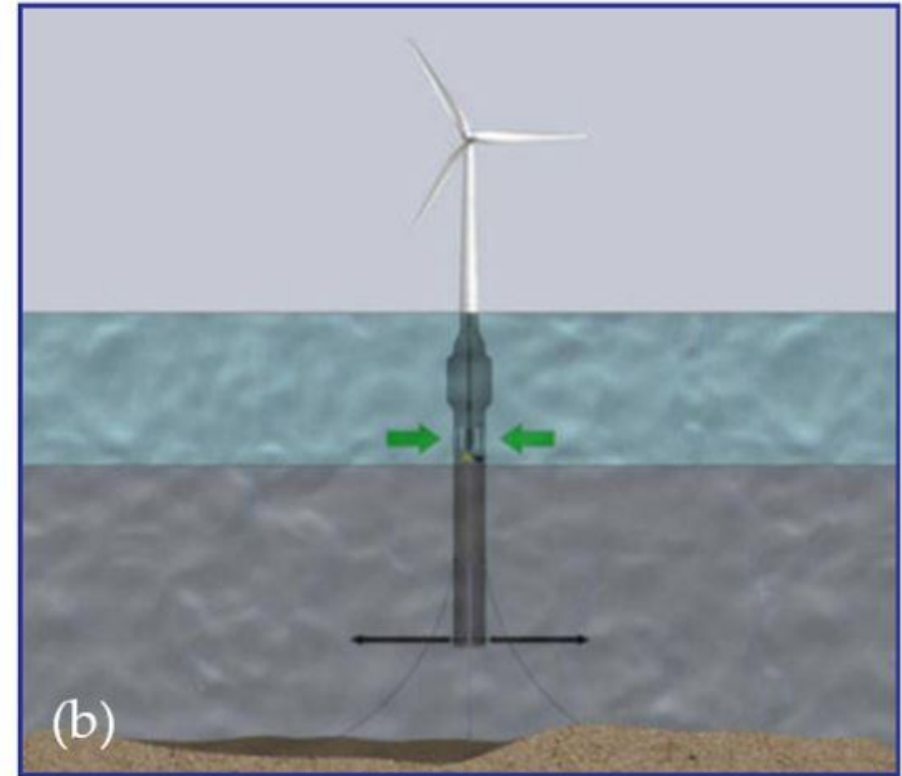
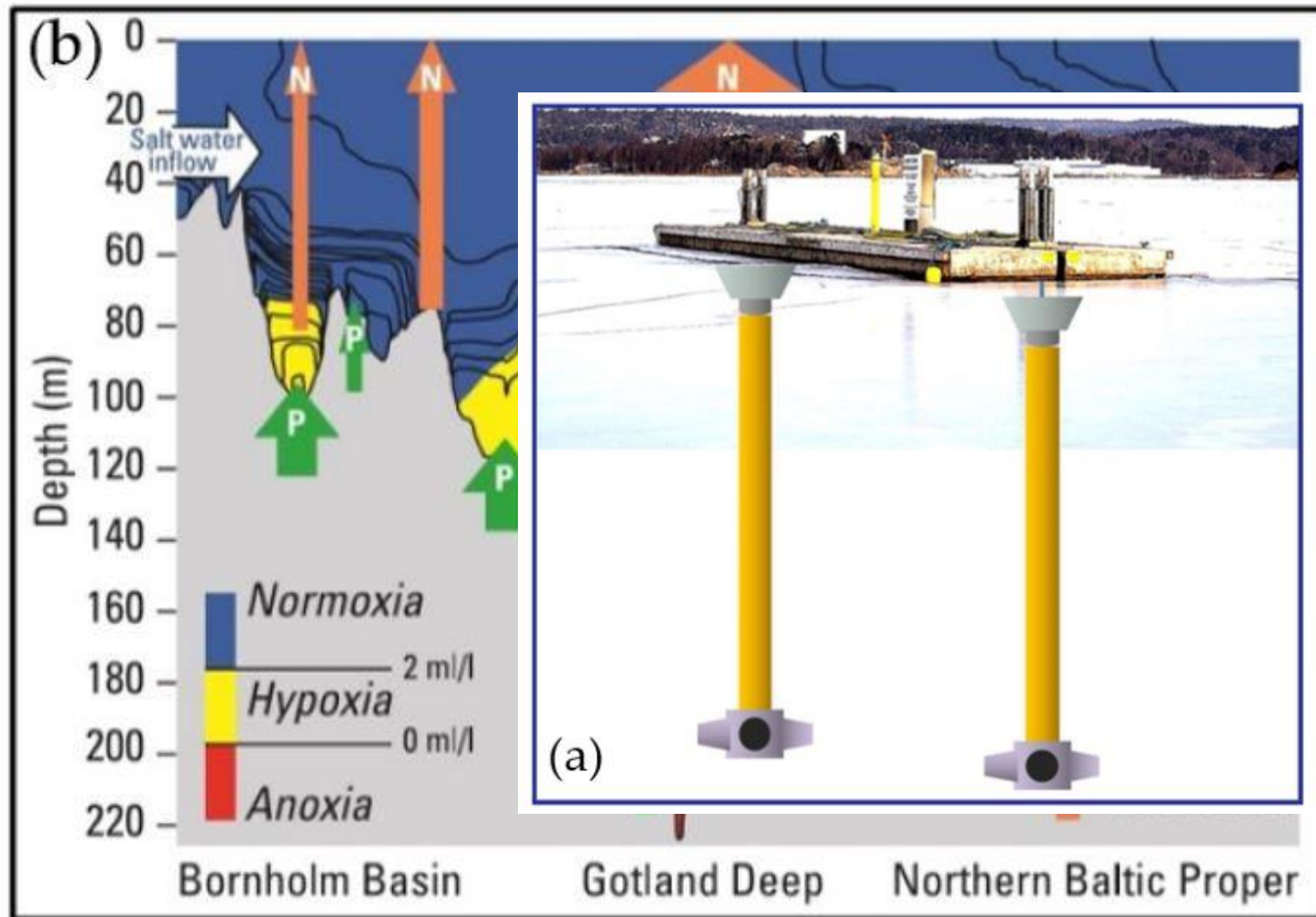


The effects of re-oxygenation of central Baltic Sea sediment; a laboratory study

Presenter: Sina Shahabi-Ghahfarokhi

27.05.2022

Eutrophication and solutions



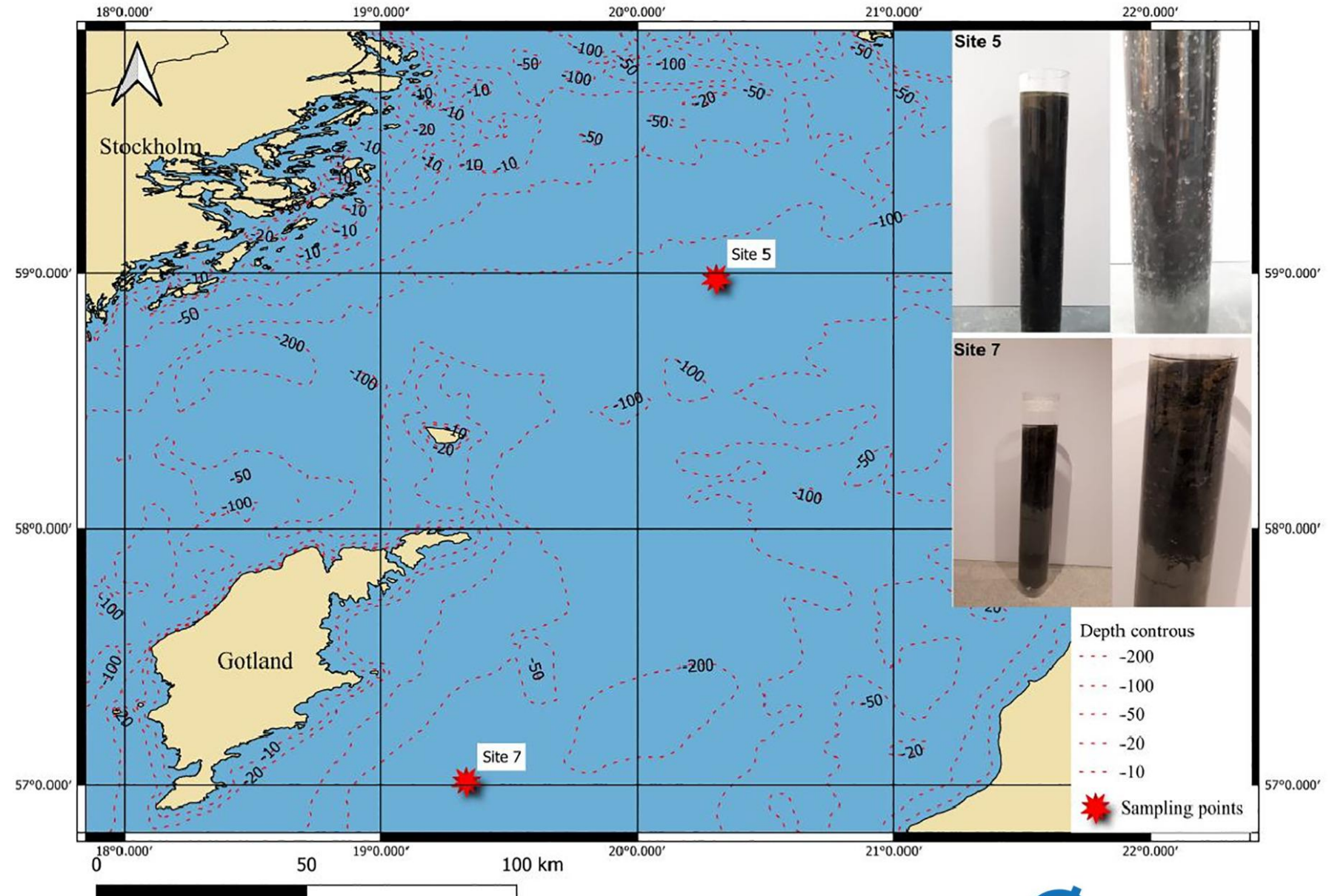
Liu et al., 2020

Study Site

N and S Baltic Proper

174-175m

Different Material

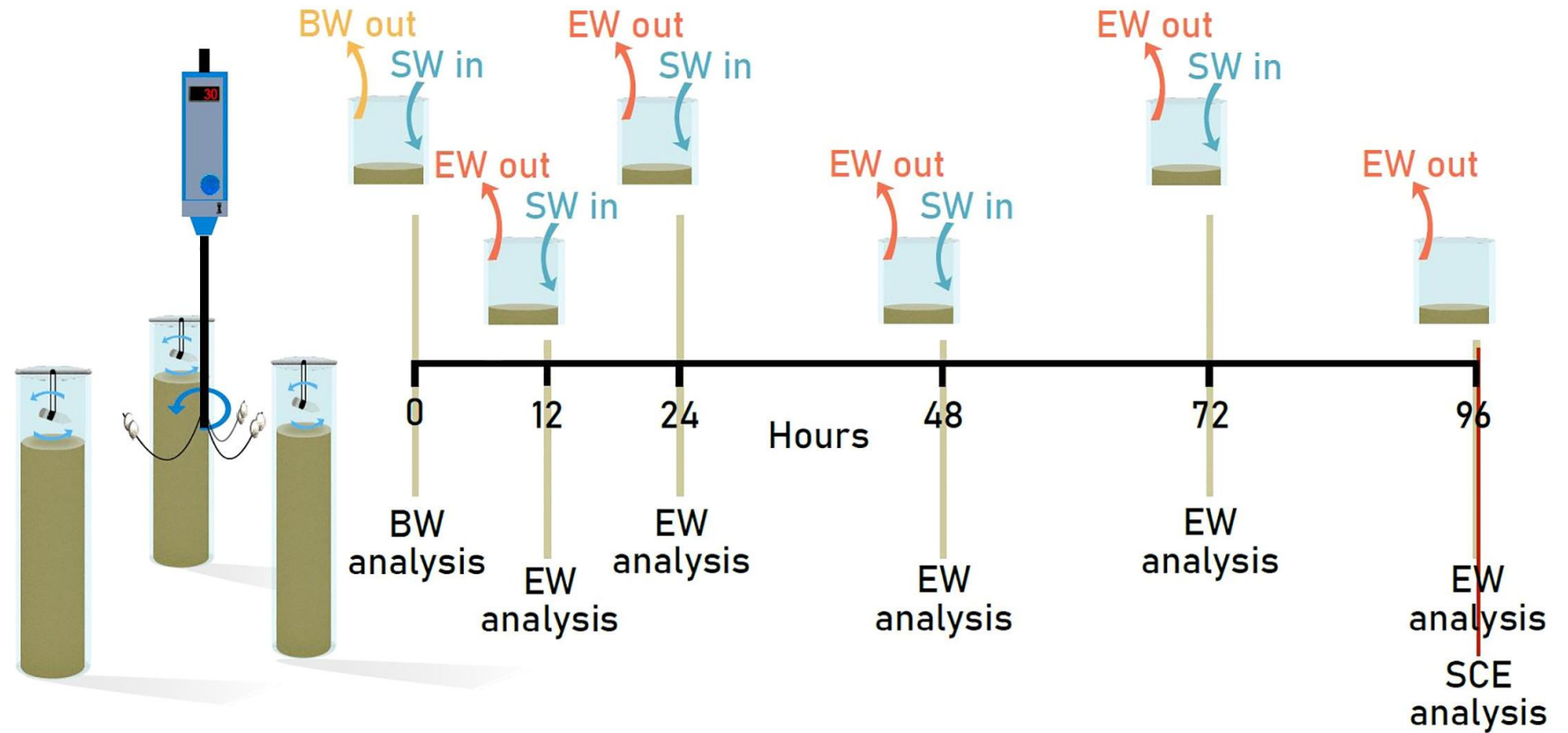


Reoxygenation

96 hours

EC and pH

Soluble metals



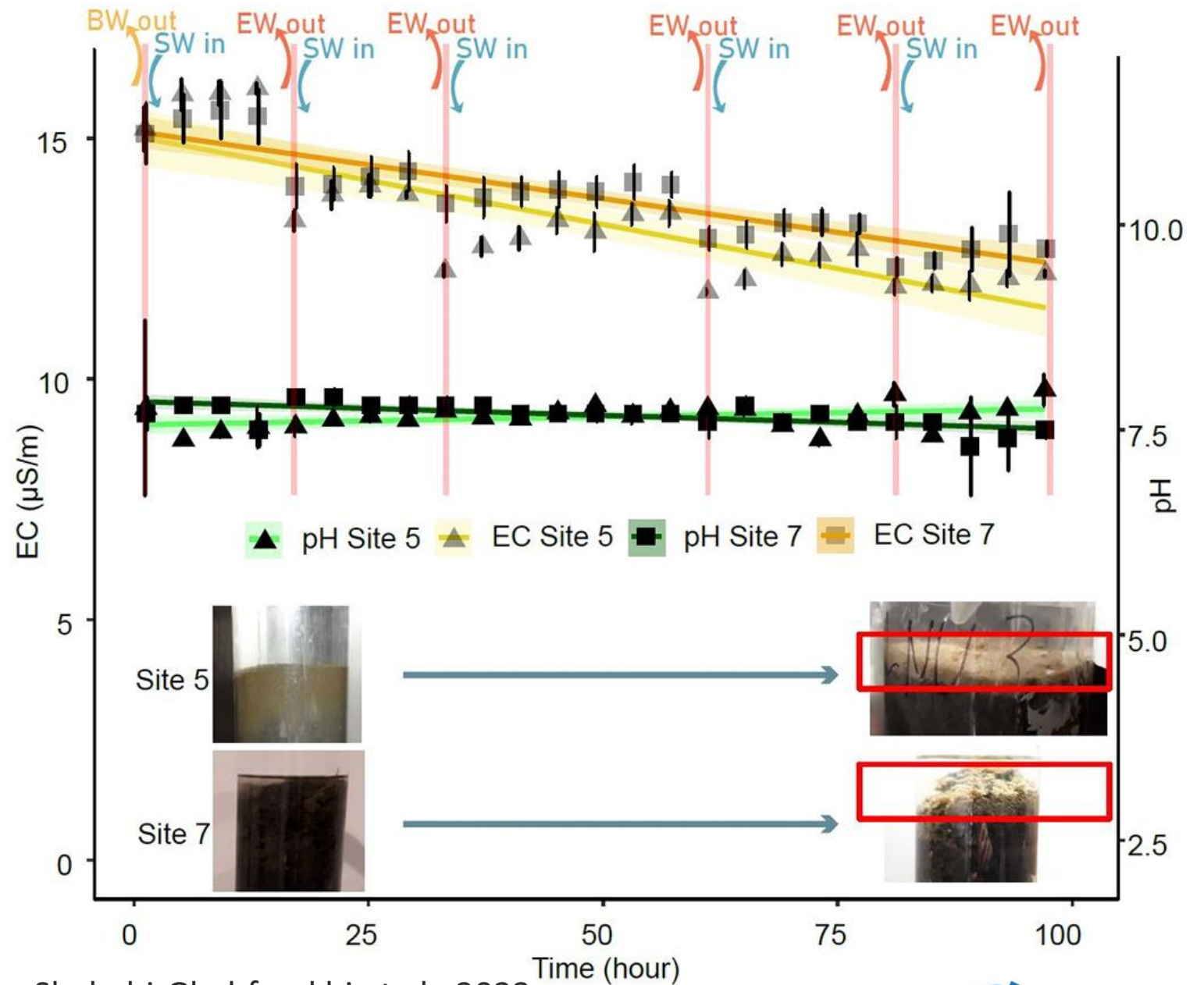
Shahabi-Ghahfarokhi et al., 2022

EC and pH

pH is stable

EC overall decreasing

Change in color



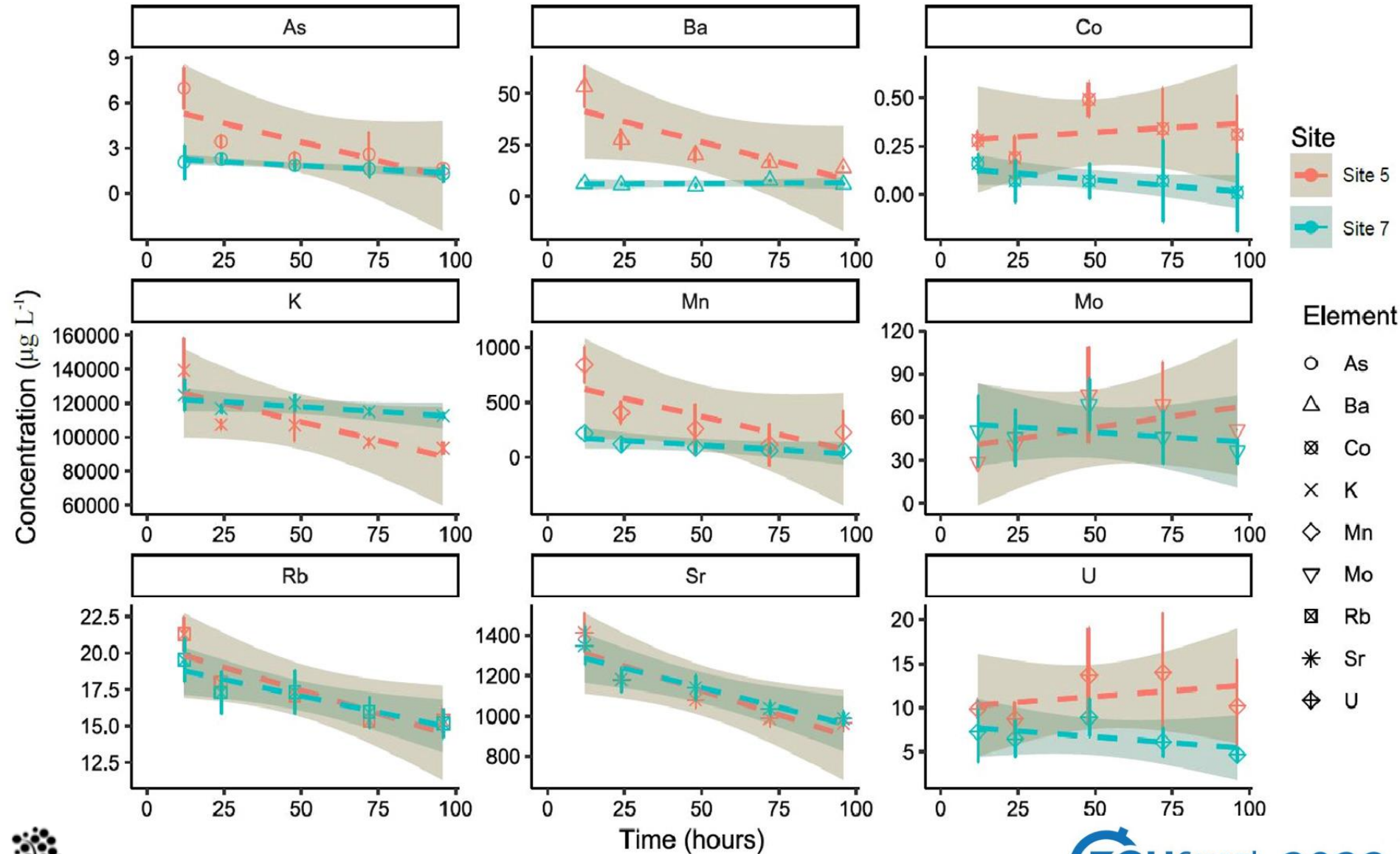
Shahabi-Ghahfarokhi et al., 2022

Soluble Metals

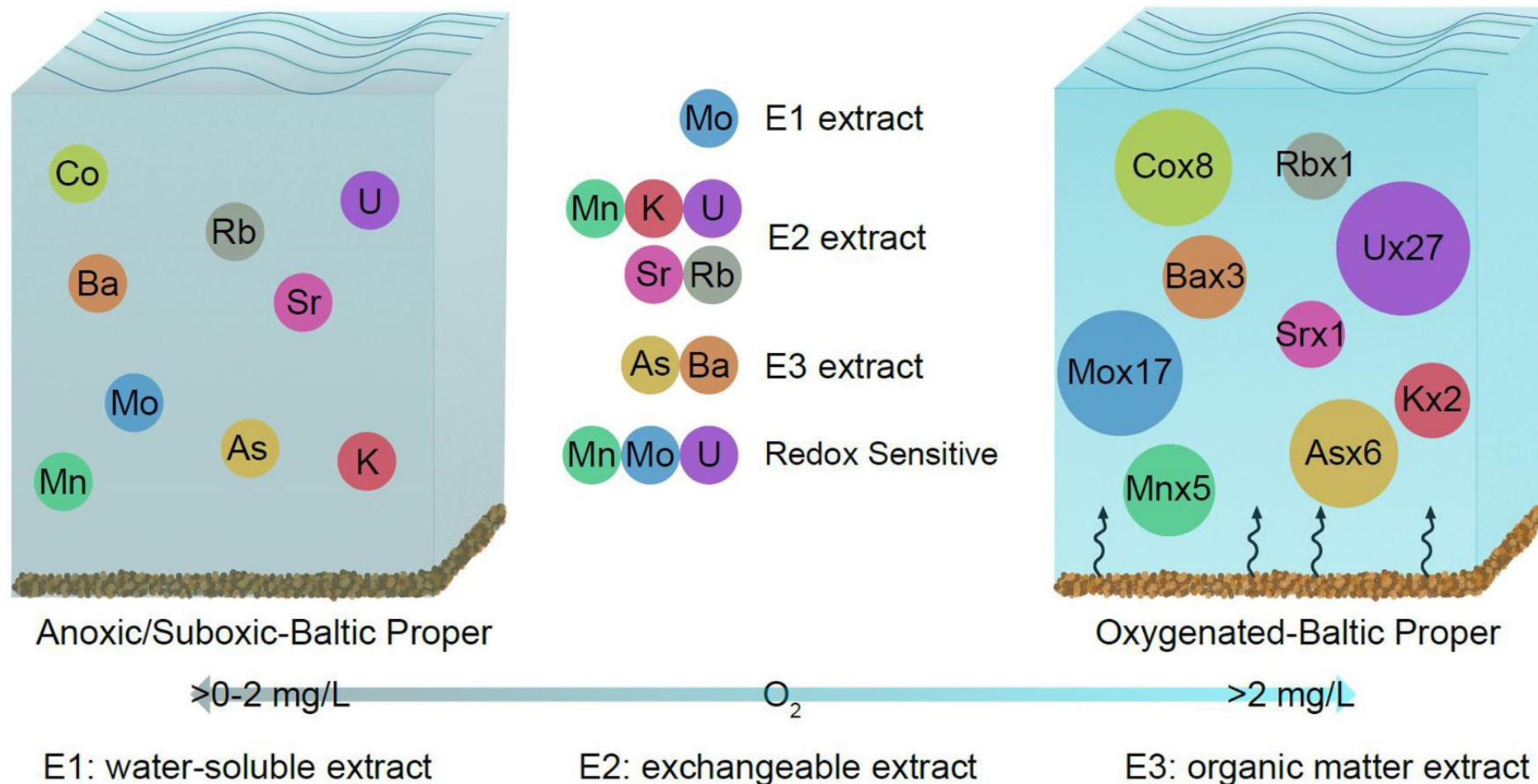
Detected

Co, Mo, and U

As, Ba, Mn, Rb, SR



What this means for the Baltic Sea



Shahabi-Ghahfarokhi et al., 2022

Recommendation

Obviously to reduce organic and inorganic pollution!

Bio-adsorbers must be used in the initial phase of reoxygenation.



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The response of metal mobilization and redistribution to reoxygenation in Baltic Sea anoxic sediments



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Thank you for your
attention

References

Shahabi-Ghahfarokhi, S., Rahmati-Abkenar, M., Jaeger, L., Josefsson, S., Djerf, H., Yu, C., Åström, M., Ketzer, M., 2022. The response of metal mobilization and redistribution to reoxygenation in Baltic Sea anoxic sediments. Science of The Total Environment 155809. <https://doi.org/10.1016/j.scitotenv.2022.155809>

Liu et al., 2020 S. Liu, L. Zhao, C. Xiao, W. Fan, Y. Cai, Y. Pan, Y. Chen Review of artificial downwelling for mitigating hypoxia in coastal waters Water, 12 (2020), p. 2846, 10.3390/w12102846

Conley, D.J.; Bonsdorff, E.; Carstensen, J.; Destouni, G.; Gustafsson, B.G.; Hansson, L.A.; Rabalais, N.N.; Voss, M.; Zillén, L. Tackling Hypoxia in the Baltic Sea: Is Engineering a Solution? Environ. Sci. Technol. 2009, 43, 3407–3411.