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The effects of environmental pressures on seafloor communities and their ecological functions: Coping with acidification, hypoxia, mining

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This presentation synthesizes and discusses recent results from integrative biogeochemical studies of naturally complex seafloor communities that assessed the consequences of environmental impacts such as hypoxia, CO_2 leakage, degassing and mechanical abrasion. As anthropogenic pressures are increasing on coastal seas and continental margins, it is important to develop and test concepts to assess the good environmental status of seafloor habitats and deviations from it, as well as the recovery and resilience of seafloor communities and their ecological functions. In the past few years, several international programs have focused especially on the assessment of benthic microbial diversity and functions as early indicators of seafloor disturbances, versus other variables such as faunal community structure, biogeochemical fluxes, benthic respiration. New results are presented that address the different time scales of disturbance and recovery for seafloor communities of different benthic size classes and different ecological functions. This talk argues for the need of systematic scientific approaches to observing seafloor states and dynamics as a contribution to the sustainable development of oceans, seas and marine resources. It highlights challenges and opportunities with technological advances in seafloor observation.