D-52: Community ecology as a basis for estuary management: the Chesapeake Bay benthic community restoration goals

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Resource management is most likely to be effective, when its objective is to maintain healthy natural assemblages of organisms. This approach has not been used in estuaries, especially those large enough to encompass several

different habitats, because of the difficulty of establishing expectations for biota inhabiting unimpacted areas. Organisms living in estuarine bottom sediments (benthic macroinfauna) are reliable, sensitive, and integrative indicators of bottom habitat condition. A seven-step process was used to establish quantitative, habitat-specific expectations (restoration goals) for benthic community measures (species richness, abundance and biomass, life history and feeding guilds, and sediment depth distribution) for unimpacted areas of Chesapeake Bay which is a 400 km long, 8 to 48 km wide, 6,500 km^2 estuary on the Atlantic coast of U.S.A. Evaluation of benthic data in the context of these restoration goals identified the areas in greatest need of restoration, as well as the primary causes for degraded bottom habitats. The principles and approaches used to develop the restoration goals could be used to develop expectations for other bottom habitats, or other types of biota.