Conowingo Sediments as a Resource: Results from the Pilot Project and Next Steps for Commercialization

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Background/Objectives. Approximately 250 MCY of sediment have accumulated behind the Conowingo Dam since its construction in 1928. The Reservoir, now at equilibrium, is associated with increased sediment and nutrients from the Susquehanna River entering the Chesapeake Bay, increasing eutrophication and related ecological impacts. In 2019 the State of Maryland launched a pilot project to begin addressing this problem by characterizing sediment behind the Dam, evaluating potential sediment reuses, and otherwise preparing for the possibility of large-scale dredging. This presentation provides results of the combined efforts and identifies next steps for addressing "the Conowingo Dilemma." Specifically, a framework is provided that integrates this research on innovative reuse markets for dredged sediment with 1) new water quality credit opportunities to finance dredging at scale and 2) policy and regulatory shifts that could support a market-based solution to help Maryland and neighboring states meet federally mandated water quality goals. Recently identified immediate next steps are also provided.

Approach/Activities. In 2020, leaders from the State of Maryland and mitigation bankers with experience in dredging began to explore how to accomplish these goals in parallel with actions the State may take. These activities are establishing the economic and ecological foundations for dredging, sediment processing, and commoditization of innovative reuse products derived from the sediment, as well as forwarding needed policy enhancements to ensure the water quality credit sales system can help meet regional water quality goals. Activities included modeling the ecological benefits of dredging; studies on bioavailability of nutrients in the sediment; engineering and design for sediment dredging, transport, and handling; bench-scale research on a diversity of potential products made from the sediment (e.g., concrete, agricultural soil, cement clinker); and economic analysis of market saturation rates and cost-efficiency for the State of each innovative reuse.

Results/Lessons Learned. These activities have clarified that for an environmental dilemma of this scale, policy innovation is required along with long term commitments to enhanced environmental and economic outcomes. Recently identified specifics will also be provided regarding infrastructure needs for large-scale dredging, sediment processing, and commercialization; site identification parameters; permitting considerations; public acceptance strategies; and novel public-private finance partnerships to implement a solution.