Moving the Needle:
Beneficial Use of Contaminated Sediments in the United States

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Introduction: Assessment and management of contaminated sediments in the United States represents a significant cost to the US Department of defense (DoD), ports and private industry impacting the nation's navigation infrastructure and affecting the free flow of commerce. Current estimates for management of contaminated sediments associated with US DOD facilities are in excess of $2B. Private industry expends $100s of millions each year on contaminated sediments and is facing multi-billion dollar clean-up costs to address contaminated sediments at legacy "mega-sites" (e.g., $2-2.5 billion for the Port of Portland in Oregon and $2-3 billion for the Lower Passaic River in New Jersey). Additionally, the USACE's navigation dredging program expends $10s-100s of millions on an annual basis managing the 10-20 million cubic yards of contaminated sediments in Federal navigation channels.

Many sediment management projects are in locations subject to the impacts of sea-level rise, where the need to develop and implement beneficial use (BU) for dredged and contaminated sediments is real and, in some cases, urgent. Currently only 30-40% of the 200+ million cubic yards the USACE dredges on an annual basis is used beneficially. The Chief of Engineers recently instituted a policy goal of 70% BU of dredged materials by 2030. There are significat opportunities to beneficially use relatively clean dredged materials and innovate beneficial uses of more contaminated sediments as well.

It is critical that the US invest in strategic planning, technology development, and creative thinking around implementation approaches to enable more cost effective and sustainable practices for the assessment and management of contaminated sediments. In 2023, US Congress directed the USACE ERDC to develop a public-private partnership focused on research, development and implementation of solutions for the assessment and management of contaminated sediments. Both the public and private sectors are motivated to advance innovation in sediment management to reduce costs, accelerate project schedules, and develop a diverse array of benefits through BU of sediments.

Approach: This presentation will summarize initial efforts in the development of a public private partnership to include findings from a recent white papers developed for Industry and the USACE on the current state of the practice for BU of dredged materials and contaminated sediments. The first of these efforts is a literature review summarizing existing programs, regulatory frameworks, and/or systems that have been developed to encourage BU of contaminated sediment across North America and Europe, identifies benefits and challenges of BU and culminates in a series of key observations/ recommendations regarding the current state of the practice and barriers to be overcome to "move the needle". A second paper summarizes the current state of the science around treatability technologies to promote the chemical and physical stabilization of contaminated sediments for potential BU. Finally, a third and related effort, underway within the USACE will summarize the current state of the science with respect to the BU of dredged materials along with limitations and barriers to help shape future regulation and policy. An overview of each of these papers will presented along with general conclusions and recommendations.

Summary: A Public Private Partnership between the USACE-ERDC and Industry is in development to support research and technology needs for the assessment and management of contaminated sediments and expand potential opportunities for BU. A series of white papers were developed to capture the current state of the science and identify information and policy gaps. Results of these efforts are summarized along with a notional path forward for a research and technology development strategy.