

## Assessing Sustainability and Ecosystem Support in Dredging and Navigation Projects

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**Background/Objectives.** The US Army Corps of Engineers' (USACE) Navigation Mission is concerned with maintaining the navigability of our nation's waterborne transportation system. Dredging and sediment management projects form the cornerstone of the mission. Sustainability is traditionally described as a balance between social, economic, and environmental "pillars." Through these themes, sustainability analyses can evaluate interests to 1) reduce costs/impacts from an activity, in terms of environmental, monetary, and other resources, 2) increase the potentially many types of benefits/values of or derived from the activity, and 3) align costs and benefits that accrue at different points and time. An important aspect of The USACE Navigation Mission is particularly interested in its long-term ability to manage substantial sediment volumes in a cost-effective way. This must be traded off against the specific environmental and regional economic concerns in order for effective planning and negotiation with non-Federal sponsors. A major consideration for long-term planning in sustainability is describing and considering what entities share the short term and long-term environmental and economic costs and benefits.

**Approach/ Activities.** A sustainability analysis case study in the Cleveland region is used to investigate project alternatives that attempt to maximize the beneficial use of dredged sediment, reduce the impact of sediment management activities, and/or increase the efficiency of the Navigation Mission. This case study also discusses potential sustainability improvements from removing specific inefficiencies or implementing specific improvements in terms of operations and policy. For Cleveland, the analysis involves developing a decision framework that integrates environmental effects of placement activities, environmental effects from the placed material, long-term utility and cost to the USACE mission, regional economic effect of the placement strategy, and trade-offs in the effects on the environment, sediment management goals, and regional well-being. Metrics will include volumes of material, distances transported, and excess activities required to place and re-mine material from placement sites.

**Results/Lessons Learned.** As the sustainability analysis case study is completed, results will summarize sustainability-related data along each theme/metric for each alternative strategy considered. Results are expected to be instrumental in helping USACE districts communicate planning challenges to their local stakeholders and will support future development of more sustainable project alternatives.