



Riverine Aquatic Placement Beneficial Use Guidance

Dredging Operations Environmental Research (DOER) Program

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

Focus Area

Sediment and Dredging Processes

Problem

Sustainable beneficial use (BU) practices have been gaining traction within the Corps yet unsustainable practices remain in some areas where sediments are being managed in riverine environments. One example is the continued practice of removing dredged sediments from the system where they originate, subsequently to be used as granular fill for construction or in other industrial uses. While technically considered BU, these practices effectively remove sediment from the system and thereby in-river benefits are lost. In certain parts of the US (e.g., Upper Mississippi River) these practices persist due to the lack of knowledge about sediment transport processes during dredging, placement, and post-placement activities.

Study Description

This research will demonstrate how to make in-river and near-river management of sediments more sustainable. The publication of research regarding the hydrodynamic and hydraulic models that can be applied along with the various natural and nature-based features that can be implemented in riverine environments would generate the data and other information needed to advance in-water BU practice. Further, in-river, sustainable BU lags coastal applications. There is a need for additional case study documentation along with guidance for broader application nationwide. (Photo: Bonanza Bar on the Ohio River shortly after placement of dredged sediment [USACE Huntington District]).



Products

Major products are: 1) Document success story of Bonanza Bar on the Ohio River; 2) Document BU project on Pool 5 to restore rolling prairie habitat; 3) Develop design and field collection strategy for identified project along the Mississippi River; 4) Organize and lead a workshop of select riverine experts to identify challenges and opportunities for sustainable river dredging solutions; 5) Develop robust guidance which can be broadly applied across riverine systems in the US.

Summary

Beneficial use guidance for riverine features built with dredged sediment simultaneously supports USACE Navigation and Ecosystem Restoration business lines by developing sustainable dredged sediment management practices which re-introduce complex morphology to rivers that will support improved bank stabilization, enhance channel stability, and increase habitat diversity. In-water placement may be more sustainable but can also be accomplished at reduced cost relative to alternatives that remove the sediment from the aquatic system and otherwise restrict the benefits that can be achieved through sediment beneficial use practices that engineer with nature.



Balancing operational and environmental initiatives and meeting complex challenges of dredging and dredged material placement in support of the navigation mission.



Burton Suedel

Environmental Laboratory • Burton.Suedel@usace.army.mil

January 2022