



Evaluation of dredging requirement as a function of channel infill processes

Dredging Operations Environmental Research Program (DOER)

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

Problem

Dredging in channels and harbors typically occurs on a set dredging cycle that may have been authorized at some time in the past. This dredging cycle authorizes the amount of dredging that may occur along a specific channel or within a harbor system. However, these cycles do not consider past dredging records and site specific forcing data that could help inform decision makers as to when and where dredging should take place, which areas should take precedence and how removed material can be put to beneficial use.

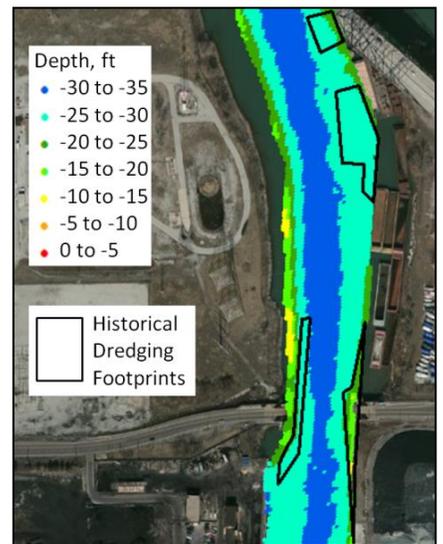
Study Description

This project intends to analyze channel infilling based on forcing data and historical dredging events. The data will be used in a predictive rather than a reactive fashion. This information will be used to formulate a prediction of a range of potential dredging volumes as well as the risk of exceeding the average dredging rate based on the classification of years as high or low in storm activity or rainfall. Three pilot sites will be used to develop the methodology. A new predictive tool will be developed to predict the volume of material to be dredged at each site of interest. When possible, recommendations about beneficial use can also be made. Research will also be conducted to identify the sources of channel sediments and what can be done to reduce the sources.



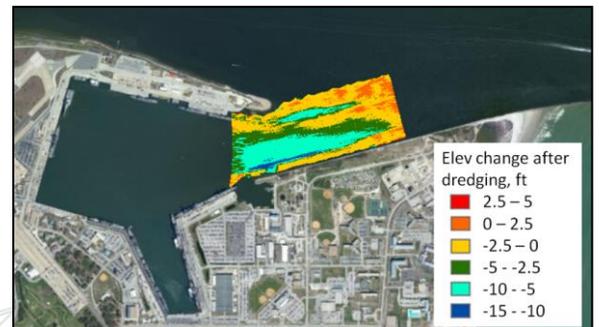
Products

An online tool will be made available for Districts that will make probabilistic predictions on dredging quantities that can inform dredging managers about how their site responds to periods of variable storm activity and rainfall totals. When sufficient data is available, there can also be determinations about what reaches will take priority following certain events. In addition, guidance documentation and summaries of the pilot site methodologies will be written and a webinar describing the online tool will be conducted.



Summary

This tool will allow for more informed dredging decisions and has the potential for economic benefits as it will allow for more efficient and accurate dredging scheduling that will better coincide with what occurs in the channels and harbors. Finally, the tool will assess the site's response to periods of high tropical storm activity and rainfall totals to aid in the overall understanding of what factors most impact infilling of channels and harbors.



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



Ashley Frey • Lauren Coe

Coastal and Hydraulics Laboratory • Ashley.E.Frey@usace.army.mil •

Lauren.A.Coe@usace.army.mil