



Development of Rapid Assessment Tools for Sediment Remediation Evaluations-Recovery In Situ

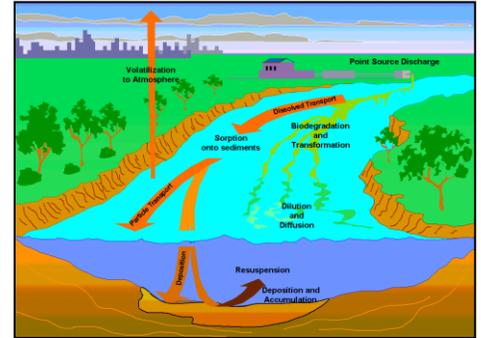
Dredging Operations Environmental Research Program (DOER)

U.S. ARMY CORPS OF ENGINEERS

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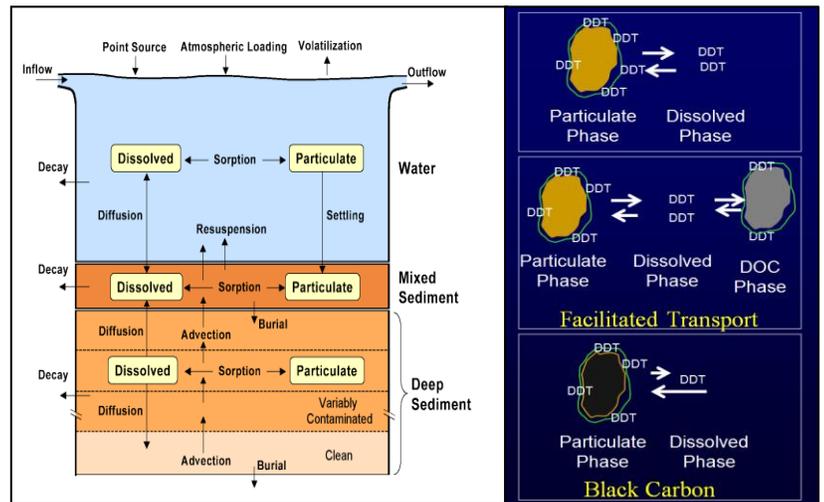
Problem

The field needs a model/tool to evaluate the performance of sediment remediation in the presence of inadequate source control and other temporal impacts to the site. Most of the sediment remediation, in particular caps, were designed to provide risk reduction without due consideration of the performance of the remedial technology versus the remedial action. A compilation of models/tools that can be used to generate spatial and temporal distribution of contaminants flowing/depositing/impacting the landscape of a remedial action, that is: in situ treatment, capping, MNR, and others is needed to design and evaluate remediation alternatives and the potential human and ecological risk reduction. The Corps of Engineers and other government agencies design engineers and regulatory personnel would benefit with a model/tool/framework to design and evaluate remediation alternatives.



Study Description

The objective of this research is to provide tools for rapid assessment and generation of a Conceptual Site Model (CSM) to be further evaluated under a model like RECOVERY resulting in the coupled framework RECOVERY-In situ. The In situ CSM generating tool will provide a spatial representation of the remedial action surface layer; resulting from deposition of particulate matter from ongoing sources (CSOs), deposition from atmospheric sources, dissolved and particulate matter from upstream sources, and other seasonal disturbances like dredging events. The tools and or models will be grouped into three different categories: watershed, hydrological/hydrodynamic, and CSOs. This research task will develop the coupled framework and will incorporate new contaminant and biological formulations into RECOVERY. The framework will aid in selecting and ranking remediation alternatives by performance modeling in the presence of external disturbances.



Products

An In situ CSM generating tool will provide a spatial representation of the remedial action surface layer; resulting from deposition of particulate matter from ongoing sources (CSOs), deposition from atmospheric sources, dissolved and particulate matter from upstream sources, and other seasonal disturbances like dredging events. The coupled framework/tool RECOVERY-In situ for selection, assessment, and design of remediation alternatives and Tech Notes for guidance will be released.

Summary

As remediation technology implementation keeps running into external disturbances that both impact the design and performance of the remedial action, we need to develop tools/frameworks that can easily evaluate sediment remediation performance subject to those external challenges. The framework to address the effects of lack of complete source removal, temporal impacts to the remedial technology, and other seasonal disturbances will help the public and regulatory agencies maintain their trust in the technology. Therefore, a framework is needed to quantify and aid in the selection and implementation of sediment remediation alternatives.



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