



Dredged Material Management in Duluth-Superior Harbor

Dredging Innovations Group (DIG)

U.S. ARMY CORPS OF ENGINEERS

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Problem

The results of a DIG-funded study performed in 2012 determined that Duluth-Superior Harbor has the greatest dredging-related challenges among all the GL harbors. This work builds on that initial evaluation by evaluating existing data on mercury flux from Duluth-Superior Harbor sediments for assessing the potential environmental impact of using dredged sediment for habitat restoration at the 21st Avenue West Channel demonstration project. A detailed sampling and analysis plan is being implemented in cooperation with the state and federal technical resources that address the data gaps identified for monitoring mercury flux in the area. The critical need for the harbor is an assessment of how the multiple habitat restoration projects using navigation dredged sediment proposed for the St Louis River Area of Concern (AOC) may impact mercury concentrations in fish.



Study Description

Guidelines will be developed evaluating mercury flux from Duluth-Superior Harbor sediments for assessing the potential environmental risk of using dredged material for habitat restoration at the 21st Avenue West Channel project. The ERDC is assisting the USACE Detroit District with addressing State concerns on open water placement alternatives for dredged material in Duluth Harbor. A weight-of-evidence risk/decision-making approach is being developed to define key parameters that can be measured which weigh heavily on our assessment of potential exposure and mercury bioaccumulation risk. The objective is developing a transparent decision-making framework, with data analysis, risk assessment, and management recommendations. This study is providing a more formal analysis of the risk of low levels of mercury in dredged sediment in the estuary to help support a management decision by the States and other stakeholders.

Products

The products for this work will be a series of publications in multiple formats appropriate for a diverse audience. Technical notes and journal articles will serve as road maps for future beneficial use projects where open water placement issues are hampering dredging operations. Pilot demonstration project annual reports for 2013 and 2014 will be completed using discussions with academia and resource agencies to determine if further monitoring for mercury impacts is necessary at this project or at similar future projects. These products along with conference presentations will help satisfy the requirement to validate and gain acceptance of the results within Great Lakes states as well as other regulatory agencies and stakeholders.



Summary

This project is creating a transparent decision-making approach that utilizes data analysis and risk assessment for making risk-based decisions for managing slightly contaminated dredged material. This project is generating the products that tie the science to State and USACE regulatory programs and will provide a more formal analysis of mercury risk in the estuary to help support a management decision by the States and other stakeholders. This work is investigating how low levels of contamination in dredged material can be used for this restoration project in Duluth-Superior Harbor and will serve as a needed demonstration for beneficial use of dredged material, providing an example of dredged material beneficial uses for other harbors in the Great Lakes.

Addressing complex dredging challenges and building institutional capacity for long-term mission sustainability.



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