



## LAND RESEARCH PROGRAM

### RESEARCH ADVANCES UNDERSTANDING OF DREDGING RESIDUALS

#### Issue

When sediment in rivers, bays, and other water bodies is contaminated, a common remediation practice is to dredge the bottom and remove the sediments. During the process of removing sediments, however, materials or residuals are often left behind.

Post-dredging residuals may consist of material not captured by the dredge, sediment adjacent to the dredge cut that falls into the dredge footprint, suspended sediment that settles into the footprint, and suspended sediment that is transported downstream outside of the dredge footprint.

Residuals are influenced by many variables including the type of dredge, the operator's level of experience, the geochemical nature of the contaminated sediment, the hydraulics of the waterway, the physical nature of

the sediment bed and the presence of debris in and on the sediment bed.

Scientific information on residuals is limited, requiring further research to understand the impact they may have on the success of the dredging operation.

New tools are needed to measure the volume and concentration of residuals, predict how much residual material will result from dredging and help in the assessment of the effects of dredging residuals on aquatic life.

#### Science Objective

The Land Research Program in EPA's Office of Research and Development and EPA's Great Lakes National Program Office (GLNPO), initiated a field study in the summer of 2006 to evaluate post-dredge residuals in the Ashtabula River in Ohio. Sediments in portions of the river

are contaminated with polychlorinated biphenyls (PCBs). Approximately 600,000 cubic yards of contaminated sediments was removed from the river under the Great Lakes Legacy Act in 2006 and 2007.

The study was conducted in parallel with active dredging and incorporated monitoring before, during, and after dredging activities. EPA will return to the river over the next few years to study the recovery of the river.

#### Research goals:

- Measure the volume and contaminant concentration in dredging residuals
- Measure resuspension of sediments due to dredging activities

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- Evaluate the availability of contaminants in post-dredging residuals
- Determine if conventional characterization techniques can be used to measure residuals
- Develop a method for estimating the volume and concentration of post-dredging residuals
- Evaluate how contaminant mass removal relates to reduced risks to aquatic and human receptors

### LAND RESEARCH PROGRAM WEB SITE:

[www.epa.gov/ord/lrp](http://www.epa.gov/ord/lrp)

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### Application and Impact

Research will provide new information about dredging and dredging residuals. With the completion of the Ashtabula River study, findings will be used directly by EPA's Office of Superfund Remediation and Technology Innovation (OSRTI) and EPA's regional remedial project managers to select the most effective and environmentally prudent remediation techniques at contaminated sediment sites around the country.