

Environmental dredging is a common remedial action for managing contaminated sediments. However, post dredging contaminant concentrations in surface sediment are difficult to predict prior to initiating dredging actions. In some cases, post surface concentrations have been higher than anticipated. This research focused on methods to characterize post dredge residuals and develop an approach to predict post dredging residual contaminant characteristics and concentrations. In northeast Ohio on Lake Erie, the Ashtabula River was contaminated by a number of industrial sources over years of runoff and discharges. In 2006-2007, 1.1 miles of the river was dredged under the authority and leveraged funding of the Great Lakes Legacy Act. The dredging operation carried out over two fields season resulted in 540,000 yd³ of contaminated sediments being dredged, dewatered, and placed in a CERCLA landfill. The primary contaminant driver for the removal action was PCBs at concentrations up to 600 ppm but also included radionuclides, metals, and other organic contaminants. EPA's Office of Research and Development conducted a research study in association with the dredging operations on the Ashtabula River. The research had two primary goals: 1) quantifying the extent and characteristics of the residuals that remained following dredging in a selected river reach, and 2) characterizing the ecosystem exposure that occurred during the following dredging on the entire dredged area. ORD's National Risk Management Research Laboratory (NRMRL) and National Exposure Research Laboratory (NERL) collaborated to leverage resources and expertise toward these goals along with the Great Lake National Program Office. This presentation will focus on the approaches used to characterize the post dredge residuals. Several approaches were evaluated to quantify and characterize the residuals remaining in two distinct dredge areas, dredging to soft sediment and dredging to bedrock. Comparison will be made between the two areas dredged, and an evaluation of the methods for the dredge residual characterization will be presented.