10 Years Post-Remediation Progress Evaluated and Impacts on Restoration in the Ashtabula River Area of Concern

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Background/Objectives. The first Remedy Effectiveness Assessment (REA) of its kind was created to assess the effectiveness of the Great Lakes Legacy Act (GLLA) sediment remediation project that took place in the Ashtabula River Area of Concern (AOC) in Ohio from 2006 to 2007. The GLLA project footprint spanned 1.2 river miles of the channel near the river mouth. The Great Lakes National Program Office (GLNPO) of the U.S. EPA partnered with nonfederal sponsors to implement the removal of approximately 500,000 yds^3 of sediments contaminated primarily with PCBs. The REA analyzed paired data taken pre- and post-remediation along multiple lines of evidence to assess how effective the dredging project was in meeting its remedial objectives.

This presentation evaluates new data used to calculate the 10-y post-dredge surface weighted average concentrations (SWACs) in both the 2006-2007 GLLA project area and overall AOC, impacts on the status of beneficial use impairments (BUIs) in the AOC, and overall progress on AOC delisting and restoration efforts.

Approach/Activities. The REA was based on both pre-remediation (baseline) data and post-remediation data collected in a multi-Agency sampling effort. Several types of data were used to inform the REA; physical, chemical and biological data were assessed within the GLLA project footprint. The 10-y post-dredge SWAC was calculated using inverse distance weighted methodology, and both project area and AOC-wide calculations were conducted. Various data were collected for BUI evaluations and subsequent removals. PCB concentrations in fish tissue and other data were collected to support decision-making using biological indices developed by Ohio EPA. These biological indices are based on various measurements including: species richness, trophic composition, diversity, biomass, and the presence of diseased or abnormal organisms. Finally, the remediation projects in the AOC were followed by restoration projects and efforts to monitor their effectiveness.

Results/Lessons Learned. The REA concluded that the 2006-2007 GLLA remedial action met its project objectives and resulted in improvements in the surrounding aquatic environment. The long-term SWACs demonstrate that significant PCB contamination has been removed from the system, and the removal of several BUIs from the AOC demonstrate that the 2006-2007 GLLA project set the foundation for future restoration and delisting of the AOC.

Careful selection of parameters used to evaluate remediation effectiveness is key to allow for direct comparability of the data. Baseline SWACs were calculated using PCB homologues, while the 10-y post-dredge SWACs utilized PCB Aroclors. Another key consideration is determining the appropriate geographic scale for data collection and interpretation. Understanding the distinction between the GLLA project area and the extent of the entire AOC is a key consideration when evaluating project-specific impacts on BUIs and overall remediation effectiveness.