**Demonstrating a consistent and unified approach for monitoring and assessing ecological condition of the Missouri, Upper Mississippi, and Ohio Rivers**

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Discrepancies between the spirit and letter of the Clean Water Act can be as wide as the Big Muddy. Water quality and biological assessments of great rivers largely depend on data that are available, rather than data that are most appropriate. This motivated EPA to develop and demonstrate a probability-based assessment framework for the Upper Mississippi, Missouri, and Ohio Rivers. The great rivers of the central basin are the ultimate conveyors of water, nutrients, contaminants, and sediment for the country. Since 2004, EPA has coordinated the sampling of about 400 main-channel sites using consistent field and lab methods and a proven sampling design. Results will yield statistically robust and unbiased estimates of summer conditions at regional, state, and river scales. Scientists from USGS and state agencies, universities & river commissions continue to sample nutrients, chlorophyll, particulate matter, metals, and fish, benthic macroinvertebrates, phytoplankton, periphyton, and zooplankton. Riparian land-cover, littoral habitat, woody debris, and aquatic vegetation also are being measured. A web-based information management system facilitates the flow of samples, data, and ideas from the field through analyses. In 2006, the major research objective is the use of landscape and site data to characterize least disturbed conditions with which to assess current river conditions. While data from the probability design represent the full range of extant conditions, they will be supplemented using a new "targeted probability" design to sample sites likely to represent least disturbed conditions. The combined designs will yield sufficient reference condition data while extending systemic assessments. Ultimately, EMAP-GRE will yield timely products, including designs and indicators, necessary for bioassessment. Equally important is the demonstration of an integrated process to collect appropriate data for Great River assessments. This abstract does not reflect US EPA policy.

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