



Effects of Contaminated Sediments on a Backwater Restoration Project in the Mississippi River Delta

S. S. Knight^{*}, R. E. Lizotte, F. D. Shields, Jr.

USDA, ARS, National Sedimentation Laboratory, Oxford, MS, USA

Received March 19, 2013; Accepted May 01, 2014

Abstract: Success of any aquatic restoration project is based on the assumptions that physical features can be manipulated in such a way as to improve habitat, water quality or both. An additional assumption is that there is nothing inherent about the site that would prevent the target community from exploiting the newly restored habitat. Examples of inherent features that may cause restoration failure include barriers, contaminants, or site instability. Because persistent pesticides continue to be reported as low-level contaminants in aquatic ecosystems in the lower Mississippi River alluvial plain, any site selected for restoration in this region of the United States should be tested for contamination. Sediment samples were collected from three backwater sites; two controls and one restoration, as a part of a river backwater restoration project in the Mississippi Delta. Sediment was analysed for 7 metals, 15 persistent pesticides and 13 current-use pesticides and tested for toxicity using *Hyalella azteca*. Fish were also sampled at each site prior to restoration construction to establish baseline information on fish production and community structure. Preliminary analysis indicates that sediments from the control sites were more toxic than the restoration site and supported few numbers of fish.

Keywords: *pesticides, habitat, aquatic ecosystem, Hyalella azteca, fish*

^{*} Corresponding: E-Mail: scott.knight@ars.usda.gov; Tel: 6622322934 Fax: 6622322988