



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2004OH13B

Title: The Scour and Deposition around River and Estuarine Bridges

Project Type: Research

Focus Categories: Geomorphological Processes, Floods, Sediments

Keywords: Bridge, hydraulics, scour, deposition

Start Date: 03/01/2004

End Date: 02/28/2006

Federal Funds: \$25,000

Non-Federal Matching Funds: \$50,524

Congressional District: 15th

Principal Investigators:

Diane L. Foster

Thomas C. Lippmann

Abstract

The scour around bridge foundations is the leading cause of bridge failure in the United States. Field measurements of the scour process generally rely on in-situ sampling of the geomorphology. The objective of this research is to increase our ability to predict how variations in flow conditions will affect the scour and/or deposition of sediment around estuarine and river bridges. Two specific goals for this project are to evaluate an existing three-dimensional flow and sediment transport model with field observations of river morphology and flow velocity and to examine the effect variations in river stage will have on bridge scour. New field sampling techniques will be used for the observation of surface velocities, water column velocities, and bridge scour. The data will be archived in a format suitable for potential subsequent detailed scour analyses. Beyond the scientific merit of better understanding the scour process, we anticipate that these results may be used by both scientists and planners interested in improved parameterization of the sediment transport around structures under river and combined wave-current flow. The results may also be used to identify locations for future sampling sites. Combined these model-data results will highlight potential areas of concern.