

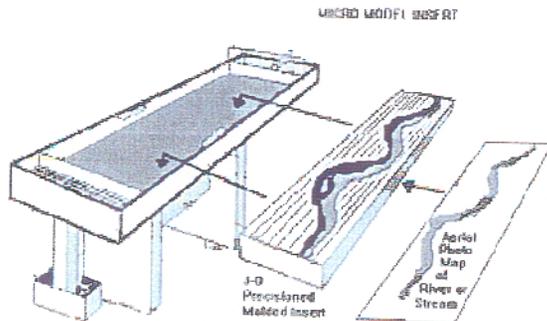
E-1

METHODOLOGY

MVS POWERPOINT PRESENTATION

Micro Modeling

What is Micro Modeling?



MICRO MODELING is physical sediment modelling on an extremely small (Micro) scale. The simulated hydrographic/sediment response of any alluvial system, including detailed engineering analysis, is conducted in a table top flume.

MICRO MODELING IS QUICK. Because of the micro scale, the time increment required for the simulation of the hydrographic/sediment response of the prototype can be

accomplished in just a few short minutes. As a result, a complete, calibrated micro model study incorporating a variety of design plans can be achieved quickly.

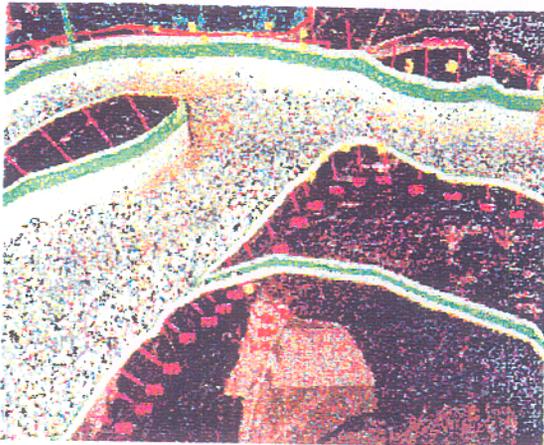
MICRO MODELING IS QUALITATIVE. The micro model can qualitatively predict the average expected sediment response of the prototype. Future trends may then be examined. Engineers may also gage the effectiveness of various structural design alternatives placed in the prototype.

MICRO MODELING IS INEXPENSIVE. A complete micro model study, including detailed bathymetric surveys, flow visualization, etc., usually costs no more than \$50,000 to \$60,000. This could be the controlling factor for extending confidence to the engineer in the pursuit of the most cost effective design implementation.

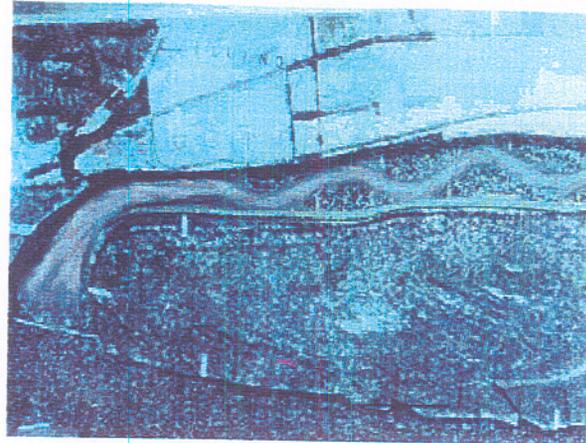
MICRO MODELING IS VISUAL. The engineer may use the micro model as a visual communication tool, explaining the complex phenomena of sediment transport to others, including both professionals and non professionals!

Applications:

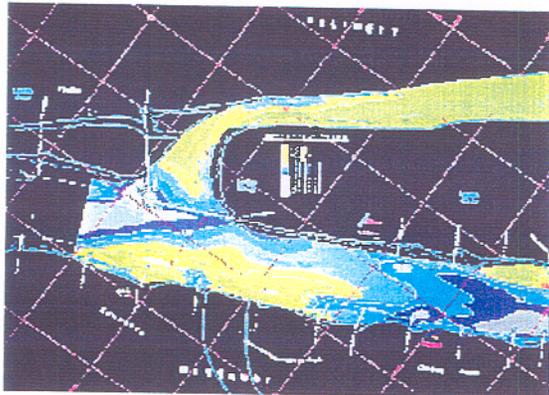
- * Major River Navigation Design Including Dikes and Revetments
- * Dredging Studies, Dredging Fate, Trends, Disposal Impacts
- * Small River Design, Stabilization, Bridge Scour Studies
- * Geomorphic Studies: Meandering, Aggradation and Degradation
- * Flow Visualization
- * Educational Studies



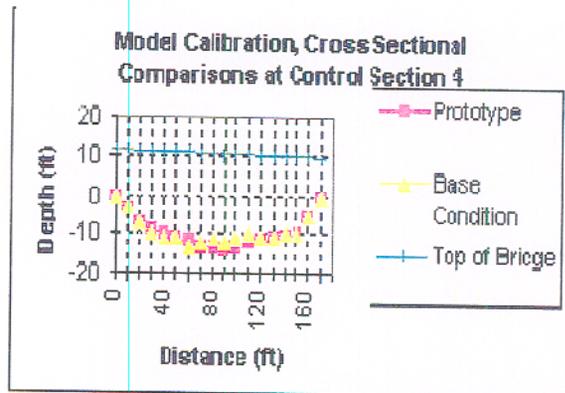
Close-up of Model Insert and Sedimentation in Divided Flow, Mississippi River, New Madrid, Missouri



Flow Visualization Technique on Environmental Design Alternative, Sante Fe Chute Micro

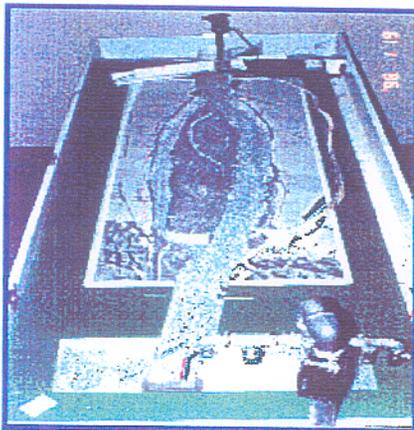


Bathymetric Survey of Sante Fe Chute Micro Model, Mississippi River

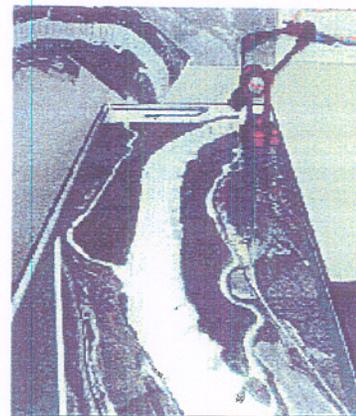


Micro Model Calibration, Comparison with the Prototype, Big Creek, Lincoln County, Mo.

Some Past Micro Model Studies:



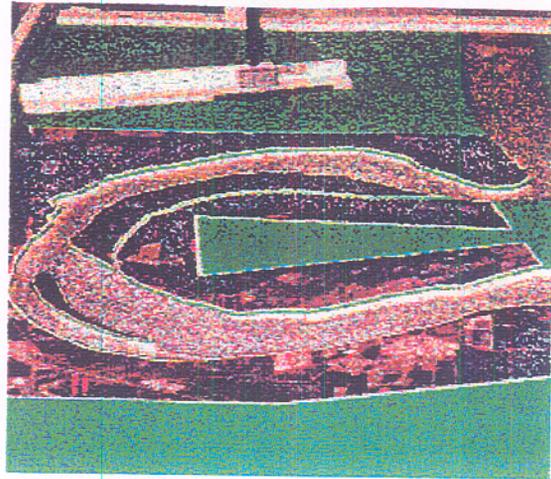
Mississippi River, Sante Fe Chute, Environmental Study of Side Channels, 1996



Mississippi River, Schenimann Chute, Environmental Study of Side Channels, 1996



Big Creek Lateral and Channel Erosion Study at Highway Bridge 729, Lincoln County, Mo. , 1996



Mississippi River, New Madrid Bend, Navigation Study of Main Channel, 1985



If you have any comments or questions regarding this homepage, please contact hetrick@smtp.mvs.usace.army.mil

This page has been accessed times.