SEDIMENT TRANSPORT MODELING AND MONITORING OF DAM REMOVAL AND STREAM RESTORATION PROJECTS IN ILLINOIS

Timothy D. Straub, Sediment Specialist, tdstraub@usgs.gov;
Donald P. Roseboom, Stream Restoration Specialist, roseboom@usgs.gov
U.S. Geological Survey, Illinois Water Science Center, Urbana, Illinois,

Abstract: Reservoir and stream sedimentation, stream erosion and restoration, and dam removal are but a few of the sediment issues facing Illinois water-resource managers. The prediction of sediment transport in dam removal and stream restoration projects continues to be a complex problem for water resource engineers and managers. Streamflow, sediment load, and geomorphic data are needed to establish baseline information for water-resource managers to evaluate historical and current conditions, and plan management alternatives.

The U.S. Geological Survey, Illinois Water Science Center monitors streamflow at over 180 stations in Illinois, and collects sediment data at 15 of those sites. However, systematic data collection has been declining in recent years because of budgetary constraints of several agencies. A combination of monitoring and modeling of sediment transport before, during, and after projects is being used to help optimize efforts, and also can help in implementing more cost-effective projects in the future.

The amount of water and sediment delivered in streams is affected by many natural and human factors that are constantly changing. The combined approach of monitoring and modeling is also crucial for providing the requisite data and information to evaluate the effects of these factors. The results helps engineers and managers visualize the problems and make thoughtful and effective management of water and sediments. The presentation summarizes selected ongoing and completed dam removal and stream restoration projects in which modeling and monitoring provided valuable assistance to the water-resource managers in addressing sediment issues in Illinois.