



**US Army Corps
of Engineers®**
Engineer Research and
Development Center

Regional Sediment Management Program Description

Purpose Provide basic information on a Corps of Engineers strategic R&D initiative to provide regional sediment management capabilities and tools to the Corps.

Problem Excessive sediment erosion, transport, and deposition are estimated to cause damages of approximately \$16 billion annually in North America.¹ The Corps alone spends more than \$700M per year dealing with problem sediments, mainly for dredging and placement. Many water resource projects are designed to remedy local sediment problems, but sometimes at the expense of creating even larger problems some distance away. Successful project design and operation requires that sediment issues be resolved at both the local and regional levels, yet resource managers lack the information and tools they need to make informed decisions. These challenges adversely affect water resource projects for navigation, flood and storm damage reduction, and environmental quality ranging from the upper reaches of watersheds to the sea.

The Solution Regional Sediment Management (RSM) employs natural processes and human activities to ensure that water resources projects throughout a sediment region affect sediment, and are affected by it, in an economically and environmentally sustainable manner. It recognizes that the region and embedded ecosystems respond beyond the space and time scales of individual projects, and that a proactive regional planning and engineering approach can produce significant national benefits.

Objectives The Regional Sediment Management Research Program (RSMP) will provide knowledge and tools the Corps will need for effective water resource projects in which sediment resources are managed holistically in an environmentally and economically sustainable manner for the life of the projects. The end products will be focused on water resource project design, operation, and maintenance methods that:

- Minimize disruption of natural sediment pathways and processes
- Mediate natural processes that have adverse environmental or economic impact.

Approach The RSMP will produce targeted R&D serving multiple Corps business areas. It will employ ongoing projects' experience (including Demonstration Projects) to provide data and lessons learned. It will use enabling technologies of local-scale products and tools, including those generated by other R&D programs within and outside the Corps. It will generate technologies that integrate the best available knowledge on sediment behavior and regional morphology into management decision support tools for a) regional and basin scale analyses and b) evaluation of the impacts of projects and management decisions on and by long-term, large-scale sedimentation processes. A key element of the program will be full coordination with other organizations with sediment management or monitoring expertise.

Funding The RSMP has been funded at \$2M for Fiscal 2002 by Corps' Headquarters under the General Investigations R&D Program.

Benefits By making Corps projects more effective and efficient with respect to sedimentation processes and impacts, those projects will perform better (e.g. full channel dimensions available for longer periods, stable and productive shorelines and wetlands); dredging volumes in the most severely affected channels will be reduced or displaced so that the Corps budget will cover more projects more thoroughly; and opportunities for environmental enhancement will be maximized. Saving even a tiny fraction of estimated sediment-related costs will amount to tens of millions of dollars per year. Public trust in water resource projects will improve when they are seen to maximize national benefits by coordination across business area, agency, and political boundaries, enabling the Corps to accomplish its missions in a less confrontational environment.

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¹(Osterkamp, W. R., P. Heilman, and L. J. Lane, “Economic Considerations of Continental Sediment Monitoring Program,” *International Journal of Sediment Research*, (4) December 12-24, 1998.