The U.S. Army Corps of Engineers Regional Sediment Management (RSM) Program: Challenges, Opportunities, and Lessons Learned

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Introduction: Regional Sediment Management (RSM) is a systems-based approach for collaboratively addressing sediment related issues within a regional context. Historically, dredged sediment was placed in the most economical locations, which were often on the banks of rivers, or alongside the channel in rivers, bays and estuaries resulting in submerged features and island formations. More recently, environmental concerns over the effects of open water or unconfined placement resulted in sediment being placed in confined areas either upland or in the water. Along coastal inlets, sediment was disposed of in deeper offshore waters. These practices, new and old, do not necessarily consider the regional sediment transport processes and dynamics. Regional sediment management is the practice of making the best local project decision within the context of a regional plan that maximizes regional benefits and/or reduces regional costs.

Methods: Managing sediment as a resource to benefit a region potentially lowers cost, allows use of natural processes to solve engineering problems, and improves the quality of the environment for projects and programs implemented by the U.S. Army Corps of Engineers. Under the RSM concept, sediment is considered a natural resource that provides environmental and economic benefits when it is managed effectively on a regional basis. It recognizes that the geomorphic region and its embedded ecosystems respond beyond the space and time scales of individual projects and the boundaries traditionally associated with projects, and that a proactive regional planning and engineering approach produce significant national benefits. The development of strategic regional partnerships with stakeholders is a key to the success of RSM. This is because RSM activities and solutions extend beyond the scope of a traditional Corps' projects and the Corps' current authorities and resources. Thus the Corps will be one of a number of stakeholder participants in developing solutions and allocating resources to implement RSM measures and actions. The goals of the RSM program are: a) To improve sediment management practices within the Corps, b) To highlight and document unique elements of RSM and provide guidance for future implementation of specific RSM actions where appropriate, c) To foster state and local partnerships for RSM, resulting in a unified vision, cost-sharing, and co-leadership of RSM actions, d) To engage cross-mission objectives of the Corps (more projects will be designed and constructed with deliberate intent to achieve cross-mission benefits, e.g., storm risk reduction, navigation, and environmental restoration), e) To define environmental and economic benefits associated with RSM and f) To improve decision-support technology for RSM (Conceptual, analytical and numerical models will have been adapted and improved to support RSM.)

Discussion: Traditional project management practices that focused solely on local sediment management actions have often produced adverse impacts because they may not have considered the regional sediment transport dynamics. Multiple, single-purpose sediment management actions undertaken in a region may dramatically alter the regional sediment transport dynamics. However, RSM strategies which recognize that sediment is a resource and employ a systems-based approach can be implemented to effectively manage sediment for multiple objectives and long-term system sustainability. RSM promotes management of littoral, estuarine and riverine sediment within the boundaries of a physical system where sediment exchange occurs naturally. Therefore, the successful implementation of RSM strategies requires knowledge of regional sediment transport dynamics.