



US Army Corps
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Engineer Research and
Development Center

Regional Sediment Management Program Jacksonville District (SAJ):



Quantifying Ecosystem Value of RSM

Description

Numerous Corps projects and RSM actions benefit natural systems without claiming any quantified ecosystem benefit. While the impact these projects have on the natural environment is significant, even more benefit could be realized if the value of the ecosystem benefit were acknowledged and quantified. This effort aims at quantifying, in dollars, the ecosystem value added through an RSM action. This proposal seeks to provide a framework for determining the value added of ecosystem restoration that is incidental to a Civil Works project. A multi-District team will develop a methodology to value ecosystems created or enhanced by RSM projects. The objective is for districts to be able to use this methodology, with modification as necessary, to calculate ecosystem value added for similar projects. A major aim of this effort is to quantify a defensible dollar value added for several example projects. It is understood that there may be significant debate over the methods developed in follow-on presentations and discussions. Such debate could ultimately improve the methods.

Issue/Challenge To Address

The Joint Office of Management and Budget/Council on Environmental Quality/Office of Science and Technology Policy Memorandum dated October 7, 2015, on Incorporating Ecosystem Services into Federal Decision Making directs federal agencies “to develop and institutionalize policies to promote consideration of ecosystem service, where appropriate and practicable, in planning, investments, and regulatory contexts.” It further defines “consideration” to be accomplishable through monetary or nonmonetary values for those services, where appropriate.

The recent RSM SAJ Optimization Pilot project quantified value of RSM projects throughout SAD, and estimates of RSM value were considered conservative as the Pilot did not quantify the true cost of dredging (development/maintenance of placement areas) or the value of ecosystem projects. This project will result in a framework for determining the value of ecosystems created as part of Civil Works projects that employ RSM strategies. Three projects will be used as examples, and a methodology will be developed to value the ecosystems created or enhanced by the projects. In the past, these benefits have been “written-off” as ancillary to the primary project purpose. However, a small additional cost to provide ecosystem habitats that may be ancillary to one project may provide cost-reductions or increased benefits to another USACE mission area. Furthermore, the ecosystem benefits created could be quite substantial. Even if they cannot currently be “claimed” as part of the benefit-cost analysis, they should be stated as value added to demonstrate the true monetary benefits.

Successes Lessons Learned Expected Products

Lessons learned will be compiled during the duration of this study.

- Technical Report Outlining Methodology
- Communication/Presentation of Findings to RSM Community
- Presentation at Regional/National Technical Conference

Stakeholders/Users

This initiative could affect any Corps project, non-Federal sponsors, and stakeholders through the incorporation of additional environmental benefits. This project will include contributions from academic researchers and other federal agencies (e.g., NOAA Office for Coastal Management) focused on environmental economics to ensure consistency with current research and agency methods and protocols.



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Projected Benefits Value Added

Quantifying ecosystem values and incorporating the ecosystem restoration value added into the USACE decision-making process will help USACE to fund programs holistically and to be the best possible stewards of taxpayer dollars. Much like past efforts to quantify value added by RSM strategies that combine coastal and navigation projects, this effort will give districts a methodology to quantify ecosystem value added to support implementation of RSM strategies. The RSM SAJ Optimization Pilot documented numerous RSM projects that were within range of the cost of the least cost alternative. In some cases, incorporating the ecosystem value could make the RSM option the least cost alternative, significantly increasing the number of RSM projects in SAJ and likely across the nation.

Leveraging Opportunities

There are numerous scholarly articles that address the valuation of ecosystem services that can provide a basis for valuing the services associated with Civil Works projects. The Institute for Water Resources published a white paper entitled, "Using Information on Ecosystem Goods and Services in Corps Planning: an Examination on Authorities, Policies, Guidance, and Practices." This document also provides excellent information on incorporating ecosystem goods and services in planning and alternatives evaluation for Corps projects. Many academic institutions and other entities have explored this concept, and developed various methods for valuing ecosystems that could be applied to this study. However, these methods have included esoteric concepts that may not be defensible in the federal planning and funding processes. For this study, the RSM team will consult with academic researchers and federal agency personnel with expertise in environmental economics to ensure methodologies developed are consistent with literature and policy while also viable for the federal planning and funding process. The framework developed during this study will be designed for USACE projects using a conservative valuing approach.

In addition to the wide array of scholarly resources available on this topic, USACE districts across the country have grappled with various alternatives to address the disconnect between available funding sources and the benefits derived from the project that may not be a direct project goal or objective. The North Atlantic Coastal Comprehensive Study touched on the value of maintaining resilience in the coastal environment to prevent storm damages, the Savannah River project has studied the value of ecosystem services provided by the Savannah River watershed through a Cooperative Ecosystem Studies Unit grant, and the Ecosystem Restoration Community of Practice has been under increased pressure by Congress and others to illustrate the value of Ecosystem Restoration projects. This study will leverage the extensive knowledge already accumulated on this topic and apply it to better utilize federal funds.

Point of Contact

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