



**US Army Corps
of Engineers®**

Authorities and Policies Supporting Implementation of Regional Sediment Management

by Lynn R. Martin

PURPOSE. This Coastal and Hydraulics Engineering Technical Note (CHETN) identifies authorities and policies that authorize and support the US Army Corps of Engineers implementation of Regional Sediment Management (RSM).

BACKGROUND. RSM is an approach for managing projects involving sand and other sediments that incorporates many of the principles of integrated water resources management. Regional sediment management applies a system perspective to problem solving, managing sand and other sediments as regional resources, and integrating the portfolio of Corps programs and projects related to sediment in a given region. These regions can include coastal and inland sediment systems.

Regional sediment management involves coordinating dredging and other sediment management activities, along with performing studies involving sediment to retain sand or sediments within natural systems, and to achieve greater efficiencies through improved program coordination and integration.

Regional sediment management fosters more balanced and sustainable natural system processes, reduces project costs, and achieves greater regional benefits. Regional sediment management integrates Corps planning, engineering and operations activities within coastal, estuarine, and riverine systems, and broadens the problem-solving perspective from a local, project-specific scale, to an extended scale defined by natural sediment processes. The larger spatial and longer temporal perspectives of regional sediment management require the integration of a broad range of disciplines along with collaborative partnerships among agencies, levels of government, and other stakeholders. The Corps initiated the Regional Sediment Management (RSM) Demonstration Program (DP) in 2000 to examine, apply, and evaluate regional sediment management opportunities, practices, benefits, and challenges. Rosati et al. (2001, rev. 2004) describes the Demonstration Program.

AUTHORITIES AND POLICIES RELEVANT TO RSM. A number of legislative authorities and Civil Works policies support the implementation of regional sediment management within the Corps. The authorities include both broad authorities that allow and encourage regional or comprehensive studies, approaches, and perspectives, as well as authorities specific to sediment and sand management, storm damage reduction, shoreline erosion protection, and management of dredged material. A number of Corps Civil Works policies and guidance documents also support regional or comprehensive approaches that consider projects, problem solving, and management in the context of broader systems, and advocate regional coordination of projects and studies within the Corps and with partners and stakeholders. The following tables summarize the existing authorities, policies, and programs that support and can facilitate regional sediment management:

- Table 1 provides an overview of the authorities, policies, and programs summarized further in Tables 2 and 3, based on whether they address regional or comprehensive approaches, or whether they are more project focused addressing sand, dredged material, coastal, or other projects.
- Table 2 identifies authorities that support the examination of water resources needs and opportunities in a regional context; or authorize Corps studies, projects, and work in coastal areas; or include provision regarding sand or dredged material management. These authorities provide advocacy, support, and opportunities for regional sediment management.
- Table 3 summarizes a number of Civil Works policies that advocate an integrative, regional, or watershed perspective in carrying out Civil Works projects and programs. These policies provide a foundation of support for the concept of regional sediment management. Martin (2002) provides additional detail on these authorities and policies.

Additional information and guidance referenced in this CHETN can be found in the referenced Policy Guidance Letters, and in two US Army Corps of Engineers documents: Engineer Regulation (ER) 1105-2-100, Planning Guidance Notebook, 22 April 2000 with subsequent amendments; and Engineer Pamphlet (EP) 1165-2-1, Digest of Water Resources Policies and Authorities, 30 July 1999.

EXAMPLES. The authorities and policies summarize in this CHETN are being applied innovatively in different ways as part of the RSM Demonstration Program. Adopting the concept of sand as a regional resource, some districts are combining or better integrating authorities, policies, and projects in ways to more effectively and efficiently address the needs and opportunities that exist in a region, rather than applying them in isolation. Often this involves integration across the functional areas of Planning, Engineering, and Operations.

Jacksonville District, US Army Corps of Engineers. The Jacksonville District and the Florida Department of Environmental Protection (DEP) (Office of Beaches and Coastal Systems) have executed a Section 22 Memorandum of Agreement (MOA) for coordinating dredging activities in the coastal zone on a regional rather than a project scale. Section 22 of the Water Resources Development Act of 1974 (Public Law 93-251) as amended authorized the Secretary of the Army acting through the Chief of Engineers to assist the states in the preparation of comprehensive plans for the development, utilization, and conservation of water and related resources. The MOA encompasses all phases of shore protection, navigation, and beneficial use projects, initially in three counties in northeast Florida (Nassau, Duval, and St. Johns Counties). The District provided technical assistance to the state in coordinating regional sediment management. A web site was developed as part of the agreement to facilitate coordination with other Federal and non-Federal agencies as well as the public: <https://rsm.saj.usace.army.mil>

More recently, efforts have been extended to other regions in the state. Sub-regional workshops have been held to identify stake holder ideas and issues. The opportunities identified through the Section 22 agreement will improve coordination of dredging activities in the coastal zone by enhancing regional sediment budgets, reducing project costs, and restoring significant environmental habitats. This agreement and associated investigations were conducted in the spirit of the US Army Coastal Engineering Research Board's charge to develop regional and systems approaches to sediment management.

Table 1. Overview of Corps Civil Works Authorities and Policies Relevant to Regional Sediment Management.

Authority, Policy, or Program	Overview
General Authorities that Support Watershed, Comprehensive, and System Approaches	
<ul style="list-style-type: none"> • Sec. 202, Water Resources Development Act of 2000 (WRDA '00) — Specific Authorities or Study Resolutions for Watershed and Comprehensive Studies 	Broad authorization to address water resources needs and opportunities in a watershed or region.
<ul style="list-style-type: none"> • Sec. 22 WRDA '74 — Planning Assistance to States 	Provides assistance with plans for development, use, and conservation of water and related land resources of basins, ecosystems, and watersheds.
<ul style="list-style-type: none"> • Sec. 227(d) WRDA '96 — Long-Term Sediment Management Strategies 	Cooperation in preparation of comprehensive state or regional plans for conservation of coastal resources.
<ul style="list-style-type: none"> • Sec. 516, WRDA '96 — Long-Term Sediment Management Strategies 	Cooperative long-term strategies for controlling sediments at navigational projects.
<ul style="list-style-type: none"> • Sec. 5 — Rivers and Harbors Act 1935 	Consider broader effects in navigational studies; potential effects to adjacent shores; not <10 miles on either side.
Policies and Guidance that Support Watershed, Comprehensive Approaches, and System Considerations	
<ul style="list-style-type: none"> • Policy Guidance Letter (PGL) 61 (Furman 1999) — CW Watershed Perspective 	Advocates watershed and systems perspective within and across CW programs.
<ul style="list-style-type: none"> • Dredged Material Management Plan (DMMP) Policy Dredging PCLs 	DMMPs for all projects, groups of interrelated projects; update periodically; consider opportunities for beneficial use.
<ul style="list-style-type: none"> • Planning guidance — system context 	Watershed perspective; consider landscape implications of navigation improvements; systems analysis in shoreline studies; beneficial use of dredged material; development of DMMPs.
<ul style="list-style-type: none"> • Implementation Guidance for Sec. 202, WRDA '00, Watershed and River Basin Assessments 	Products can be plans or management documents that identify actions to be taken by partners, stakeholders, or in the Cops to meet the objectives of the plan.
<ul style="list-style-type: none"> • Implementation Guidance for Sec. 107, R&H Act 1962 — Navigation 	Coordinate proposed implementation measures with other non-Federal shore protection projects of the region; prepare a comprehensive regional product that includes Sec. 111 projects and shore protection projects pursued under other authorities in the same region.
Authorities Specific to Projects, Sand, Dredged Material Management	
<ul style="list-style-type: none"> • Sec 216 RHFCFA '70 — Review of Completed Projects 	Examine and make recommendation for changes to projects or their operations relative to contemporary needs and opportunities, along with new understanding of processes, economic conditions, etc., for improving the environment.
<ul style="list-style-type: none"> • GI — Specifically Authorized Projects 	Can address a wide range of sediment issues and opportunities and practices depending on authorizing language.
<ul style="list-style-type: none"> • Sec. 111 (RHFCFA '68), 940 WRDA '86 	Prevention or mitigation of erosion or shoaling damages attributable to navigation projects.
<ul style="list-style-type: none"> • Sec. 103 and 14 	CAP — "small" projects for storm damage reduction and shoreline erosion.
<ul style="list-style-type: none"> • Sec. 145, 933, 217 — Sand on Beaches 	Link dredging with beach nourishment.
<ul style="list-style-type: none"> • Sec. 204, 206, and 1135 	CAP — "small" environmental projects, including: Beneficial use of dredged material, aquatic ecosystem restoration, and project modifications for improvement of the environment.
<ul style="list-style-type: none"> • Sec 207 WRDA '96 — Selection of dredged material disposal methods 	Do not have to use least cost disposal or dredged material for ecosystem restoration and protection.
Programs Potentially Relevant to Regional Sediment Management	
<ul style="list-style-type: none"> • Regulatory 	<ul style="list-style-type: none"> - Permits for dredge and fill. - SAMPs facilitate regional approaches, stakeholder involvement, and link to state wetland management plans and CZM plans. - General permits can help make regulated activities consistent with regional sediment management goals.
<ul style="list-style-type: none"> • Natural Resources Management 	<ul style="list-style-type: none"> - Manage natural resources in accordance with ecosystem management principles, which emphasize integration rather than compartmentalized approaches - Integrate management of natural and cultural resources with other authorized project activities in a "multiple use concept" that takes into account the local system.

Table 2. Civil Works Authorities that Support Regional Sediment Management.

No.	Authority
1	Sec. 202 of WRDA '00, Watershed and River Basin Assessments amends Sec. 729 of WRDA '86 , providing authority to assess the water resource needs of the river basins and watersheds including ecosystem protection and restoration, flood damage reduction, navigation and ports, watershed protection, water supply, and drought preparedness.
2	Basin and Specific Study Authorities. A number of specific resolutions and studies authorities allow, if not emphasize, comprehensive examinations of water resources needs and opportunities.
3	Planning Assistance to States (Sec. 22). Sec. 22, WRDS, 1974, as amended authorizes the cooperation with states and Indian tribes in preparing plans for the development, utilization, an conservation of water and related land resources of drainage basins, ecosystems, and watersheds.
4	Sec. 227(d) of WRDA '96, State and Regional Plans amends the 1946 shore Protection Act by adding Sec. 4, "State and Regional Plans" authorizing the Secretary to cooperate with states in preparation of comprehensive state or regional plans for the conservation and coastal resources.
5	Sec. 516 or WRDA '96, Sediment Management authorizes the Secretary to enter into cooperative agreements with non-Federal interests with respect to navigational projects, or other non-Federal entities, for the development of long-term management strategies for controlling sediments at such projects.
6	Sec. 5 of the river and Harbor Act of 1935 requires consideration of the broader landscape in navigation improvements studies — improvements potentially affecting adjacent shoreline will include analysis of the probable effects on shoreline configurations (less than 10 miles on either side of the improvement).
7	Changes to Completed Projects to Improve the Environment or Examine Changes Economic Conditions (Sec. 216, River and Harbor Act of 1970) authorizes investigations for modification of completed projects or their operation due to significantly changed physical or economic conditions and for improving the quality of the environment in the overall public interest.
8	Mitigation of Shore Damage due to Federal Navigation projects (Sec. 111, River and Harbor Act of 1968, as amended by Sec. 940 of WRDA '86) authorizes the investigation and recommendation of structural and nonstructural measures to prevent or mitigate erosion or shoaling damages attributable to Federal navigation works; implementation is also authorized if the Federal share of the final cost of construction is \$5,000,000 or less.
9	Storm Damage Reduction, Sec. 103, River and Harbor Act of 1962 (PL 87-874), as amended authorizes a program for Federal participation in the cost of protecting the shores of publicly owned property and private property where public benefits result.
10	Emergency Streambank and Shoreline protection for Public Facilities and Services (Sec. 14), Flood Control Act of 1946 (PL 79-526), as amended authorizes projects to protect public and non-public facilities or services threatened by natural processes on streambanks and shorelines.
11	Placement of Dredged material on Beaches, Sec. 145, WRDA '76 (PL 94-587), as amended by Sec. 933 of WRDA '86 and Sec. 217 of WRDA '99 , pertains to placement of beach quality sand from new construction or Operations and Maintenance (O&M) dredging on beaches at state request.
12	Beneficial Uses of Dredged Material, Sec. 204 of WRDA '92, as amended authorizes the protection, restoration, and creation of aquatic and ecologically related habitats, in connection with dredging for new project construction or maintenance.
13	Aquatic Ecosystem Restoration, Sec. 206, WRDA '96 authorizes the restoration and protection of aquatic ecosystem structure and function. No linkage to an existing Corps project is required. Cap of \$5,000,000 in Federal funds per project.
14	Project Modification for Improvement of Environment, Sec. 1135, WRDA '86, as amended , authorizes review of completed water resources projects to determine the need for modifying the structures or operations to improve the quality of the environment. Review to determine if the operation of projects has contributed to the degradation of the quality of the environment is also authorized. Recommended structural and operational changes must be consistent with the authorized project purposes. Cap of \$5,000,000 in Federal funds per project.
15	Selection of Dredged material disposal Methods, Sec. 207, WRDA '96. A disposal method that is not the least-cost option may be selected if the incremental costs are reasonable in relation to the environmental benefits, including the benefits to the aquatic environment from creation of wetlands and control of shoreline erosion.

Table 3. Civil Works Policies that Support Regional Sediment Management.

No.	Policy
1	Civil Works Watershed Perspective. Policy Guidance letter (PGL) 61 — <i>Application of a Watershed Perspective to Corps of Engineers Civil Works Programs and Activities (Furman 1999)</i> , establishes and describes policy regarding a watershed perspective to guide water resources development, protection, and management within the civil Works program. Examination of water resources needs and opportunities in regional contexts along with integrative, regional, or watershed approaches to in carrying out Civil Works projects and programs is emphasized. The system approach advocated is equally applicable to coastal regions as it is to interior watersheds, and the connecting system components.
2	Sec. 202, Watershed Assessments, WRDA '00, Implementation Guidance. Products from watershed assessments can be plans or management documents that identify actions to be taken by partners and stakeholders to meet the objectives of the plan, not just projects recommended by Corps implementation.
3	Consideration of the Broader Landscape Implications of Navigation Improvements. Planning guidance includes the requirements of Sec. 5 of the River and Harbor Act of 1935 that each investigation of navigation improvements potentially affecting adjacent shoreline will include analysis of the probable effects of shoreline configurations. A distance of not less than 10 miles of either side of the improvement should be analyzed (ER 1105-2-100, para E-14(h)).
4	Sec. 107 (River and Harbor Act of 1962 Planning Guidance. Proposed implementation measures shall be coordinated with other non-Federal shore protection projects in the same geographic region. To the extent practicable, Sec. 111 projects and shore protection projects pursued under other authorities in the same region shall be combined into a comprehensive regional product (ER 1105-2-100, p F-15).
5	Civil Works Planning Guidance Acknowledges the Need for Systems Analysis in Shoreline Studies. A systems analysis is included among the principles in guidance for evaluation of benefits from hurricane and storm damage reduction projects. Appendix E of ER 1105-2-100, para. E-24(f) includes requirements for a system analysis approach that includes: physical processes, coastal alterations, shoreline change forecasts, and economic benefits and costs.
6	Beneficial Uses of Dredged Material. Corps planning guidance (ER 1105-2-100) encourages Districts to consider options that provide opportunities for aquatic ecosystem restoration when examining dredged material disposal. Consideration of opportunities to beneficially use dredged material that can foster multi-objective analysis in dredged material management, and potentially achieve greater benefits than consideration of maintenance dredging objectives alone. Beneficial use is a business practice within O&M and authorized in a programmatic authority (Sec. 204). EM 1110-2-5026 provides guidance for planning, designing, developing, and managing dredged material for beneficial uses, incorporating ecological concepts and engineering designs with biological, economical, and social feasibility.
7	PGL 56, Sec. 207, WRDA'96, Selection of Dredged Material Disposal Methods. Dredged material from construction operation or maintenance of authorized projects can be used to create wetlands or to protect environmental resources from erosion. Studies for new navigation projects or modifications to existing navigation projects shall examine the feasibility of using dredged material for ecosystem restoration. If feasible, this beneficial use would be authorized as part of the project. For maintenance dredging, Sec. 207 could be used if the environmentally beneficial disposal method has large incremental costs that preclude the use of Sec. 204 (i.e., Federal cost > \$5 million). The increment of costs to achieve environmental benefits are shared on a 75% Federal and 25% non-Federal basis.

Mobile District, US Army Corps of Engineers. The Mobile District has a number of initiatives ongoing within their RSM demonstration where they are looking at applying and linking existing authorities, policies, management practices, and business processes to better manage sand as a regional resource and more effectively address needs and opportunities interconnected by the sediment system. For example, at St. Andrews Inlet, the District is developing an inlet management plan to improve bypassing efficiency, examining how to increase sand downdrift of the inlet, and examining how to protect Gator Lake (a freshwater lake adjacent to the inlet identified as a significant ecological resource in danger of degradation due to erosion along the shoreline). The proposed efforts would link a Section 1135 project to protect the ecological resources with Operations and Maintenance (O&M) policies and practices for maintaining the inlet, thereby maintaining sand in the littoral system.

Detroit District, US Army Corps of Engineers. As part of its RSM demonstration, the Detroit District has drafted a Nearshore Dredged Material Placement Policy for Operation and Maintenance of Federal Harbors to encourage sediment placement practices that maximize benefits to the nearshore system within the District. The policy will improve coordination between offices within the District (including area offices), and with state agencies. The policy links navigation maintenance, mitigation, and beach nourishment activities, and builds on the scientific knowledge gained from past experiences.

ADDITIONAL INFORMATION. This Coastal and Hydraulics Engineering Technical Note (CHETN) was produced as part of the Coastal Sedimentation and Dredging Program work unit Regional-Scale Modeling Sediment Transport and Morphology Change. This CHETN was prepared by Lynn R. Martin, Institute for Water Resources, US Army Corps of Engineers, Fort Belvoir, VA. The principal investigator for the study was Dr. Julie D. Rosati, Coastal and Hydraulics Laboratory, US Army Engineer Research and Development Center, Vicksburg, MS. Additional information pertaining to the RSM can be found at the RSM web site <http://rsm.usace.army.mil>

Questions regarding this CHETN may be addressed to:

Lynn R. Martin	Lynn.R.Martin@usace.army.mil
Dr. Julie D. Rosati	Julie.D.Rosati@usace.army.mil
Linda S. Lillycrop (RSM Program Manager)	Linda.S.Lillycrop@usace.army.mil

This ERDC/CHL CHETN-XIV-8 should be cited as follows:

Martin, L.R. 2002 (revised 2003). Authorities and policies supporting implementation of regional sediment management. Coastal and Hydraulics Engineering Technical Note ERDC/CHL CHETN-XIV-8. Vicksburg, MS: US Army Engineer Research and Development Center, Coastal and Hydraulics Laboratory. <http://chl.erdc.usace.army.mil/library/publications/chetn/pdf/chetn-xiv-8.pdf>

REFERENCES.

- Furman, Russell L. 29 January 1999. Memorandum for commanders, major subordinate commands. Subject: Policy Guidance Letter No. 61. Washington DC: Application of Watershed Perspective to Corps of Engineers Civil Works Programs and Activities. Headquarters, US Army Corps of Engineers. <http://planning.usace.army.mil/toolbox/library/PGL/pgl61.pdf>
- Martin, L. R. 2002. Regional sediment management: Overview and initial implementation. IWR Report 02-PS-2. Fort Belvoir, VA: US Army Corps of Engineers, Institute for Water Resources. http://www.iwr.usace.army.mil/docs/iwrreports/02ps2sed_man.pdf
- River and Harbor and Flood Control Act (RHFCFA) of 1970. Washington DC: Congress of the United States. 31 December 1970. PL 91-611, 84 Stat 1818. Text of the River and Harbor Act(s) is accessible through: <http://www.fws.gov/habitatconservation/wrda.html>
- Rosati, J. D., B. Carlson, J. E. Davis, and T. D. Smith. 2001 (rev. 2004). The Corps of Engineers National Regional Sediment Management Demonstration Program. Coastal and Hydraulics Engineering Technical Note CHETN XIV-1. Vicksburg, MS: US Army Research and Development Center, Coastal and Hydraulics Laboratory. <http://chl.erdc.usace.army.mil/library/publications/chetn/pdf/chetn-xiv-1.pdf>
- US Army Corps of Engineers. 1999. Digest of water resources policies and authorities. Engineer Pamphlet (EP) 1165-2-1. Washington DC: Headquarters, US Army Corps of Engineers. http://140.194.76.129/publications/eng-pamphlets/EP_1165-2-1/toc.htm

US Army Corps of Engineers. 2000. Planning guidance notebook. Engineer Regulation (ER) 1105-2-100. Washington DC: Headquarters, US Army Corps of Engineers.
http://140.194.76.129/publications/eng-regs/ER_1105-2-100/toc.htm

Water Resources Development Act of 2007 (WRDA '07). 8 November 2007. Public Law 110, 114 Stat 1041. Text of the WRDA(s) is accessible through:
<http://www.fws.gov/habitatconservation/wrda.html>

ACRONYMS AND ABBREVIATIONS.

Term	Definition
CHL	Coastal and Hydraulics Laboratory
DEP	Department of Environmental Protection
DP	Demonstration Program
EP	Engineering Pamphlet
ER	Engineer Regulation
ERDC	Engineer Research and Development Center
IWR	Institute for Water Resources
MOA	Memorandum of Agreement
O&M	Operations and Maintenance
RHFCA	River and Harbor and Flood Control Act (RHFCA)
RSM	Regional Sediment Management

***NOTE:** The contents of this technical note are not to be used for advertising, publication, or promotional purposes. Citation of trade names does not constitute an official endorsement or approval of the use of such products.*