



Shoreline Erosion and Management Studies

U.S. Army Corps of Engineers



12/6/2001



Shoreline Erosion and Management Studies

- **National Shoreline Erosion Control Development and Demonstration Program (“Erosion Control Demo”)**
- **National Shoreline Management Study**
- **Regional Sediment Management Study and Demonstration Program**



Shoreline Erosion and Management Studies

➤ Waterways Experiment Station

Coastal and Hydraulics Lab:

<http://chl.wes.army.mil>

➤ Erosion Control Demo Program “Sec. 227”:

<http://limpet.wes.army.mil/sec227/>

➤ Regional Sediment Management Study:

[http://216.83.232.123/national demonstration .htm](http://216.83.232.123/national_demonstration.htm)

Coastal and Hydraulics Laboratory - Microsoft Internet Explorer

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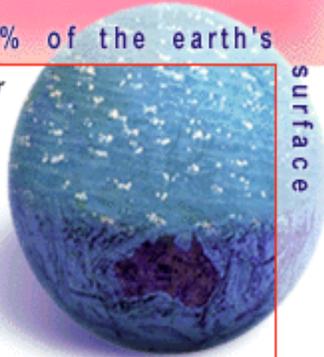
Coastal and Hydraulics Laboratory

...because water covers 70% of the earth's
... part of the *Engineer Research and Development Center*

Research Areas

Coastal Processes	Flood Control
Coastal Structures	Groundwater
Dredging	Hydraulic Structures
Estuaries	Military Hydrology
Fish Passage	Navigation
Field Data Research	Watersheds
	Waves

[Technical Exchange](#)



surface

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Areas of Special Interest...

- [Barbers Point Harbor Jetty Study](#)
- [Monitoring Completed Navigation Projects Program \(MCNP\)](#)
- [Grays Harbor North Jetty Study](#)
- [Innovations for Navigation Workshop](#)
- [CERC-U - Coastal Engineering](#)

Internet

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Section 227 National Shoreline Erosion Control Development and Demonstration Program

The U.S. Army Engineer Research and Development Center is coordinating the **National Shoreline Erosion Control Development and Demonstration Program**. The Program was authorized under [Section 227 of the Water Resources and Development Act of 1996](#) and funding was appropriated to initiate the program in fiscal year 2000. The focus of Section 227 is the demonstration of prototype-scale "innovative" or "non-traditional" methods of coastal shoreline erosion abatement. In addition to [field demonstrations](#), Section 227 investigators are conducting surveys of academic institutions, Federal and State agencies and private consultants regarding recent advancements in shoreline erosion control technologies. Results from these are included in an interactive [database](#) that serves as a clearinghouse for innovative coastal erosion control information.



 If you have an innovative method you would like included in our database, please click the ["Submit A Site"](#) link to the left and provide the required information. Alternatively, you may contact [Mr. Ryan Winz](#) of CHL for more information.

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Regional Sediment Management

- Regional Models
- History of RSM
- National Demo Program
- Research & Development
- Topics
- Related Links
- FAQ
- Educational



Contains commands for working with the selected items.

Start Jeanette Gallihugh - Inbo... Microsoft PowerPoint - [S... Regional Sediment ... 12:44 PM



Erosion Control Demo Program Section 227 Water Resources Development Act of 1996 (WRDA 1996)

Advancing state of the art in coastal shoreline protection through small-scale demonstration research projects.



Section 227 of WRDA 1996

“...Establish and conduct a national shoreline erosion control development and demonstration program for a period of 6 years beginning on the date that funds are made available...”

“....constructing prototype engineered and vegetative shoreline erosion control devices and methods during the first 3 years...”

“...development and demonstration of innovative technologies...”

“...substantial public access...on open coast or on tidal waters.”



Section 227

- **Background in Section 54 of WRDA 1974**
 - ◆ **Shoreline Erosion Control Demonstration Act of 1974**
 - ◆ **5-year National Shoreline Erosion Control Development and Demonstration Program**
 - ◆ **Demonstration projects that involved low cost shoreline erosion control devices**
 - ◆ **At least 2 sites on Atlantic, Gulf and Pacific coasts, Great Lakes, Alaska and specific sites named in Act.**



Section 54 Lessons

- **No such thing as long-term low cost protection.**
- **Low cost for one location not transferable to other locations.**
- **Longer than a 10-year design is difficult.**





Section 227

- **Corps to conduct the Erosion Control Demo for 6 years**
 - ◆ **Planning, designing and constructing prototype engineered and vegetative shoreline erosion control devices and methods – 3 years**
 - ◆ **Monitoring – 3 years**
 - ◆ **Detailed engineering and environmental reports**
 - ◆ **Technology transfer to private property owners, State and local entities**



Shore Protection Methods

Draw the Line = Armoring

Slow it Down = Breakwaters, Groins...

Fill it Up = Beach Fill, Bypassing, Wetlands

Hard Structures = cement, steel, rock

Soft Alternatives = sand, vegetation

Temporary Structures = geotextile



Draw the Line: Concrete Armor Units





Draw the Line: Geotextile Tubes/Bags and Concrete Flexible Mats



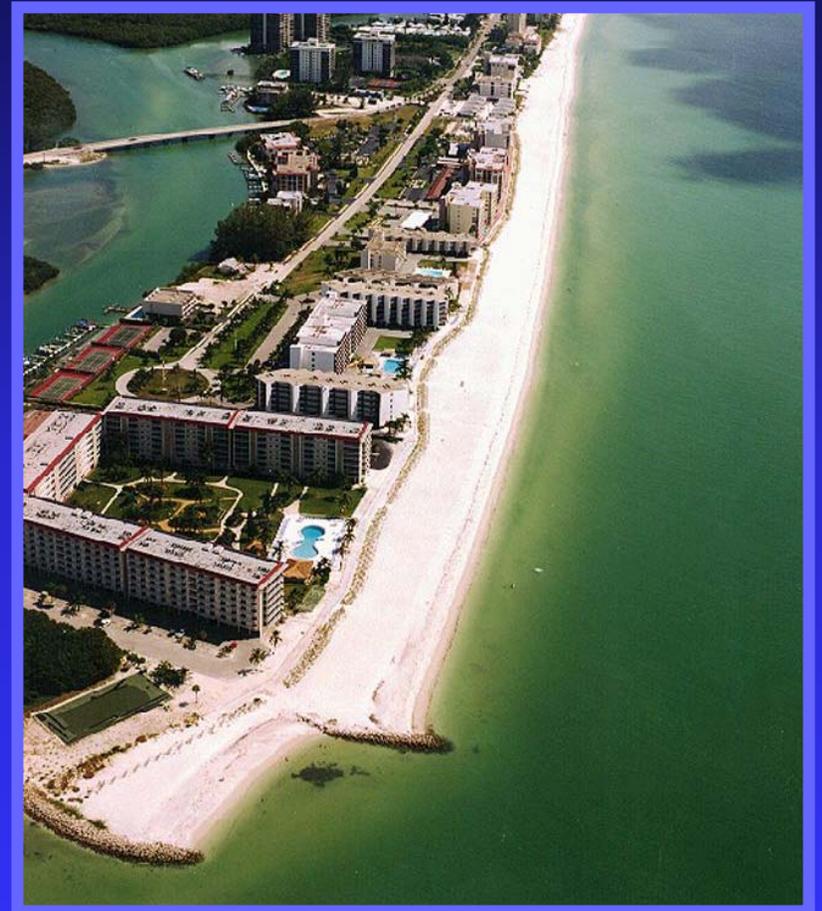


Draw the Line: Bioengineering/Structural





Slow it Down: Groin Optimization

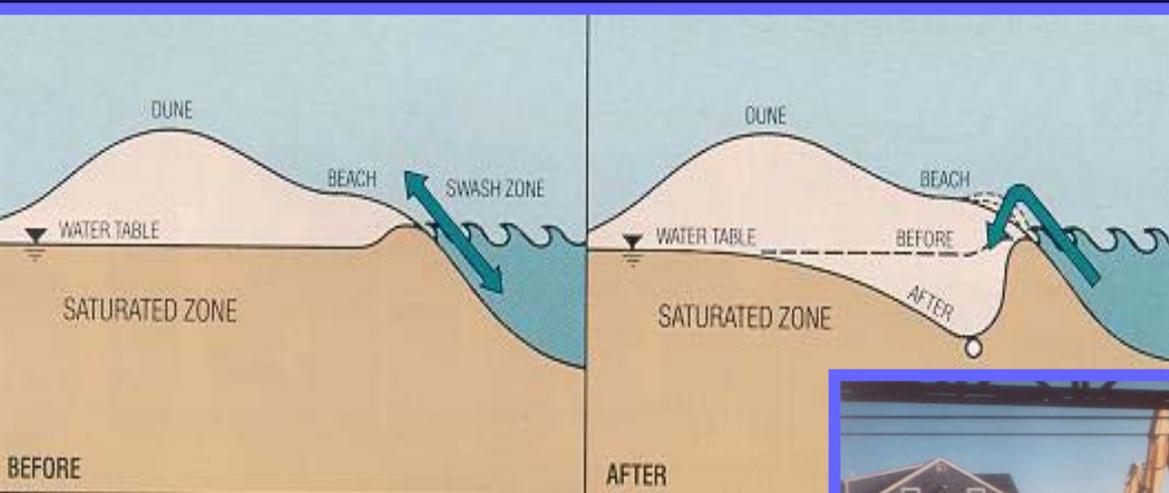


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Fill it Up: Sand Management





Section 227

- **Minimum Required Sites:**
 - ◆ **2 sites on Atlantic coast**
 - ◆ **2 sites on Pacific coast**
 - ◆ **2 sites on Great Lakes**
 - ◆ **1 site on Gulf of Mexico**
- **Non-Federal interests – cost and responsibility for operation and maintenance (excluding monitoring)**
- **Authorization of Appropriations:
\$21 million**



Section 227

- **Program start-up funding of 1.25 million in FY2000;**
- **Initiation of first site in New Jersey, in March 2000 (FY1999), due to local congressional delegation adding specific funding budget;**
- **Interagency Coordination Workshop in May 2000.**



DEMONSTRATION SITES SECTION 227





Section 227

Project in Southeast Region

■ Miami Beach, Florida

- ◆ Site is considered an “erosional hot spot” in the Dade County Beach Erosion & Hurricane Protection Plan;
- ◆ Project Design will provide storm damage reduction and recreation benefit;
- ◆ Project will document performance of other non-traditional methods implemented at other “erosional hot spots” in the Dade County Plan;
- ◆ Project design is pending outcome of analysis of coastal processes at project site.



Section 227

Projects in Northeast Region

- **Cape May, New Jersey – Groin Field**
 - ◆ Evaluating cells with differing treatments
 - ◆ Complete construction in 2001
 - ◆ \$1.5 million

- **Gilgo Beach, LI – Dune Stabilization**
 - ◆ Stabilize with structures in dune
 - ◆ Not under construction; not funded yet
 - ◆ Could start in 2002



Section 227

Projects in Northeast Region

- **Chesapeake Bay – Monitoring**
 - ◆ **VIMS – monitoring already constructed stabilization devices**
 - ◆ **On-going**



Section 227

Other Regions

- **Alegon County, Michigan – Bluff Dewatering above water line**
- **Texas Gulf Coast – erosion of coastline; Geotubes as groins/submerged offshore breakwaters and under dunes to control erosion**
- **Southern Calif. – Keep sand in system longer before drift carries sand into deep canyons**



Section 227

Other Regions

- **Lake Erie, Ohio – Use sand and gravel to prevent bank slides below waterline**
- **San Francisco Bay – Vegetative techniques for boat wake impacts**



National Shoreline Management Study

- **Corps published National Shoreline Study in 1971**
 - ◆ **20,500 miles of ocean, estuarine and Great Lakes shorelines with significant erosion;**
 - ◆ **2,700 miles with critical erosion problems.**



National Shoreline Management Study

- **Section 215 (c) of WRDA 1999;**
- **Preparation of a Report to Congress on the state of the shores of the United States, including:**
 - ◆ **extent and effects of erosion and accretion;**
 - ◆ **Causes of erosion and accretion;**
 - ◆ **Description of systematic movement of sand along U.S. shores.**

And...



National Shoreline Management Study

- ◆ **Recommendations on:**
 - ◆ **Federal and non-Federal involvement in shore protection;**
 - ◆ **Use of a system approach to sand management.**
- **Study Products will be used for:**
 - ◆ **Policy analysis**
 - ◆ **Land use planning**
 - ◆ **Coastal resource management**



National Shoreline Management Study

- **Study will be used to initiate dialog on coastal management;**
- **Develop goals on a regional basis;**
- **Address issues including beach nourishment.**



National Shoreline Management Study

- **Corps initiated planning in 2000;**
- **So far, no funding provided;**
- **Included in President's budget for 2002 at \$300,000.**



Regional Sediment Management Study



- Corps has initiated efforts to assess benefits of managing sediment resources at the regional scale rather than at the local project level;
- Concerned with impact of sand management on down drift projects.



Regional Sediment Management Study

- **Concept came from 1998 Coastal Engineering Board meeting.**

<http://bigfoot.wes.army.mil/cerb.html>

- **Started in 1999 with Northern Gulf of Mexico Regional Sediment Management Program Demonstration.**

<http://gis.sam.usace.army.mil/projects/rsm>



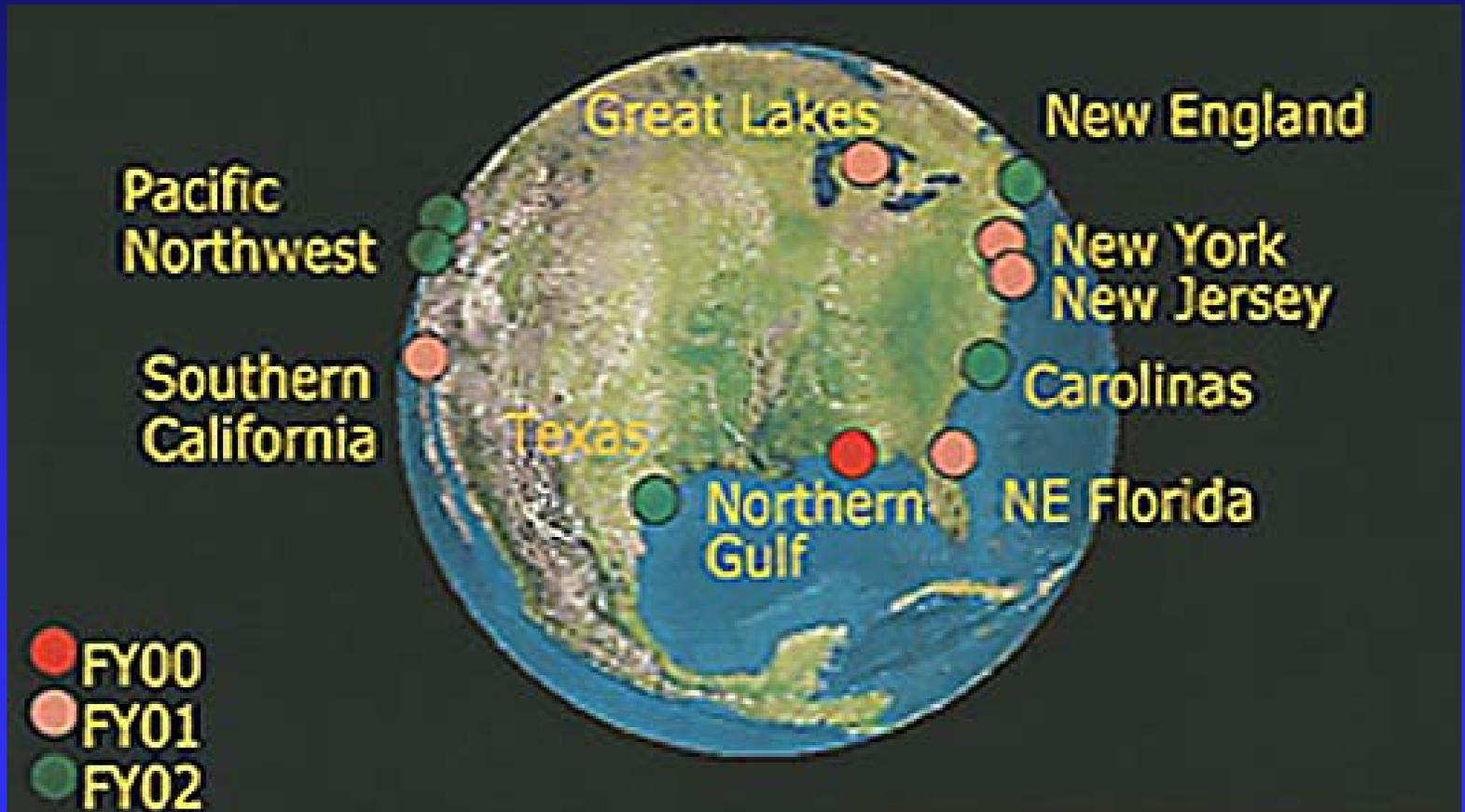
Regional Sediment Management Study

- **Implement Regional Sediment Management Practices;**
- **Improve Economic Performance by Linking Projects;**
- **Development of New Engineering Techniques to Optimize/Conserve Sediment;**
- **Determine Bureaucratic Obstacles to Regional Sediment Management; and**
- **Manage in Concert with the Environment.**



Regional Sediment Management Study

Corps Demonstration Projects



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**Northern Gulf of Mexico
Regional Sediment Management
Program Demonstration Website**

US Army Corps of Engineers

MOBILE DISTRICT

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Coastal Terms

Meeting Info

Program Info

Members

Participants

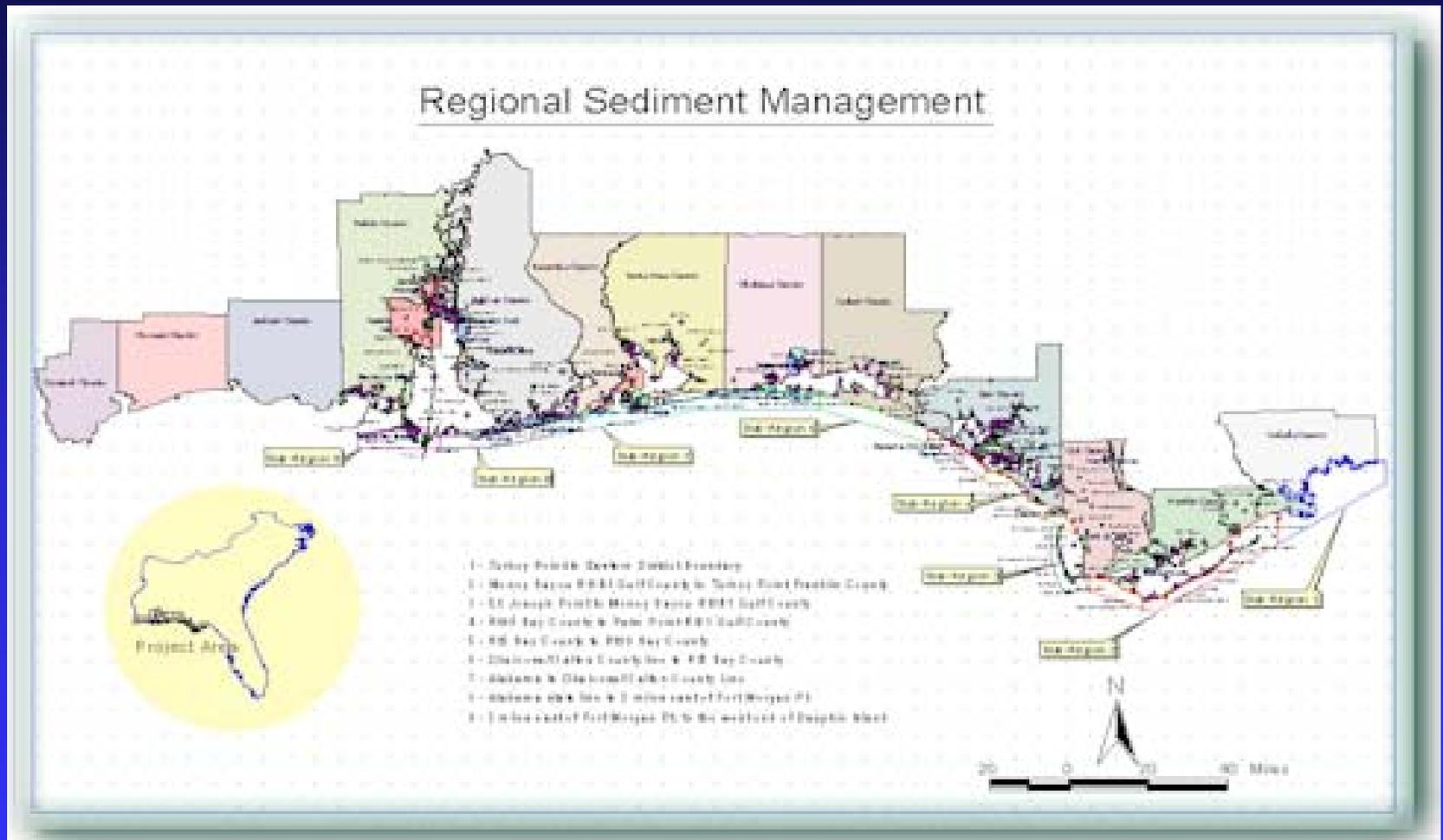
Project Maps

In the past, the US Army Corps of Engineers (USACE) has focused on managing sand at coastal projects on a project-by-project basis. This approach to sand management may not adequately consider the impact of individual projects on down drift projects. To address this issue, the USACE has initiated efforts to assess the benefits of managing sediment resources as a regional scale resource rather than a localized project resource. The concept of Regional Sediment Management (RSM) is a result of the 67th meeting of the [Coastal Engineering Research Board \(CERB\)](#) held in May 1998. [\(more\)](#)

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Northern Gulf of Mexico Regional Sediment Management Demo Program Corps of Engineers Mobile District





Regional Sediment Management Study

Corps of Engineers Mobile District

- **Project region encompasses 245-miles of coastline from St. Marks River, Florida to Dauphin Island, Alabama.**
- **Products include:**
 - ◆ **Regional Sediment Management Plan**
 - ◆ **Working Regional Sediment Budget**
 - ◆ **Calibrated Regional Prediction System**
 - ◆ **Regional Data Management and Geographic Information System**



Jeanette Gallihugh Division of Federal Program Activities

