Regional Sediment Management and Engineering With Nature
Inland Working Meeting

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Outline

- Relevance of RSM/EWN to Inland Districts
- Working Meeting
- Presentations and Examples
  - Missouri River
  - Decision Making and Level of Detail
- RSM/EWN Challenges and Opportunities
- Field Trip
Poll
Relevance to Inland Districts

Storage Capacity of Corps Reservoirs
Regional Sediment Management and Engineering With Nature
Inland Working Meeting: 29 April – 1 May 2014

Linda Lillycrop  ERDC
Todd Bridges  ERDC
Dinah McComas  ERDC
Steve Tapp  MVP
Brian Ball  LRH
Meg Jonas  ERDC
Todd Davis  LRH
Craig Fischenich  ERDC
Chuck Downer  ERDC
John Shelley  NWK
Stanford Gibson  HEC
Paul Boyd  NWO
Aaron Byrd  ERDC
Katherine Touzinsky  ERDC
Elizabeth Bruns  MVR
Heather Bishop  MVR
Kevin Landwehr  MVR
David Gordon  MVS
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Sand needed for endangered species habitat
Kansas and Missouri Rivers are dredged (mined) for sand and gravel.
Bed is degrading (dropping) causing a host of infrastructure problems.
Corps wants to build habitat projects and to reintroduce sediment to the river.
Missouri Clean Water Commission concerned about increasing sediment in the river—"sediment is a pollutant" mind-set.
Missouri River Flood of 2011
Mississippi River combats shoaling problems
Some Other Presentations

- Beneficial Use of Dredge Mat’l on the Ohio River
- Tuttle Creek Reservoir Sedimentation
- Sediment Management Needs at Huntington District Reservoirs
- Rio Grande Reservoirs and Sediment Problems
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Decision Making and Level of Analysis

Empirical Data

Empirical Data + Regional Process-Based Models

Empirical Data + Site-specific models
Decision Making and Level of Analysis

- Empirical Tools
  - XS Viewer

- HEC-RAS
  - SIAM sediment budgeting
  - Mobile-bed modeling
  - BSTEM bank erosion
  - Reservoir sedimentation

- AdH
  - Site-specific 2D and 3D sedimentation problems

- GEISHA
  - Full watershed sediment modeling (including watershed BMPs, reservoirs, and rivers)
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RSM-EWN Opportunities

Guidance/Case Studies

- Systematic review, lessons learned, and design guidance for river restoration, bendway weirs, and grade control projects
- Method for quantifying costs and benefits of (1) recharging sediments trapped behind reservoirs to the downstream channel (2) beneficial use plans that keep sediment in the river
RSM-EWN Opportunities

Training

Create a “Planning Associates Program” for River Engineering

Cover River Engineering in PROSPECT courses (some material is scattered over several other courses, other essential skills are not taught in any)

Create a Reservoir Sedimentation PROSPECT course
RSM-EWN Opportunities

- Create sediment management plans in advance of flood events to intelligently inform post-flood recovery efforts
- Sediment budgets that include fluxes to/from the floodplain
- Tools for automating uncertainty analysis in sediment
RSM-EWN Challenges

“Sediment is a pollutant” mindset

Lack of data (baseline data, calibration data)

Large systems = very expensive projects (too big for RSM)

Lack of standard ways to quantify economic and environmental benefits to include in project justifications
RSM-EWN Challenges

Competing interests: Who does or does not want the sediment?

Permitting process ill-suited to looking at sediment as a resource

Corps lack of interest in water supply (dedicated programs, funding, research)
Field Trip – Deer Island Shallow Water Habitat Site
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