



*Overview Sediment Stability Workshop*

*January 22 - 24, 2002*

RTDF Sediments Action Team Meeting  
Baltimore

March 11-13, 2002

# *Sponsors*

- USEPA
- USACE
- NAVY
- S-SW HSRC
- SMWG

*Why do we care about sediment stability?*

*Remedy Selection*

# *OBJECTIVES*

- Inform interested parties on sediment stability issues
- Forum for detailed dialogue on key sediment stability issues
- Examine Sediment Stability during extreme events
- Explore parts of environmental settings that tend to be stable

# *Some Empirical Observations*

- Geomorphologic approach
  - Manage the entire watershed system
  - Procedures - iterative
    - Desktop study - preliminary conceptual model development
      - interpretation and analysis of imagery, historic hydrographs, etc.
    - Field investigation
    - Laboratory testing, analysis and modeling
    - Revise/Refine Conceptual Models
    - Development of Numeric Models (if necessary)
    - Evaluation of Engineering Designs and Actions
    - Testing and Feedback

# *What do you need for evaluation?*

- Absolute necessity:
  - flow
  - bathymetry
  - sediment typing (use side scan or double beam sonar)
  - sampling design, QA/QC , expert interpretation
- Desirous
  - time series observations (event scale and long term)
  - geochronologic analysis
  - channel morphology
  - bed roughness
  - contaminant distribution / history / mass balance

# *Factors Controlling Sediment Stability*

- Boundary shear stress
  - Storm events  $\Rightarrow$  high runoff/TSS  $\Rightarrow$  dampens turbulent flow
- Erosion rates - sites specific, particle erosion Vs. aggregate erosion “ripup clasts”
- Armoring
- Deposition Processes (flocs)
- Biological Processes
  - Bioturbation
  - Animal secretions
  - Plants

# *Accuracy of Models to Predict*

- Model selection must be appropriate
- Calibrated and Confirmed
- Site Specific Factors with consideration for the magnitude of the problem
  - necessary resolution and accuracy
  - design conditions
  - consider rare events
  - collect appropriate data (incorporate biological effects)
- Used in conjunction with other lines of evidence
- Uncertainty analysis
- Monitor and evaluate predictions (validation)

# *Potential Future Workshop*

- Chemical Stability
  - Flux
  - Degradation
  - Bioavailability