

Managing and Understanding Sediments in Your Watershed
U.S. Army Corps of Engineers, Detroit District
Great Lakes Hydraulics and Hydrology Office
20-21 October 2008

Agenda

20 OCTOBER - CLASSROOM

- 8:00 – 8:30 Introduction (Jim Selegean
Class overview USACE – Detroit District)
Section 516 Program
- 8:30 – 9:30 Sediment: The Good and the Bad

Sediment impacts on fish, benthic invertebrates, flooding, etc.
- 9:30 – 9:45 BREAK
- 9:45 – 10:45 Sources of Sediment (Jim Selegean
USACE – Detroit District)
- Sediment production
- Raindrops and entrainment
 - Benefits of a closed forest/vegetation
 - Incision and channel evolution
 - Dam removal
- Constructing a sediment budget
- Sources (bank erosion, overland runoff)
 - Sinks
 - Data sets
 - Corps guidance
- Generalizations about urban, agricultural and forested watersheds
Historical sediment supplies (Pre-European settlement to present)
The geomorphic assessment in sediment studies
- 10:45 – 11:45 Monitoring for sediment (Cyndi Rachol - USGS)
- Sampling equipment
Sampling methods
Accessing historic data
- 11:45 – 12:30 LUNCH

- 12:30 – 1:30 Web-based tools for soil erosion assessment/management (Jon Bartholic - MSU)
- High (sediment) Impact Targeting
 - Digital Watershed
 - RUSLE tool for agriculture and construction sites
- 1:30 – 2:30 Web-based tools for soil erosion assessment/management (Bernie Engel, Purdue Univ.)
- L-THIA (Long-Term Hydrologic Impact Assessment) Model
 - SEDSPEC - A Web-based Tool to Estimate Peak Runoff and Design Runoff and Erosion Control Structures
 - Web-based Environmental Decision Support Tools
- 2:30 – 2:45 BREAK
- 2:45 – 3:15 Ditch-sediment management tool (Travis Dahl
USACE – Detroit District)
- 3:15 – 4:00 Advanced Tools (Jim Selegean
USACE – Detroit District)
- 1-d sediment yield using SWAT
 - 2-d sediment yield using GSSHA
 - 1-d sediment transport with HEC-RAS – mobile bed
 - 1-d sediment transport with HEC-RAS – SIAM
 - Multi-dimensional sediment transport with CH3D-SED, EFDC, RMA-2, etc.

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SEDIMENT PREVENTION/STABILIZATION METHODS

8:00 – 9:00 Riparian Zone Mitigation (Rich Fischer, USACE - ERDC)

- Buffer Strip design
- Riparian Corridors

9:00 – 10:00 In-Stream Mitigation (Meg Jonas, USACE - ERDC)

- Bank stabilization methods
- Grade control methods
- Sediment and flow retention basins?

10:00 – 10:15 BREAK

10:15 – 10:45 Urban and construction BMPs for sediment (Rick Devisch, Oakland County)

10:45 – 11:15 Soil and water conservation district programs (Quincy Coleman NRCS, Kimball, MI)

11:15 – 11:30 GL Basin Program for Soil Erosion and Sediment Control (Great Lakes Commission)

11:30 – 12:00 Restoration case study - (Rob Myllyoja, Hubbell, Roth & Clark)

21 OCTOBER - FIELD

12:00 – 5:00 Box lunch and visit field sites