

**Subcommittee on Sedimentation Meeting Minutes  
May 6, 2016  
Denver Federal Center, Bureau of Reclamation**

**Introductions**

An informational field trip was provided on Thursday, May 5, 2016 to various sites along the South Platte River through the Denver, CO metropolitan area. More details about this field trip are provided at the end of the minutes.

On May 6, 2016, the Subcommittee on Sedimentation (SOS) Chair, Tim Randle, called the meeting to order at 8:00 AM, MDT. The agencies and organizations represented are listed in the table below:

<b>Organization</b>	<b>Contact</b>	<b>Organization Address</b>
ARS-USDA	Eddy Langendoen	Agricultural Research Service; United States Department of Agriculture; Watershed Physical Processes Research Unit; 598 MC ELROY DRIVE Oxford, MS 38655
ASCE	absent	American Society of Civil Engineers
CUAHSI	absent	The Consortium of Universities for the Advancement of Hydrologic Science, Inc.
BLM-DOI	absent	Bureau of Land Management
CWRRRI	Peter Nelson	Colorado Water Resources Research Institute, Colorado State University; 1372 Campus Delivery, Fort Collins, Colorado 80523-1372
FERC	Paul Makowski	Federal Energy Regulatory Commission, Division of Hydropower Licensing, 888 First St. NE, Washington, D.C., 20426
FHWA-DOT	Scott Hogan	Federal Highway Administration, Central Federal Lands Division, 12300 West Dakota Ave., Suite 340, Lakewood, CO 80228
FS-USDA	Dan Cenderelli	U.S. Forest Service, Fluvial Geomorphologist/Hydrologist, National Stream and Aquatic Ecology Center
FS-USDA	Steven Yochum	U.S. Forest Service, Hydrologist, Watershed, Fish, Wildlife, Air, & Rare Plants, National Stream and Aquatic Ecology Center
MWRRC	Amanda Cox	Missouri Water Resources Research Center, Saint Louis University, Parks College of Engineering, Aviation and Technology, 3450 Lindell Blvd, Saint Louis, Missouri 83103
NOAA Fisheries	Collins, Matt	NOAA Fisheries, 55 Great Republic Drive Gloucester, MA 01930-2276
NPS-DOI	absent	National Park Service
NRCS-USDA	Jon Fripp	National Resources Conservation Service, NDCSMC, 501 W. Felix St., Fort Worth, TX 76115
NRCS-USDA	Jo Johnson	National Resources Conservation Service, 12th and Independence Ave, SW, Room 6137, Washington, DC 20250

OSM-DOI	absent	Office of Surface Mining
Reclamation-DOI	Tim Randle	Bureau of Reclamation, PO Box 25007, 86-68240, Denver CO 80225
Reclamation-DOI	Jennifer Bountry	Bureau of Reclamation, PO Box 25007, 86-68240, Denver CO 80225
TVA	Dara Parker	Tennessee Valley Authority, Dam Safety Governance & Oversight, WT 10C-K, 400 W. Summit Hill Dr., Knoxville, TN 37902
UCOWR	absent	Universities Council on Water Resources
USACE-DOD	Meg Jonas	U.S. Army Corps of Engineers, Headquarters USACE, CECW-EC, 441 G Street, NW, Washington, DC 20314-1000
USEPA	absent	U.S. Environmental Protection Agency
USGS-DOI	Mark Landers	U.S. Geological Survey, Georgia Water Science Center, 1770 Corporate Drive, Suite 500, Norcross, GA 30093
USGS-DOI	Molly Wood	U.S. Geological Survey, Office of Surface Water, 230 Collins Rd, Boise, ID 83702

## Subcommittee on Sedimentation Member Organization Reports

Each organization's representative was asked to provide a brief summary of their sediment-related activities. A bullet-point summary of these activities is provided below for each organization:

### U.S. Forest Service, Steve Yochum and Dan Cenderelli

- Modeling of sediment erosion from wildfire and prescribed burns.
  - Disturbed WEPP (Water Erosion Prediction Project) model. For more information refer to the website <http://www.fs.fed.us/rmrs/projects/forest-service-water-erosion-prediction-project-fs-wepp>
- Modeling of sediment erosion from roads and assessing the impacts of road systems on erosion and sediment delivery to streams.
  - WEPP model. For more information refer to the website <http://www.fs.fed.us/rmrs/projects/forest-service-water-erosion-prediction-project-fs-wepp>
- Assessing the impacts of road systems on erosion and sediment delivery to streams.
  - Geomorphic Road Analysis and Inventory Package (GRAIP). For more information refer to the website <http://www.fs.fed.us/GRAIP/>
- Develop a database of bedload data collected from past bedload studies funded by the Forest Service.
  - In development with Colorado State University. Anticipated completion date is 30 April 2018.
- The Forest Service and USFWS have funded BYU to develop a sediment transport database. It is available at: <http://worldwater.byu.edu/app/index.php/sediment>
- Progress continues on watershed restoration on National Forests. Using the Watershed Condition Framework, watersheds are assessed and watershed restoration action plans are developed. A primary component of restoration is often road closures and decommissioning. These unpaved roads are primary sources of sediment. Burn Area Emergency Response (BAER)

activities are also a primary component of watershed rehabilitation in newly-burned watersheds, to reduce sediment release.

### **Colorado Water Resources Research Institute, Colorado State University, Peter Nelson**

- There are several active projects taking place at the CSU Engineering Research Center Hydraulics laboratory.
  - Mount St. Helens sedimentation: Prof. Rob Ettema is leading a physical modeling study investigating strategies to prevent excessive sedimentation of the Toutle River due to the large amount of sediment coming off of the hillslopes in the aftermath of the 1980 eruption of Mount St. Helens. These experiments are being conducted in a large (25 foot wide, 100 foot long) basin.
  - Sediment supply effects on riffle-pool morphology: Prof. Peter Nelson is leading a NSF-funded project investigating how riffle-pool morphology is affected by changes in sediment supply. Flume experiments in a straight channel with sinusoidal varying width developed riffle-pool morphology, and sediment pulses added to the channel evolved primarily through dispersion.
  - Sediment supply and sorting in meandering rivers: As part of Prof. Peter Nelson's NSF CAREER project, we are conducting experiments in flumes with different curvature and making detailed velocity, bed load, and bed topography measurements to better understand how sediment supply and channel curvature affect bed topography and bed surface sorting in meandering rivers.
  - Stratigraphy and alternate bars in gravel-bed rivers: In a straight channel, we developed alternate bars and increased, then decreased, the sediment supply, producing self-formed stratigraphy in the aggradation phase which the channel cut through during the subsequent degradation phase. The morphology and sorting under equilibrium conditions before and after the aggradation-degradation sequence suggests that a river's history of sediment supply influences its geomorphic characteristics.
- Other field based sediment research includes:
  - Post-wildfire hydrology and sedimentation: A team of researchers from different departments and colleges (Peter Nelson, Lee MacDonald, and Stephanie Kampf) have been studying hydrologic response, erosion, and sedimentation following the 2012 High Park Fire, which burned ~350 km<sup>2</sup> area just west of Fort Collins. This has involved repeated field surveys of tributaries to the Cache la Poudre River and differencing of annually repeated airborne LiDAR topographic datasets to better understand patterns of erosion and deposition following the fire.
  - A field-based component of the riffle-pool study mentioned above includes repeated collection of detailed bathymetry of a reach of the Elwha River between the two former dam sites. We have been using RTK-GPS and a kayak-mounted single-beam echosounder to measure bed topography and relate topographic changes to dam-removal-related sediment supply changes and relatively large flows that have occurred over the past two winter seasons.
- Numerical modeling research includes:
  - Continued development of mixed-grain-size sediment transport modeling incorporated into the two-dimensional morphodynamic model FaSTMECH, which is included in the freely available iRIC (International River Interface Cooperative, [www.i-ric.org](http://www.i-ric.org)) suite of modeling tools. Currently we are building a stratigraphy sub-model that should enable

the model to keep track of grain size changes in the subsurface, and model their effect on channel evolution.

- Mixed bedrock-alluvial river morphodynamics: We have been developing a two-dimensional morphodynamic model that calculates flow, sediment transport, and the development of alluvial cover in mixed bedrock-alluvial channels, with the goal of better understanding what controls the development of sediment cover and its potential effects on bedrock channel evolution.

#### **Agricultural Research Service, Eddy Langendoen**

- Predicting the field-scale detachment and deposition of soils and sediments
- Improved understanding of sediment particle size distribution of eroded sediments and its transformation during transport
- Reducing uncertainty about predicting the location, size, and growth of ephemeral gullies
- New grain sorting models that also form a basis of improved mixed-size sediment transport formulations
- Improved ability to model sediment transport at landscape and watershed scales
- Improved understanding of the interactions between stream bed and bank adjustment, for example in meandering streams
- Development of a comprehensive multi-dimensional river morphodynamics computer model to evaluate the impact of upland, instream, and reservoir rehabilitation measures on instream resources
- Improved erosion modeling of complex embankment structures
- Tools for designing and safeguarding hydraulic structures
- Improved field- and watershed-scale erosion-process models
- Integration of USDA erosion models into frameworks/interfaces that automate input data preparation

#### **U.S. Army Corps of Engineers, Meg Jonas**

With 41 districts across the nation, there are more ongoing projects than can be listed here, in addition to the activities of multiple research programs developing improved software, field and laboratory testing methods, guidance criteria, and other support tools. A few projects and activities of national interest are listed below.

- Reservoir Sedimentation Information (RSI) database (database of reservoir sedimentation information). USACE is currently populating the database with data for Corps reservoirs, and is working with Reclamation to initiate inputting data for Bureau reservoirs. All Corps data should be input and QC'd by the end of FY-2016. For FY-2017, the plan has been to develop the methods and metrics for prioritization.
- River Engineering Working Group: the first meeting of this community of practice will be held 26-28 July in St. Louis, MO. The working group is a sub-group under the hydraulic engineering Community of Practice.
- Missouri River Bed Degradation Feasibility Study (Kansas City to St. Joseph). Major degradation has occurred in the Kansas City reach of the Missouri River in the period from 1990 to 2005,

affecting infrastructure along the mainstem and tributaries. Multiple analysis methods have been used to evaluate the role of potential causes of degradation, which include land use changes, dam construction, river cutoffs, dike and revetment construction (navigation), flow modification by reservoirs, major flood events, and commercial sand and gravel mining. A HEC-RAS mobile-bed model is being used to evaluate sediment transport along 155 miles of river to determine the contribution of navigation structures and sand/gravel mining to degradation.

- The Mississippi River Geomorphology and Potamology (MRG&P) Program addresses the need for USACE to have the most up-to-date and technically competent scientific data and analysis for providing navigation and flood risk management in an environmentally responsible manner. The primary purpose is to understand the evolving geomorphology and potamology of the Mississippi River from the confluence of the Missouri River to the Gulf of Mexico.

#### **Missouri Water Resources Research Center, Saint Louis University, Amanda Cox**

- Developing methods for estimating suspended sediment concentrations in the Middle Mississippi River and Missouri River using remote sensing data
- Evaluating sedimentation trends near three tributaries of the Middle Mississippi River and investigating impacts of river training structures on those trends
- Investigating similitude of Hydraulic Sediment Response (HSR) Modeling, a technique for small-scale mobile-bed hydraulic modeling

#### **National Resources Conservation Service, John Fripp and Jo Johnson**

- Reservoir sedimentation what will happen in the future and rehab plans: The NRCS has a significant rehab programs for aging dams (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/wr/>). While much of the work relates to changes in hazard class, sedimentation of course remains an issue for consideration as well. Information is collected in Forms 34 as well. While we haven't conducted a specific study, many of the earlier dams over predicted sediment. As a result, we have had more capacity than we thought. This could be a function of improved land use. And it isn't true in all cases. But is an interested ad-hoc observation.
- Wildfire issues – NRCS is continuing with various analysis tools to look at increases in sediment load as a result of fire. Overall, the initial impacts are severe as expected but drop off quickly. A particular paper of interest is available at: <http://acwi.gov/sos/pubs/3rdJFIC/Contents/5E-Moore.pdf>
- Stream restoration projects: The NRCS is continuing with a variety of stream restoration projects. Some of these are functioning well while others are having difficulties. Projects have not performed as intended as a result of sediment issues not being fully considered. Even when considered, some projects are only looking at frequent events and not the effects of large storms.
- Adopting HEC-RAS 2D: The NRCS has adopted the USACE HECRAS program for open channel modeling. The latest version (HECRAS 5) now includes 2D flow modeling capabilities. While it is not appropriate in all situations, it is applicable to many. The NRCS is providing training to their personnel (and sister agencies) with a focus on NRCS projects.

- RHEM (Range land hydrology and erosion model): This process based modeling tool is available for use. While focused on rangeland, has some potential application for other applications as well. Two attachments are provided. See the following website for more details:  
<http://dss.tucson.ars.ag.gov/rhem/>

#### **NOAA Fisheries, Matt Collins**

- We are involved in river restoration, particularly dam removals, and are engaged in these sediment-related activities:
  - Studies of channel response to dam removal: (SW: San Clemente; NW: Elwha; NE: Penobscot, Patapsco, Souhegan, etc.)
  - Powell Center-funded national synthesis of dam removal science
- In collaboration with USGS National Research Program, we are investigating how recently documented hydro-climatic changes in flood magnitude and frequency in the Northeast U.S. may be affecting river channels (channel geometry and bed sediment texture). See attached summary/concept slide with some applicable references.  
(see NOAA attachment)

#### **Federal Highway Center, Lakewood, CO, Scott Hogan**

- For detailed bridge hydraulic analysis FHWA adopted SRH-2D and partnered with Reclamation to add several structural hydraulic features, such as bridge pressure flow, culverts, weirs, etc.
  - FHWA hopes to incorporate sediment transport and local scour analyses directly in the SRH-2D bridge hydraulic analysis
  - SRH-2D interface now available in SMS and public version soon to be available
  - Yong Lai will present a SRH-2D sediment transport workshop at the National Hydraulic Engineering Conference in Portland this August
  - FHWA will present a workshop on modeling bridge hydraulics and computing scour
- Scour analysis
  - New multifunctional flume system
    - 13ft wide x 100 ft long; variable width (<http://www.fhwa.dot.gov/engineering/hydraulics/newsletter/v03issue01.pdf>)
    - Sediment injection system
    - Robotic laser to measure bedforms
    - Turner Fairbanks Hydraulic Research Center – <http://www.fhwa.dot.gov/research/tfhrc/labs/hydraulics/tfhrclab/phymodeling.cfm>
  - Scour with cohesive sediment (<http://www.fhwa.dot.gov/publications/research/infrastructure/structures/bridge/15033/index.cfm>)
    - been working on in-situ device with borings from drill rigs combined with measurement of shear stress; method focused on varying critical shear in vertical direction; current design methodology doesn't account for decay but would like to in future (<http://www.fhwa.dot.gov/research/tfhrc/labs/hydraulics/activities.cfm>)
    - ARS interested in exchanging information since they have also done a lot of research with jet tests;

- Research on improved scour methodology from perspective of scour-decay concept; hope to integrate local scour estimates from within SRH-2D from work with 3D model;
- Narrow bridges; geosynthetic wrapped shallow foundation analysis (<http://www.fhwa.dot.gov/research/tfhrc/labs/hydraulics/activities.cfm>)
- Lot of research in climate change (See article in attached newsletter)
  - consultant contract to look at potential impacts to channel migration just underway
  - culvert, fish passage design
- Counter-measure design
  - Partner with USGS to evaluate projects where they have been in place for many years

### **U.S. Geological Survey, Mark Landers and Molly Wood**

- USGS Sediment program
  - Molly Wood is the national sediment specialist for the USGS Office of Surface Water (OSW), replacing John Gray.
  - Molly will serve as the alternate USGS SOS rep (Mark Landers is the primary rep).
  - Mark Landers and Molly Wood developed a new strategic plan for USGS OSW sediment priorities. The plan includes improved internal and external collaboration, training, and guidance on sediment surrogate monitoring practices.
  - USGS is performing annual, national project reviews for sediment- and geomorphology-related research. The reviews educate OSW on the types of projects being funded across the U.S. and helps ensure scientists are following consistent and defensible methods. Some projects reviewed this year include: bank erosion monitoring with terrestrial LiDAR, the use of permeable pavement to reduce sediment delivery to streams, effects of beaver dams on stream geomorphology in urban areas, and sediment acoustic surrogate monitoring networks.
- Geomorphology exchange proposal
  - A group of USGS and SOS members submitted a proposal to USGS Powell Center for Data Synthesis but was not successful
  - Working on new ideas for funding
  - Matt Collins suggested having a workgroup call to coordinate efforts and move forward
- Indirect measures for continuously monitoring sediment using optical or acoustic methods. USGS is near publication with a Techniques and Methods manual for computing continuous suspended sediment from in situ acoustic velocity meter (Landers, Staub, Wood, and Domanski; will be available at: <http://dx.doi.org/10.3133/tm3C5>). Also, the USGS Ecosystems Mission area recently published a Professional Paper on methods to estimate sediment concentration and median size from in situ multi-frequency acoustics (Topping and Wright: <https://pubs.er.usgs.gov/publication/pp1823>). As this topic continues to advance rapidly it may be a good candidate for a multi-agency workshop, perhaps through CUAHSI.
- Better software has been developed by USGS to develop and apply surrogate rating curves to estimate time series sediment concentrations. The software is called Sediment Analysis Index Developer (<https://pubs.er.usgs.gov/publication/ofr20151177>). USGS is currently working with their Grand Canyon Monitoring and Research Center staff to integrate a dual-frequency acoustic method into the software.

- USGS involved with a bridge scour countermeasure evaluation project, in cooperation with FHWA. The project involves applying various evaluation methods, including detailed bathymetric work, LiDAR, and visual assessments, on numerous bridges across the U.S. to assess the effectiveness of bridge scour countermeasures.

#### **Federal Energy Regulatory Commission, Paul Makowski**

FERC does not have specific sediment related programs, but the effects of sediment on environmental resources may be analyzed during project licensing. Typical sediment-related issues that we encounter during licensing process include:

- Soil erosion and sediment control during construction
- Sediment modeling to evaluate the effect of existing and potential operation alternatives on habitat
- Stream bank and / or shoreline erosion affected by existing or potential project operation
- Reservoir sedimentation
  - Prediction of sediment deposition in the reservoir resulting from existing or potential project operation
  - Determining sediment trap efficiency to evaluate the effect of existing and / or potential operation alternatives on reservoir capacity
  - Sediment removal / dredging of both uncontaminated and contaminated sediment

Helpful if information on sediment activities can get to licensees and the licensee's consultants

If resource agencies make information known to licensees and the licensee's consultants then it can be used (for example, HydroVision International, which is attended by Reclamation)

#### **Tennessee Valley Authority, Dara Parker**

- In process of risk informed evaluations and several have significant sedimentation issues; often downstream of past mining and potential for contamination
- Would be interested in projects on reservoir sedimentation and dam removal
- River management department might be interested in channel migration and channel threshold studies

#### **Bureau of Reclamation, Tim Randle and Jennifer Bountry**

- Investigations of reservoir sedimentation and sustainability
  - Leading the SOS, National Reservoir Sedimentation and Sustainability Team
- Leading investigations of dam removal and sediment management
  - Removal of Elwha Dam and Glines Canyon Dam, WA
  - Removal of Matilija Dam, CA
  - Removal of Klamath River Dams, CA
- Development of a three-dimensional sediment transport model (SRH-3D)
- Middle Rio Grande sediment management studies, NM
- San Joaquin River restoration, CA
- Submitting proposal to develop low-flow ecosystem features in urban river restoration environment and would welcome interagency partners



## SEDHYD 2019 Conference Planning

Planning for the SEDHYD 2019 conference will be conducted by a joint committee from the Subcommittee on Sedimentation and Subcommittee on Hydrology. The following people from the Subcommittee on Sedimentation have expressed a willingness to serve on the planning committee:

- Joseph Schubauer-Berigan, EPA
- Amanda Cox, MWRRC
- Jo Johnson, NRCS
- Jon Fripp, NRCS
- Jennifer Bountry, Reclamation
- Tm Randle, Reclamation
- Meg Jonas, USACOE
- Mark Landers, USGS

The conference planning requires many committee assignments and the completion of a large number of tasks. However, determining the location and dates for the conference is next on the critical path. Following past practices, the location and dates of the SEDHYD conference will be based on a review of proposals from interested convention centers and hotels. The Subcommittee on Sedimentation reviewed the previous request for proposals (RFP) that was sent out in anticipation of the 2014 conference, which was actually convened in April 2015. The requirements of the previous RFP focused on the anticipated number of attendees and conference room capacities. Some of these requirements may have to be adjusted downward to better match the actual attendance at past conferences. Some suggested criteria for evaluating future proposals are listed below:

- Federal per diem lodging rates for all conference attendees
- Low travel per diem and transportation costs from major cities
- Non-smoking conference and lodging facilities
- Field trip opportunities
- Technology for presentations and real-time conference information
- Low-carbon footprint of the conference and lodging facilities
- Ease of access between the hotels and conference facility (but not necessarily same facility)
- Access to students and personnel who can help with the conference
- Capacity of meeting rooms for keynote addresses, concurrent sessions, poster session, and small committee meetings
- Sufficient restaurants at facility or within walking distance

## Workgroup on Reservoir Sedimentation and Sustainability

Tim Randle reviewed the outline of a white paper developed by the SOS-sponsored **National Reservoir Sedimentation and Sustainability Team**, which last met in Lakewood, CO October 20-22, 2015.

- Regulatory component of reservoir sustainability will be very important. EPA is beginning dialogue with other federal agencies on this topic
- The U.S. Forest Service has some interest on the white paper because they work with stakeholders who operate dams on National Forests.

Reclamation's Research Office produces a quarterly newsletter, The Knowledge Stream. Progress on the above white paper has been slow, but the Spring 2016 issue was entirely devoted to reservoir Sedimentation and Sustainability (<http://www.usbr.gov/research/docs/ks/ks-2016-02.pdf>).

Reclamation's Research Office is also sponsoring challenge prize competitions. Some possible competitions are listed below:

- How to prevent sediment and wood debris from plugging trash racks at dam outlets
- New innovation needed for dredging reservoirs rather than navigation channels
- Prevention of abrasion in sediment slurry pipelines
- New methods for estimating sediment yield to reservoirs

The U.S. Society on Dams is considering the adoption a resolution on reservoir sedimentation and sustainability, similar to the one passed by the Subcommittee on Sedimentation in December 2014, but for all dams rather than just Federal dams.

USACOE has been collaborating with Reclamation to develop criteria for prioritizing reservoir sedimentation surveys.

## Federal Interagency Sedimentation Project Updates

Mark Landers provided the following updates:

- The Technical Committee for the Federal Interagency Sedimentation Project met April 26-27, 2016 in Boise, ID. The Technical Committee received updates from groups being funded for research:
  - Penn State – effectiveness of sediment samplers; suspended sediment monitoring density
  - Standardized federal equipment methods being developed – contact Mark for any questions
  - The Technical Committee is hoping for participation from USFS, BLM, USFWS, NOAA, and TVA. The Committee meets face-to-face twice per year and by phone twice per year. Federal agencies can participate remotely in the face-to-face meetings. Interested Federal agencies should contact Mark Landers (USGS) or Rob Hilldale (Reclamation)
- Research gets funded each year on standardizing and learning about surrogate samplers along with physical samplers
- Would like to remove some uncertainty around measurements
- Should FISP consider shear stress testing standards for sediment – e.g., jet tests
  - An ASTM method standard was once proposed, but later withdrawn

## SOS Progress on Dam Removal Sediment Analysis Guidelines

Tim Randle and Jennifer Bountry

- John Fripp and Steve Yochum willing to participate in review
- Add acoustic sediment profiler methods to determining reservoir sediment volume methods
- Identify case studies and methods gaps portion of guideline where SOS members might contribute
- Send out presentation to group

## SOS Prospectus Development

### Climate Change

- Matt Collins – climate change and interaction with sediment issues
  - Should there be a workgroup on committee's to explore committee's role in this area?
  - Greater sedimentation rates due to upland changes
  - How does it impact or current SOS priorities or is there new priorities that need to be addressed?
  - If it results in more flashy storms, may have some correlations with lessons learned from urban environments
  - May have a nexus with subcommittee on hydrology
- COMET training on sedimentation impacts under climate change
- Dan Cenderelli - Link from ability of streams to move sediment related to habitat; how is this impacted with population growth pressure on water quality
- SOH updating bulletin 17B to 17C but updates do not yet address climate change impacts to flood frequency estimates (Tuesday, 14 June through Thursday, 16 June, 2016)
- Jon Fripp – other countries have a specific agency in charge of looking at climate change impacts
- ARS looking at water use and availability; over withdrawal groundwater reduction impacts
- Climate change impacts on wildfire and sedimentation
- Impacts of land use change on sedimentation rates
- USFS doing work on warming temperatures
- George Annandale has ongoing presentation – perhaps a version specific to US with statistics could be useful
- Have a call to discuss what agency already has would be useful
- ARS going to take on some really comprehensive measurement in several watersheds
- Workgroup that could focus on research needs and a whitepaper
  - Ideal to get representative from each agency assigned
  - SOS members willing to participate:
    - Molly Wood
    - John Fripp and Joe Johnson
    - Steve Yochum

- Amanda Cox
- Matt Collins – will take the lead
- Meg Jonas

### **Watershed Rehabilitation**

- How do you do an entire watershed with respect to watershed-wide sediment issues
- Has a tie to addressing reservoir sedimentation
- Revisiting sediment budget – where do you get most benefit from managing sediment loads
- In some cases you may need to augment sedimentation
- University of Tennessee doing some work; economic analysis
- ARS in Oklahoma SWAT simulations uplands versus channel BMPs
- Sediment fingerprinting work by USGS

### **Reach Scale Stream Restoration**

- USFS has guidance that is updated annually – new version posted Monday!

### **Infrastructure and the Environment**

- Environmental and infrastructure resiliency
- Ecological processes
- Using native materials

## **Updates on the reservoir sedimentation database (RSI)**

Bryan Baker (USACOE) provided a progress update to the RSI database:

- USACOE has made good progress on the development of the database, in collaboration with Reclamation, which is expected to be available sometime this summer (2016). USACOE is working to make the RSI database accessible to other Federal agencies and, eventually, the public. Security reviews are in progress. The next issue is data quality to make sure the data are correct.
- The database team is working on expanding the data fields, many of which came from Reclamation. There isn't a schedule yet, but the contractor is working on hiring more people, so work is expected to accelerate in the future.

## **Technical Presentations**

The following technical presentation were provided by Reclamation engineers in the Sedimentation and River Hydraulics Group, Denver, CO:

- 3D Sediment modeling research
- Paonia Reservoir sediment management
- Elwha River Restoration updates

Yong Lai  
Sean Kimbrel  
Jennifer Bountry

## Next Subcommittee on Sedimentation Meetings

Several future meetings were planned, most by conference call. Tim Randle will set up Doodle Polls to determine the optimum dates:

- Work Group on Environment and Infrastructure conference call
- Work Group on Climate Change Effects on Geomorphology
- Work Group on the Stream Morphology Database Exchange
- NRSST conference call
- Next SOS conference call (Summer 2016)
- Fall SOS meeting (Fall 2016)

## Closing

The meeting Adjourned at 3:00 PM, MDT

## May 5, Field Trip Summary

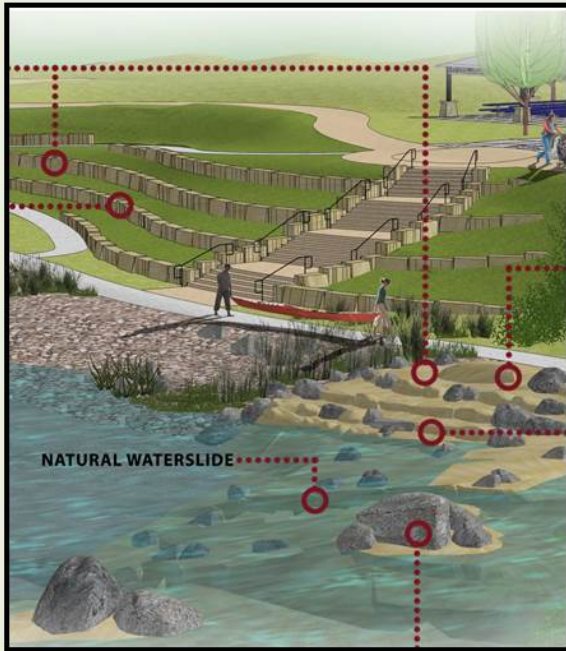
The Urban Drainage and Flood Control District manages the South Platte River for flood conveyance and now partners with other organizations to improve habitat and recreation opportunities.



Field trip participants included (left to right) Tim Randle (Reclamation), Amanda Cox (MWRRC), Eddy Langendoen (ARS), Caroline Ubing (Reclamation), Melissa Foster (Reclamation), Dave Bennetts (Urban Drainage and Flood Control District) and Jennifer Bountry (Reclamation). Meg Jonas (USACOE) was also present, but not in the photograph.



# River Run at Oxford



- Phase I - North of Oxford Avenue
- Budget \$6,000,000 (design and construction)
- Includes:
  - In-River Improvements - two boat chutes and standing wave, river access, cobble beach, and riparian plantings
  - Trailhead – parking lot expansion, large pavilion, flush restrooms, natural play area, trails, plaza with tables and benches, trees and revegetation
- Construction Start November 2015 – Summer 2016
- Design Team – McLaughlin White Water and DHM
- Contractor- Naranjo Civil Constructors



