

SUBCOMMITTEE on SEDIMENTATION, ACWI

Final Meeting Minutes

Tuesday, November 15, 2016

U.S. Army Corps of Engineers Headquarters, GAO building.
Room 3K10, 441 G Street, NW, Washington, DC 20226

Roll Call

Subcommittee on Sedimentation (SOS) Chair, Tim Randle, called the meeting to order and began with a roll call of member organizations.

Organization	Contact	Mailing Address
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; West Consultants, Inc., 2601 25th St. SE Suite 450, Salem, OR 97302
BLM-DOI	Jeremy Kruger	Soil, Water, Air Program Lead Bureau of Land Management Washington, DC
CIRES	Toby Minear	Cooperative Institute for Research in Environmental Sciences
CUAHSI	Marian Muste	IIHR-Hydrosience & Engineering, University of Iowa , 302E Maxwell C. Stanley Hydraulics Laboratory, Iowa City, IA 52242-1585
CWRRI	Absent	Colorado Water Resources Research Institute, Colorado State University; 1372 Campus Delivery, Fort Collins, Colorado 80523-1372
FERC	Absent	Federal Energy Regulatory Commission, Division of Hydropower Licensing, 888 First St. NE, Washington, D.C., 20426
FHWA-DOT	Absent	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
NMFS-NOAA	Matt Collins	NOAA Fisheries, 55 Great Republic Drive Gloucester, MA 01930-2276
NPS-DOI	Absent	National Park Service, 1201 Oakridge Drive Suite 250, Fort Collins CO 80526
NRCS-USDA	Jon Fripp	National Resources Conservation Service, NDCSMC, 501 W. Felix St., Fort Worth, TX 76115
OSM-DOI	Vacant	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

Organization	Contact	Mailing Address
TVA	Absent	Tennessee Valley Authority, Dam Safety Governance & Oversight, WT 10C-K, 400 W. Summit Hill Dr., Knoxville, TN 37902
UCOWR	Vacant	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
USACE-DOD	Bryan Baker	U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research Engineering Laboratory, 72 Lyme Road, Hanover, NH 03755-1290
USEPA	Joseph Schubauer-Berigan	U.S. Environmental Protection Agency, Office of Research and Development, 26 W. Martin Luther King Drive, Cincinnati, OH 45268
USGS-DOI	Mark Landers	U.S. Geological Survey, Georgia Water Science Center, 1770 Corporate Drive, Suite 500, Norcross, GA 30093

The people attending in person at the U.S. Army Corps of Engineers Headquarters included Amanda Cox, Matt Collins, Tim Randle, Meg Jonas, and Mark Landers. Toby Minear represented the Cooperative Institute for Research in Environmental Sciences organization. This was the first time this organization had been represented at a Subcommittee on Sedimentation meeting.

Review and Approve of Minutes

On November 13, 2016, Tim Randle sent minutes (via email) of the Subcommittee on Sedimentation (SOS) Teleconference Meeting that occurred on August 24, 2016. Mark Landers made a motion to approve these minutes. Meg Jonas seconded the motion and it passed without dissent.

Subcommittee on Sedimentation Member Reports

A Subcommittee on Sedimentation representative from each organization was asked to describe their recent and active sediment-related activities.

ARS (Eddy Langendoen)

- Water availability and watershed management program. Rewriting 5-year research plans, which should be available in January 2017
- Better understanding of meandering rivers.
- Gully erosion which may be responsible (10 to 90% of sediment yield)

The web links listed below contain reports of the national assessment (by region) conducted by USDA on crop and grazing lands including sediment yield:

https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/ceap/na/?cid=nrcs143_014144

https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/ceap/na/?cid=nrcs143_014159

BLM (Jeremy Kruger)

- Soil Erosion control
- Develop ecological characterization to find sites that will respond well to restoration
- Landscape approach for restoration
- Reduce point and non-point source erosion
- Monitoring and modeling
- Roads project to reduce 30 to 40 percent of sediment yield
- On the ground restoration work. Provide funding, monitor results, share results, and let people know why it is important.
- 8,000 plots on BLM lands to monitor land treatments. Bare ground, plant species, vegetation height, soil aggregate stability

CIRES (Toby Minear)

- Representing potential new SOS member, CIRES (Cooperative Institute for Research in Environmental Sciences). CIRES is a joint Center between NOAA and CU-Boulder, with expertise in remote sensing.
- Interested in modeling reservoir sedimentation and remote sensing of inland sediment.
- Toby Minear is a member of the NASA Surface Water and Ocean Topography (SWOT) Mission, which will have products of interest to SOS.
 - The planned launch of the satellite is in 2020. Pre-launch activities and products will be of interest to SOS, as well as post-launch activities. More info on SWOT at: <http://swot.jpl.nasa.gov/> ; and AirSWOT (airborne test platform) at: <http://swot.jpl.nasa.gov/airswot/>
 - Pre-launch products of interest: US and global river database with basic river morphology (updated from NHD); Large hydraulic geometry database from USGS gages called HydroSWOT – available on ScienceBase.

FS-USDA (Steven Yochum)

- Ongoing watershed and stream restoration activities on National Forests and Grasslands are documented within our Watershed Condition Framework website:
 - <http://apps.fs.fed.us/nfs/nrm/wcatt/WCFMapviewer/>
 - The priority watersheds are marked with a star, while completed watersheds are marked with a checkmark.
 - An additional link to the watershed condition framework is provided:
 - http://www.fs.fed.us/biology/watershed/condition_framework.html
- The Forest Service National Stream and Aquatic Ecology Center has published a new issue of StreamNotes, our technical newsletter. Sedimentation and other topics are generally included. This and past issues are available at:
 - <http://www.fs.fed.us/biology/nsaec/products-streamnotes.html>
- The NRCS has published Hydrology Technical Note No. 4: Hydrologic Analyses of Post-Wildfire (Steven Yochum is one of the coauthors). An overview of methods and a number of case studies is provided:
 - <http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=39877.wba>
- The Technical center is working with USFWS to digitize and compile data from Dave Rosgen

MWRRC (Amanda Cox)

- Use LANDSAT imagery to estimate turbidity and suspended sediment concentration for the middle Mississippi River to develop sediment budgets for the past 30 years. The middle Mississippi River reach is between the confluences with the Ohio and Missouri Rivers.
- Stream morphology database proposals

NOAA Fisheries (Matt Collins)

- Effectiveness monitoring for migratory fish
- Dam removals and other fish passage work
- Sediment release from Dam and reservoirs and the resulting channel response

NRCS (Jon Frip)

- Working on stream restoration design
- Working on dam rehabilitation and dam removal

Reclamation (Tim Randle)

- Investigations of reservoir sedimentation and sustainability
 - Leading the Subcommittee on Sedimentation, 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
- Research proposal funded to develop low-flow ecosystem features in urban river restoration environment and would welcome interagency partners

USACE (Meg Jonas)

- Under climate change program, predicted flow duration curves for 400 stream gages, which will provide greater ability to assess the corresponding impacts on channel morphology.
- Need to develop methods on how to assess impacts from channel restoration on flooding and infrastructure.
- Final draft on Engineering Manual 1110-2-4000, best practices for sedimentation investigations of rivers and reservoirs. Presently, responding to comments.

USEPA (Joseph Schubauer-Berigan)

- The primary focus has been on public and human health

USGS (Mark Landers)

- Physical measurement and monitoring, database management and quality assurance.
- New database fields (e.g., sediment mass, and uncertainty)
- New publications: Techniques and Methods for side looking insitu acoustic sensors
- Working on using ADCP instruments to measure sediment concentration.
- Sediment laboratories in water mission area. Developing better protocols for lasers
- Geomorphology working on internal database

SEDHYD 2019 Planning (Tim Randle)

The request for conference proposals (RFP) has been reviewed by representative from the Subcommittees on Sedimentation and Hydrology and is now ready for distribution. The following cities have been suggested as possible candidates to host the conference:

City	Field Trip Possibilities
Denver, CO	
New Orleans, LA	
Phoenix, AZ	
Las Vegas, NV	
Reno, NV	
Kansas City, MO	Missouri River Bed Degradation (Missouri River Recovery Program) and reservoir sedimentation problems at Tuttle and Perry Creek
Seattle, WA	Elwha River Restoration Project in Olympic National Park.
San Antonio, TX	No specific sediment issues have yet been identified, but there are lots of hydrology issues is visit.
Atlanta, GA	Water conflicts between GA, FL, and AL are a 15-20 year reality with lots of modeling, monitoring, and consumptive use issues. There has been lots of regional water-supply reservoir building in last seven years since the last major drought. Also, there is a great deal of urban hydro, water quality, and sediment monitoring to visit during a field trip.
Tucson, AZ	
St. Louis, MO	
Cincinnati, OH	
Portland, OR	
San Diego, CA	

No one participating in the meeting offered additional suggestions for conference city locations.

The following selection criteria were suggested to evaluate conference proposals.

- Total cost to attendees including airfare, hotel lodging room, per diem, rental car (if necessary), and registration fee
- Field trip opportunities

- Ease of travel to conference site
- Ease of walking or traveling between the hotel lodging rooms and the conference facilities
- Carbon expenditure (based on hotel and conference facilities and travel)
- Local agency office for support
- Local university for support

The goal is to have a hotel selected and contracted signed by July 2017.

Many volunteers will be needed to run the 2019 SEDHYD conference. The needs will become more apparent once the conference site has been selected and dates have been determined.

Reservoir Sedimentation and Sustainability (Tim Randle)

The National Reservoir Sedimentation and Sustainability Team (NRSST) held their workshop at the Denver Federal Center, October 18-19, 2016. Two excellent presentations were provided:

- “Data Needs for Sedimentation Management” by Gregory Morris (Gregory L. Morris Engineering)
- “Strontia Springs Reservoir Sediment Dredging” by Douglas Raitt (Denver Water)

The NRSST continued development on their white paper to address the importance of sustainable reservoir sediment management and implementation methods. NRSST plans to complete a first draft in December 2016. NRSST continued development of a list of frequently asked question and answers. NRSST is planning a series of webinars on reservoir sedimentation that will be recorded and posted on the SOS web site.

The NRSST also approved a one-page position paper (for consideration by the Subcommittee on Sedimentation) on environmental permitting for sustainable reservoir sediment management that calls “upon local, state, and federal agencies to discuss these issues and make appropriate changes to current regulatory guidelines to recognize the inevitable need to pass sediments through reservoirs in a responsible manner.” **Mark Landers made a motion to approve this position paper. The motion was seconded by Meg Jonas and pass without descent.** Tim Randle will forward this position paper on to the Advisory Committee on Water Information for their consideration.

Bryan Baker provided a summary update on the reservoir sedimentation database (RSI).

- Revisions to the database have been made in response to comments from Reclamation.
- Attempts have been made to place RSI outside of the USACOE firewall and work will continue on this effort.
- 237 of 238 Reclamation dams are now in RSI. Reservoir sediment data are being added now and should be complete by Christmas 2016.
- 90% percent of 800 USACOE reservoir data are in RSI.

USACOE and Reclamation are collaborating on a White House initiative on Drought Relief. LiDAR is being used to survey 34 reservoirs in drought condition. Eight of these reservoirs have been surveyed so far. Toby Minear said he would be willing to compare the new LiDAR survey data with his satellite data

Federal Interagency Sedimentation Project Updates (Mark Landers)

- The Federal Interagency Sedimentation Project committee met last week in Travers City, MI.
- Largest project is being conducted at CSU looking at the effects of nets on bedload samplers
- Surrogate methods for bed load using acoustics (self-generated noise)
- Funded research to use ADCP's to measure suspended sediment concentrations
- FISP also produces and sells samplers
- Broadman River dam removal and stream restoration

Work Group on Climate and Sediment (Matt Collins)

Matt Collins presented a charter statement drafted by the new SOS Work Group on Climate and Sediment. Mark Landers made a motion to approve this position paper. The motion was seconded by Meg Jonas and passed unanimously.

As an example of an extreme event, Matt Collins mentioned the flooding of Ellicott City, MD on July 30, 2016 that occurred after 6 inches of rainfall in about 90 minutes:

<http://www.weather.gov/lwx/EllicottCityFlood2016>

Work Group on Environment and Infrastructure (Tim Randle)

The work group is making good progress on a white paper 15-20 page white paper describing how to make infrastructure more compatible with the environment and how to make infrastructure more resilient to changing river conditions. The work group plans to complete the white paper by the end of September 2016.

Marian Muste suggested that the white paper should address sedimentation problems.

Mark Landers mentioned the Federal Highway Administration publication that may be of use: *Stream Stability at Highway Structures, Fourth Edition*

www.fhwa.dot.gov/engineering/hydraulics/pubs/hif12004.pdf

Dan Cinderelli mentioned the Gemorphic Road Analysis and Inventory Package (GRAIP) that the Forest Service has developed to assess the impacts of roads on erosion and sediment delivery to streams: <http://www.fs.fed.us/GRAIP/>

Subcommittee on Sedimentation Progress on Dam Removal Guidelines (Jennifer Bountry)

Tim Randle and Jennifer Bountry completed a first draft of the guidelines at the end of September 2016. This version needs some additional work before it is ready for peer in December 2016. Jennifer Bountry provided a very nice summary presentation of the guidelines.

National Stream Morphology Data Exchange Proposals (Eddy Langendoen)

There was no new progress to report.

Subcommittee on Sedimentation Prospectus Development

Tim Randle described the SOS Terms of Reference that were approved on September 10, 2003 and the Prospectus for the years 2007 – 2012. A new five-year plan is needed for the Subcommittee. After discussion, the Subcommittee is likely to work on the following topics over the next five years:

- Facilitate the exchange of information and collaboration between member organizations
- Planning and convening the Federal Interagency Sedimentation Conference
- Development of the reservoir sedimentation database
- Promoting reservoir sedimentation sustainability
- Promoting compatibility between infrastructure and the environment
- Developing and maintaining sediment analysis guidelines for dam removal
- Developing and maintaining guidelines for sediment and climate change
- Promoting the development of a National Stream Morphology Data Exchange
- Promoting the development of sediment budgets at the watershed scale data from all available sources
- Promoting national stream demonstration projects

Technical Presentations (David Biedenharn)

Dr. David Biedenharn, USACE provided a very nice presentation entitled *Watershed Sediment Management: Delta Headwaters Project, Yazoo Basin, MS*.

Subcommittee on Sedimentation Membership (Tim Randle)

No one has represented the Office of Surface Mining or the Universities Council on Water Resources for at least the past few years. According to the SOS Terms of Reference (Approved September 10, 2003), *If a member organization is not represented at 50 percent of the meetings in any fiscal year (October 1 to September 30), the Chair will remove the organization from the membership rolls. An organization can be reinstated one year later by informing the Chair of their desire to renew their participation as a member of the Subcommittee.*

Toby Minear, representing the Cooperative Institute for Research in Environmental Sciences, requested that this organization be granted membership status in the Subcommittee on Sedimentation via email to Tim Randle (Chair) on November 9, 2016.

Mark Landers made a motion that the Office of Surface Mining and the Universities Council on Water Resources be removed from the Subcommittee membership rolls and that Cooperative Institute for Research in Environmental Sciences be granted membership, effective at the next Subcommittee meeting. This motion was seconded by Matt Collins and passed unanimously.

Next Meeting

The next Subcommittee on Sedimentation meeting is planned for May 2017 and will be hosted by Reclamation in Lakewood, CO (west of Denver). Tim Randle will send out a poll to determine the specific date that will work best for everyone.

Adjourn

The meeting adjourned at 4:15 PM.

Subcommittee on Sedimentation Field Trip

Meg Jonas led the field trip Wednesday, November 16, 2016 to Accotink Creek in south-central Fairfax County, Virginia. Stone toe protection and bendway weirs were installed on this creek in 1997 to stop stream bank erosion and protect the Panther Bridge leading to the entrance of Fort Blvoir. The project was observed to be successful with no maintenance more than 19 years since construction (Figure 1 and Figure 2).



Figure 1. Stone toe bank protection along Accotink Creek upstream of Panther Bridge on November 16, 2016.



Figure 2. Bendway weir along Accotink Creek upstream of Panther Bridge on November 16, 2016.