

Subcommittee on Sedimentation
November 20, 2013
Meeting
USGS Office of Surface Water, Reston, VA
Minutes

Subcommittee on Sedimentation (SOS) Chair Marie Marshall Garsjo called the meeting to order at 10:02 a.m. EST. The minutes were prepared by Roger Kuhnle. Present were:

- Marie Marshall Garsjo, Chair, and retired geologist, Natural Resources Conservation Service (NRCS), Fort Worth, TX; SEDHYD FISC Technical Program Chair
- Jerry Bernard, retired NRCS, SEDHYD Technical Program Coordinator, Stafford, VA
- Amanda Cox, Assistant Professor, Missouri Water Resources Research Institute (MWRRI), Saint Louis University, St. Louis, MO
- Doug Glysson, Retired Hydrologist, Office of Water Quality, U.S. Geological Survey (USGS), Reston, VA, SEDHYD Joint Conference Chair
- Tim Randle, via webex, Manager of the Sedimentation and River Hydraulics Group, Bureau of Reclamation (Reclamation), Lakewood, CO
- Roger Kuhnle, via webex for Matt Römken, Director National Sedimentation Lab, and Researcher in erosion processes, Agricultural Research Center (ARS), Oxford MS
- Meg Jonas, Research Hydraulic Engineer, U.S. Army Corps of Engineers (USCOE), Alexandria, VA
- Jenifer Bracewell, USGS, RESSED FilemakerPro Database Programming Team Member, Reston, VA
- Matt Collins, Hydrologist, National Marine Fisheries Service, National Oceanic and Atmospheric Administration (NOAA), Gloucester, MA
- John R. Gray, National Sediment Specialist, Office of Surface Water (OSW), USGS, Reston, VA
- Mark Landers, Federal Interagency Sedimentation Project Chief and OSW, USGS, Atlanta, GA
- Kevin Laurent, USGS RESSED FilemakerPro Project Database Management System Expert, USGS, Patuxent, MD
- Cole Rossi, via webex, Bureau of Land Management (BLM), Regional Water Quality Specialist and Salinity Coordinator, Salt Lake City, UT
- Casey Lee, USGS National Water-Quality Assessment (NAWQA) Program, Lawrence, KS
- Alan Ellsworth, via webex, U. S. National Park Service
- Jonathan Fripp, Hydraulic Engineer, National Design, Construction and Soil Mechanics Center, NRCS, Fort Worth, TX
- Kyle Juracek, USGS, Lawrence, KS
- Paula Makar, Civil Engineer (Hydraulics), Sedimentation and River Hydraulics Group, Reclamation, Lakewood, CO
- Peter Nelson, Assistant Professor, Colorado Water Resources Research Institute (CWRI), Colorado State University, Fort Collins, CO

Minutes: Amanda Cox made a motion to approve the minutes from the June 26, 2013 teleconference, which was seconded by John Gray and approved by the committee

1. RESSED FUNDING (John Gray): Eric Evenson informed John that RESSED will get \$75k from WaterSmart (minus any rescission, to-be-determined) in FY14, more or less the same maintenance-level funding received in FY13 (\$71,200 after rescission). Indications are that RESSED has been accepted as a permanent component of the USGS WaterSMART program, although no such statement has been made to John.
2. RESSED AND NRCS, IOWA (John Gray): Cathy Woida, Iowa NRCS, approached John asking to put capacity data for selected Iowa reservoirs in RESSED. The RESSED team opted to provide Cathy with a runtime version of RESSED Filemaker Pro (updated from that given to the USACE in early 2013) for their data entry, to double as a beta test of the software.
3. Deborah Cooper: approached 38 districts. Nine had no data to input into RESSED. Of the 29 districts accessing RESSED, data from 16 districts have been submitted to USGS to merge the datasets into the master database. The deadline of 11 December has been set for the merge of the data from the 16 Districts. We are also looking at export to Oracle to work with Corps databases.
4. HISTORY (John Gray): John was asked to provide a brief history of the SOS RESSED effort. His summary more or less reflected the information contained on pages 45-46 at: http://ida.water.usgs.gov/ressed/references/Gray_ressed_9fisc_header_3_4_2010.pdf.
5. WEBSITE AND DATA SERVER (John Gray): Currently the RESSED website and “give-away” data as XML- and JSON-format files reside on a server at the USGS Hydrological Facility at the Stennis Space Center, Bay St. Louis, Mississippi. Within a year or so, the website and associated give-away data will be moved to a server used by the USGS Office of Surface Water (OSW) in Reston. The OSW web manager, Annette Goode, works in Reston, as does RESSED FilemakerPro programmer Jenifer Bracewell, as does RESSED database architect Kevin Laurent on Thursdays. All in all, this server switch should simplify and expedite the RESSED upgrade and data-acquisition and –dissemination effort.
6. DATA RELEASE (Kevin Laurent): A preliminary release of RESSED data took place in April 2013. The SOS membership is asked of their interest in these data, and to determine and report back on the kinds of information sought and ways to parse and display the data. Data through April 2013 are served as XML-, JSON-, and SQL-format files. FAQ – why not released in spreadsheet format? Because there would be thousands of columns wide. We would rather do other formats.
7. SPREADSHEET VERSUS RELATIONAL DATABASE (John Gray): An explanation of why we don’t want to use spreadsheet output – written by Kevin and Jenifer – is available at: http://ida.water.usgs.gov/ressed/future/perspectives_spreadsheets_vs_relationaldb.html.
8. DATA EXPLORER (Kevin Laurent): Developed this year, it is accessible through RESSED website. Using the data explorer, one can query the JSON-format output file by category, such as owner and year of last survey, without programming expertise (an aside, it would be helpful to add the different owners in different colors). Lee Koss (BLM) asked how come “stock watering” was not included as a purpose. It’s because BLM reservoirs have not included population of the “reservoir purpose” field. Kevin showed plots (thumbnails) below the national map of capacity

loss. One oddity...a USACE reservoir plots off of the coast of southern California. The USACE would like to see this corrected.

9. SUGGESTION FOR LINKS TO USGS PEAK-FLOW FILE (Doug Glysson): Because reservoir deposition tends to be an episodic process associated with high flows, it was suggested that a plot of the flood time series from a nearby in-line USGS streamgage (such as might be found via the USGS National Hydrography Dataset) would give the user a temporal sense of when capacity loss indicated by successive reservoir surveys likely took place. Jerry Bernard suggested showing percent capacity loss instead of loss in units of acre feet.
10. NRCS/IOWA (Jenifer Bracewell): Jenifer has worked with Cathy Woida, NRCS, toward adding capacity data from 15 active and 29 inactive reservoirs in Iowa. Many are stock ponds, probably silted up and not in use. Eight are "new" reservoirs. Jen has sent them a runtime file to accomplish two goals: data entry for these reservoirs, and as a beta test of the runtime file.
11. SOS ORGANIZATION DATA CALL (Jerry Bernard): Tim Randle, BR, indicated his satisfaction at having their data entered into RESSED (2012). Jerry Bernard more or less took that theme a step farther, suggesting that non-BR and -USACE SOS organizations be asked of the availability of other reservoir-capacity data. For example, Lee Koss summarized BLM's dataset of reservoirs formed by some 2,500 dams at least 10-feet high, and on the order of 40,000 stock ponds. After some discussion, two decisions were made: (1) complete the Dec. 11, 2013, data merge, and then have the RESSED team convene to decide if the software is sufficiently debugged (and, not unimportantly, if the maintenance-level funding of RESSED is adequate) to release to other SOS organizations, and (2) ask SOS organizations other than USACE and USBR as to the amount and format of reservoir-capacity data that might be ported to RESSED. Jerry suggested that the SOS query retired Soil Conservation Service personnel (Dennis Aranakis), and John suggested querying Lyle Steffan, if they can be found, as to a strategy to proceed.

Reservoir Sustainability

Tim Randle

Reservoir sedimentation is an impending problem for the nation's water supply and flood control reservoirs. Eventually the entire storage capacity of a reservoir may be filled with sediment, but other problems would become evident long before that:

- Burial of dam outlets and other water intakes.
- Aggradation of upstream tributary channels, which can lead to reduced conveyance capacity, increased flood stage, and increased ground water table (which can cause water logging and soil salinization).
- Burial of marinas and boat ramps.
- Reduction in surface area for recreation.
- Sediment loads against the dam can result in increased dam safety risks from abrasion of outlets and spillways and loss of functioning outlets.

Loss of water storage capacity over time will result in reduced reservoir reliability. This impact will be greatest in regions exposed to multiple-year droughts, which may be exacerbated by the effects of climate change.

Owners and operators of reservoirs should be encouraged to develop and implement long-term reservoir sediment management plans to achieve sustainability or plan for the eventual retirement of the dam. Without a sustainable sediment management plan, reservoir sedimentation can lead to inter-generational inequities. For example, the first generation may work hard to plan, design, and construct a dam and begin storing water. The second or third generation derives the benefits from the project, repays the project capital costs, and pays for the operation and maintenance costs. If reservoir sedimentation eventually negates the project benefits, the last generation is stuck with the retirement costs, which can be substantial.

The following resolutions are proposed to help the nation plan for reservoir sedimentation:

SUBCOMMITTEE ON SEDIMENTATION, TASK COMMITTEE ON RESERVOIR SEDIMENTATION

A Subcommittee on Sedimentation (SOS) Task Committee on Reservoir Sedimentation and Sustainability is proposed based on a recommendation from the SOS-sponsored workshop on Reservoir Sustainability (July 2012: <http://onlinelibrary.wiley.com/doi/10.1002/2013EO010008/pdf>). This Task Committee, a standing workgroup of the SOS, would convene and manage a National Reservoir Sedimentation Team (NRST) responsible to accomplish the following tasks:

- Provide training on reservoir sedimentation and sustainability
 - Reservoir sediment and capacity surveys
 - Projection of future reservoir sedimentation and impacts to facilities
 - Options to achieve reservoir sustainability or increase the useful life of the reservoir
- Provide a web-based resource to help answer questions from agencies and the public on reservoir sedimentation and sustainability.
- Develop interagency protocols for web-based storage and retrieval of reservoir survey datasets.
- Encourage storage of existing and newly acquired capacity information in the national reservoir database RESSED.
- Formulate a white paper on reservoir sedimentation and sustainability.

The NRST would be comprised of representatives from the Bureau of Reclamation, U.S. Army Corps of Engineers, other SOS-member organizations as appropriate, and by non-Federal reservoir experts. Most business conducted by the Task Committee would be accomplished remotely through voice and electronic communications.

Training on reservoir sedimentation and sustainability would be provided through short courses or workshops at the Federal Interagency Sedimentation Conference and other times when possible. These short courses and workshops would be open to the public.

A list of frequently asked questions about reservoir sedimentation and sustainability would be developed and posted on the SOS website. In addition, the public would be able to post other questions on the SOS Reservoir Sedimentation (RESIS) Database website (<http://ida.water.usgs.gov/ressed/>) that the NRST would try to help answer or direct the person to information sources.

The SOS RESSED database and website (<http://ida.water.usgs.gov/ressed/>) is an excellent tool for acquiring, summarizing, and sharing information on reservoir sedimentation. Agencies and other organizations are also encouraged to make reservoir-sedimentation data available to the public through RESSED. The task committee would develop protocols for web-based storage and retrieval of reservoir survey datasets that would be hosted on individual agency web sites.

Proposed Membership for the Task Committee:

- Tim Randle, USBR, Chair
- Meg Jonas, USACE
- Lee Koss, BLM
- Peter Nelson, CWRRRI
- Jon Fripp, NRCS
- Marie Garsjo, NRCS (retired)
- John R. Gray, USGS

Suggested Additional Membership for the National Reservoir Sedimentation Team:

- Greg Morris, Gregory Morris Consultants
- George Annandale, Golder Associates
- Kyle Juracek, USGS, Lawrence, KS
- Ron Ferrari, USBR, Lakewood, CO
- Kent Collins, USBR, Lakewood, CO
- Additional USACE members
- TVA member

A motion was made by Tim Randle to form an SOS Task Committee on Reservoir Sedimentation and Sustainability. The motion was approved unanimously.

SOS RESERVOIR SUSTAINABILITY RESOLUTION

Continued sedimentation threatens the project benefits of the Nation's reservoirs. The SOS encourages all Federal agencies to develop long-term reservoir sediment-management plans for the reservoirs that they own or manage by 2030. These management plans should include either the implementation of sustainable sediment-management practices or eventual retirement of the reservoir. The costs for implementing either sustainable sediment management practices or retirement plans should be paid for by the current beneficiaries of each reservoir, which could include the American public.

Federal agencies are encouraged to start developing sustainable reservoir sediment-management plans now for one or two reservoirs per year on a pilot basis. From this experience, interagency technical guidelines will be developed for preparing sustainable reservoir-sedimentation plans.

Action Item: The SOS Reservoir Sustainability Resolution was approved to be sent to the ACWI for approval. Amanda Cox will send it ACWI

SEDHYD 2015 Planning Overview

Doug Glysson/Jerry Bernard

SEDHYD 2015: Doug Glysson and Jerry Bernard gave a brief update on the status of the next Joint Conference. The Conference is scheduled for April 19-23, 2015 at the Peppermill Hotel, Reno, Nevada. Permission has been requested from the Department of Interior to hold the Conference in 2015. Permission has not been granted as of this date. Because of a clause that the site selection committee had negotiated into the current contract, we were able to move the conference dates without any penalties. The Conference web site is: <http://www.sedhyd.org>.

The abstracts received will be retained for the SEDHYD 2015. Authors may make the following choices, regarding their submitted abstracts:

- Withdraw current abstract
- Keep current abstract for SEDHYD 2015
- Replace abstract in response to SEDHYD 2015 Call for Papers
- Submit new abstract(s)

Authors may indicate their choices by contacting either of the Technical Program Chairs for the joint conference. See their contact information below.

Doug briefly stated that several key positions for the Conference still need to be filled:

- Exhibit coordinator
- Field trip coordinator
- Poster demo coordinator
- Proceedings coordinator

Interested persons for these jobs should contact Doug.

Prospectus 2007 – 2012 update

Meg Jonas

The 2007-2012 Prospectus expired last year. It was a revision of the "Prospectus of the Subcommittee on Sedimentation for the years 2002-2006", which states at the beginning that it was: "approved by the SOS December 13, 2003, with acknowledgement that some updates are needed". Several SOS members have worked on reformatting and updating it, however it requires an interdisciplinary approach that was difficult to schedule. Our nation has serious issues dealing with sedimentation, some of which have risen in national priority since the prospectus was last updated. This can be an important and useful document describing the condition of our country as it relates to issues of sedimentation, and

it deserves a thorough undertaking. Meg Jonas has requested funding for six weeks in which to complete it, for which we thank her.

Federal Interagency Sedimentation Project

Mark Landers

Mark gave a summary of the FISP- Technical Committee meeting which was held October 29-30 at the USGS-Hydrological Instrumentation Facility in Bay Saint Louis, MS. A summary of the currently funded FISP research projects was given.

USGS National Water-Quality Assessment Program (NAWQA) Sediment Web Portal

Lee

Casey Lee, Lawrence, KS provided the following summary:

The U.S. Geological Survey National Water Quality Assessment Program (NAWQA) is nearing completion of a retrospective analysis of existing USGS suspended-sediment data. This project had four primary tasks:

- Recovery of known data sources not available to the public
- Aggregation of sediment and sediment related data (i.e. stream flow, grain size, and geospatial data)
- Quality control
- Data summary

Web site: <http://cida.usgs.gov/sediment>

Salinity knowledge gaps and findings and current BLM projects to reduce salinity

Rossi

Cole Rossi gave a summary of the Salinity Mobilization and Transport on Rangelands.

National Stream Morphology Data Exchange Proposals

Amanda Cox

Amanda Cox emailed the program chair for Terrestrial Hydrology Program to get more information on when a decision would be made. The program chair responded and indicated they were behind schedule and we should expect to get a response in about March 2014.

The National Institutes for Water Resources (NIWR) did not fund any proposals for this year and the proposal will be resubmitted for consideration in 2014.

Resolution in Honor of Outgoing SOS Chair Marie Marshall Garsjo

John Gray

Whereas: Marie Marshall Garsjo has successfully completed her 2-year tour as SOS Chair,

Whereas: Most of her service as SOS chair took place after her retirement from the NRCS,

Whereas: Ms. Garsjo served in this capacity with aplomb and panache,

It is resolved that We, fellow colleagues on the SOS, bestow upon Marie Marshall Garsjo our official, undying and perpetual appreciation, and best wishes in her "real" retirement.

The resolution was approved unanimously by the SOS committee.

New Business

Marie Garsjo

Subcommittee membership update:

- Meg Jonas, Member; Chandra Pathak, alternate for USACE;
- Jon Fripp, Member; John Moore, alternate for NRCS
- Amanda Cox is now representing Missouri Water Resources Research Institute
- Peter Nelson will now represent CWRRRI

Installation of New Officers

Marie Garsjo

New Chair: Amanda Cox

Vice Chair: Tim Randle

Next Meeting

Amanda Cox

Amanda Cox will set up a doodle pole to choose the best times for the next meeting by conference call. The weeks of January 20 or 27 are currently under consideration.

The meeting was adjourned at 14:20 EST