

Subcommittee on Sedimentation
March 27, 2013
Peppermill Casino, Reno, Nevada
Minutes

Subcommittee on Sedimentation (SOS) Chair Marie Marshall Garsjo called the meeting to order at 8:30 a.m. PDT. Many thanks to Mark Landers for taking the minutes. 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
- Jeff Bradley, WEST Consultants representing ASCE, Salem, OR
- Amanda Cox, Research Scientist in Hydraulics Lab, Colorado Water Resources Research Institute, Colorado State University (CWRRI), Ft. Collins, CO
- Doug Glysson, Retired Hydrologist, Office of Water Quality, USGS, Reston, VA, SEDHYD Joint Conference Chair
- Paula Maker, Hydraulic Engineer, Sedimentation and River Hydraulics Group, Bureau of Reclamation (BOR), Denver, CO
- Tim Randle, Manager of the Sedimentation and River Hydraulics Group, BOR, Lakewood, CO
- Matt Römken, Director National Sedimentation Lab, and Researcher in erosion processes, Agricultural Research Center (ARS), Oxford MS
- Jerry Webb, USACE, Washington, D.C.

Present via teleconference were:

- 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
- Deborah Cooper, Research Hydraulic Engineer, Engineer Research and Development Center, U.S. Army Corps of Engineers (USCOE), Vicksburg, MS
- John R. Gray, National Sediment Specialist, Office of Surface Water, USGS, Reston, VA
- Meg Jonas, Assistant Levee Safety Program Manager, USCOE, Washington D.C.
- Lee Koss, National Lead for Water, Bureau of Land Management (BLM), Washington, D.C.
- Mark Landers, Federal Interagency Sedimentation Project Chief, USGS, Atlanta, GA
- Kevin Laurent, RESSED FilemakerPro Project Database Management System Expert, USGS, Patuxent, MD
- John Moore, National Geologist, (new NRCS alternate), Washington D.C.
- Cole Rossi, Regional Water Quality Specialist and Salinity Coordinator, Salt Lake City, UT
- Joseph Schubauer-Berigan, Research Ecologist and Chief, Environmental Stressors Management Branch, USEPA, Office of Research and Development, National Risk Management Research Laboratory, Cincinnati, OH

Minutes: The minutes from the January 24, 2013 teleconference were approved.

REServoir SEDimentation

COE Mission-Critical Project: The extended Alpha-Beta test effort culminated in late January 2013 with release of RESSED run-time versions to ~three dozen+ COE Districts. Deborah Cooper, COE, indicated that participating COE Districts have been given a (soft) deadline of June 1, 2013, to add 'local' reservoir capacity data to run-time versions and submit them to the USGS RESSED programming team. When all (perhaps more realistically, most) COE run-time versions are locally populated, USGS will merge the run-time versions to create the next version of the RESSED database.

Training: Jen Bracewell reports that the video demonstration files for Data-Entry Sign-In, QA/QC Sign-In, Search, and General Data-Entry demos are completed and in use. The remaining two training demos are due before April and will cover detailed data entry, and reports.

The Search and General Data-Entry videos demonstrate for users all the graphical user interface (GUI) elements needed for navigation, search, and use of the GUI for finding reservoir records and entering data into those records. The remaining two data-entry video demos will cover several selected elements in the Data-Entry module in greater detail. In addition, there will be a Reports Module demo.

Reports: Kev Laurent reports that the RESSED development team produced reports as part of the initial release to reproduce the essential Form 1787 and Elevation-Area-Capacity chart for selected reservoirs. Development of additional reports is pending guidance from the user community, with special emphasis on input from Subcommittee on Sedimentation members and collaborators.

Kev requests examples of desired reports that we may emulate within RESSED. Any and all input is sought and appreciated, without which there are no current plans for additional work on the Reports module.

Spreadsheets <-> RESSED: RESSED (Filemaker Pro) can produce spreadsheets from stored data in XML, JSON, and several other formats. Kev would appreciate any input on desired output formats so they can create them. However, spreadsheet INPUT to RESSED (discussions with BOR and COE) is a much less tractable issue. Kev and Jen are developing a one- to three-page white paper that explains the suite of problems that must be addressed if there is a groundswell of interest in spreadsheet data entry; this white paper will be shared with the SOS.

RESSED Public Data Release (Not Updatable Version): Suggest COE and BOR weigh in, keeping in mind the COE 'soft deadline' of June 1, 2013, to have the data from about three dozen COE Districts added to a RESSED master file. But if the SOS unequivocally indicates that info should be released now, or at some specified date, it will be done, probably through the RESSED website. Note that a partial release may be tractable if any single organization prefers that their data not be included in the release. Kevin and Meg note that there are known errors in the data as entered and corrections are to the COE and BOR data; and thus it might be better to wait until the end of the FY2013 for the public release. This allows more time for additional COE data to be entered and corrected. Tim Randall, on the other hand, thinks that releasing RESSED now has the benefits of making others aware of it and encouraging them to use it. Jerry Webb agreed. Motion made and seconded to release RESSED now. After discussion the motion was amended to ask that a Disclaimer be included with RESSED release to state that the database is still under development, data are being reviewed and corrected, and new data are being

added. There is a data attribute to indicate whether the data have been QA/QC'd; currently there have been no entries to this attribute.

The SOS voted to release RESSED now with the disclaimer noted above.

RESSED Funding: On March 25, WaterSmart Coordinator Eric Evenson expressed confidence that funding support for RESSED will reflect a 5% across-the-board reduction. This is based on the assumption of the imminent enactment of a Continuing Resolution for the remainder of FY2013 which retains the current sequester's provisions. This would result in a revised USGS-WaterSMART allocation of \$71,250 (instead of \$75,000) for RESSED in FY2013.

SEDHYD RESSED Paper: An abstract was submitted on behalf of the RESSED (COE, BR, and USGS) team by John Gray. If accepted, any team participant who seeks to be a co-author will be invited to participate in development of the paper, which is due in final form on October 1, 2013.

Informal RESSED Team Recognition: Most of those of us actively working on the RESSED project have appreciated the much-needed break from the extended RESSED development and test period that was concluded with the milestone run-time version release in late January 2013. John Gray took the opportunity to extend his considerable appreciation to the past and present COE, BOR, and USGS denizens whose successful efforts have not only resulted in active user-update of RESSED, but in the validation of the RESSED concept that led to formal recognition by ACWI and USGS. This, in turn, led to maintenance-level funding – a permanent project with a permanent home – on an annual basis.

Reservoir Sustainability

Tim Randall recommended the creation of a prioritized list of reservoirs on which to conduct pilot studies on sustainability. The pilot studies could address the question of what would be required to operate a reservoir in a sustainable manner with respect to sedimentation; and to estimate its remaining storage life.

The creation of a 'Reservoir Team' that would be available to advise agencies and others on reservoir sustainability issues was discussed. This was recommended in prior SOS meeting. Tim notes that the BOR has surveyed only roughly 30% of their reservoirs; so they don't have a priority list based on real data. Tim will draft a brief write-up on this recommendation for discussion in the June SOS meeting.

Tim also suggested putting a section on the SOS Web page so that a person could submit a question that would then go to the Reservoir Team for an answer. Meg Jonas suggested the development of a FAQ section that could be developed by consensus of the Team.

National Stream Morphology Data Exchange Proposals

Amanda Cox

Two proposals on the development of a NSMD were recently submitted to NIWR and NASA. Marian Muste from the University of Iowa led the proposal to the NIWR. It was submitted February 21, 2103. Other researchers on the team include:

- PI - Venkatesh Merwade, Purdue
- PI - Laura Keefer, Illinois State Water Survey, University of Illinois
- PI - Ibrahim Demir, University of Iowa
- PI – Amanda Cox, Colorado State University

- Co-I Kurte Wille, USBR
- Co-I Marie Peppler, USGS

New proposal addressed reviewers' comments from last year's proposal. The proposal includes the following tasks:

- Critical review of data sources relevant to the NSMD
- Critical review of relevant NSMD-related information systems
- Specifications for NSMD's functional and operational features
- Development of a proof-of-concept NSMD with extant resources

Amanda Cox led the proposal submitted to NASA on March 22. Other researchers on the team include:

- PI – Marian Muste, University of Iowa
- PI - Ibrahim Demir, University of Iowa
- PI - Venkatesh Merwade, Purdue
- PI - Laura Keefer, Illinois State Water Survey, University of Illinois
- Co-I Faith Fitzpatrick, USGS

ROSES – SWOT Mission – Novel Research in Earth Science

A proposal was submitted to NASA's Research Opportunities in Space and Earth Sciences (ROSES) under the "Proposals in Novel Earth Science" research announcement. NASA's Surface Water and Ocean Topography (SWOT) mission provides a new approach to quantifying stored freshwater volumes and river discharges using wide-swath altimetric measurements of water-surface elevations. The hydrology component of the SWOT mission will provide observations of water-surface elevations, its spatial derivative (water-surface slope), and inundated area for rivers wider than 50 to 100 m. One of the hydrology objectives of the SWOT mission is to determine the global change in river discharges at varying time scales with a primary goal of accurately estimating river discharge directly from SWOT measurements.

A common approach for estimating river discharge is the slope-area method (Manning's equation). Two parameters required for use of Manning's equation, hydraulic radius and channel roughness, are not directly obtainable from SWOT measurements. Algorithms have been developed for estimating these parameters from SWOT observations during a seasonal cycle. Comprehensive calibration and/or validation of these algorithms and understanding of SWOT phenomenology would require compiling multiple river morphology data sets that include bathymetric, channel roughness and water-surface slope data collected in various landscapes throughout the year.

The proposed research will produce a river hydromorphology database (GroundSWOT) that directly supports the hydrology component of the NASA SWOT mission. The following geo-spatial data will be supported within the database:

- river bathymetric data: cross sections, profile measurements, and hydro-acoustic measurements
- bed and bank material grain sizes, in-stream and floodplain vegetation
- hydrology data (e.g., drainage area, stage, discharge, and travel time)
- water infrastructure (e.g., dams, berms, and levees)

Database development will be piloted regionally in the Iowa-Cedar River basin, where a wealth of relevant data is already available (e.g., statewide LIDaR and flood mapping, river stages sensor network, detailed stream network characterization). The project will culminate with multiple database dissemination and training workshops held both regionally and nationwide to foster rapid adoption of the GroundSWOT database.

GroundSWOT will benefit the SWOT mission by:

- Storing and serving critical data that could be used to **calibrate and/or validate algorithms** that use SWOT data exclusively
- Complementing SWOT data for increased accuracy of **direct computations of stored freshwater volumes and river discharges**
- Improving **forecasts of hydrodynamic conditions** with SWOT data during extreme hydrologic events, where bathymetric data and quantification of hydraulic roughness are required
- Providing **ready access to a continuously-increasing quantity of standardized fluvial and geomorphic data** at a small fraction of the monetary value of the data

Six tasks were proposed to achieve the objective:

- Task 1 - Critical review of relevant data sources and information systems
- Task 2 – Development of specifications for GroundSWOT’s functional and operational features
- Task 3 - Development of the GroundSWOT database
- Task 4 - Development of database modules for interaction and analysis
- Task 5 - Pilot application of GroundSWOT in Iowa-Cedar Rivers Basin
- Task 6 - Dissemination and training of GroundSWOT through Regional and National Workshops

John Gray and Matt Collins reviewed the proposal and provided valuable feedback for the proposal.

SEDHYD 2014 Planning Overview

Jerry Bernard noted that the SEDHYD committee has received about 220 abstracts for papers thus far and hopes to eventually receive about 280. The abstract-submission deadline was extended to May 15th, the same deadline for student abstracts. There are no plans to publish the abstracts in a book format; but the digital papers will be published. This will reduce the time required for publication, so Jerry says we may extend the deadline for paper submissions.

Doug Glysson noted that the SEDHYD committee had a frank discussion about prospective attendance next year, given current and potential FY 2014 travel and budget restrictions. Wendy Norton ACWI Executive Secretary, told him that all conferences of more than 30 people require DOI approval; and there is one other big conference (National Water Quality Monitoring Conference) taking place in FY2014 for which DOI approval is also sought. Doug observed that a worst case scenario might be to move SEDHYD to 2015. Currently Doug says they are talking to the USGS Nevada Water Science Center to coordinate field trips. The SEDHYD committee still needs someone to handle the sales of exhibit display booths to contractors, soliciting booths, contractor forms, disclaimers, etc. Doug has example forms for all of this. The Committee is still seeking a Proceedings Coordinator and Poster Coordinator.

Paula noted that they are working on software that will handle the registration and upload manuscripts and presentations. An individual with the USCOE is leading that effort.

Prospectus 2007 – 2012 update

The last one expired in 2012. Marie is envisioning something updated perhaps every two years that is more current and specific with respect to activities and goals. Discussion of whether a Prospectus is needed. It is noted that the SOH does not have a prospectus.

ACWI Monitoring challenges update

Wendy Morton was going to provide an update on the workgroup's activities, but she was unable to attend. Marie has been sending information to the group as it developed. There is general info available at http://acwi.gov/monitoring-challenges_wkg/index.html.

Subcommittee Membership

Efforts to include NASA in the SOS were discussed. John Gray indicated that he would try to identify a NASA representative to participate in the next SOS meeting.

New Business

Jerry brought up the possible need to improve state of the art bathymetric surveying for reservoirs. We feel there is a gap in this training. Motion made and seconded to create a work group to summarize methods of bathymetric mapping and to put together a one-day workshop on these methods. The team should at a minimum have members from USACE, USBR, NRCS, and USGS. SOS members are requested to send team member names to Mark Landers (landers@usgs.gov). The workshop could be conducted in association with the Reservoir Sustainability Workshop. Motion passed.

Federal Interagency Sedimentation Project

Mark provided a brief review of FISP focus efforts, and noted the progress being made toward interim guidance on methods to continuously estimate suspended sediment concentration using hydro-acoustic metrics.

Next Meeting

The next meeting will be a conference call/web-ex. Meeting dates of June 18th and June 25th were discussed, but not finalized. Marie will send out a Doodle Poll.

The meeting was adjourned at 11:30 a.m.