

FISP Technical Committee Meeting Minutes

Virtual Meeting on May 19, 2014

Attendees:

Mark Landers – USGS
Rob Hildale – USBR
Jim Selegan – USACE
Roger Kuhnle – USDA-ARS
Joe Schubauer-Berigan – USEPA
Tim Straub – USGS
Meeting called to order at 8:30 am

Introductions:

Introductions were done for the benefit of the USGS representative (Tim Straub) filling in for the retired John Gray. Mark Landers noted that at the fall meeting Molly Wood would be the USGS representative. He also stated that the USGS plans to permanently fill John Gray's position this fall or winter.

Announcements:

The only announcement was to add the SEDHYD conference to the agenda.

Review and approval of the spring 2014 agenda:

Kuhnle motioned to accept the agenda and Hildale seconded the motion. The motion this was passed unanimously.

Review and approval of fall 2013 meeting minutes:

The meeting minutes were emailed earlier in the morning on May 19, and an approval by email will be conducted after the committee has a chance to review.

FISP budget:

Landers showed the approved budget from the last meeting, and also the expenditures to date. Overall the budget is on track.

Bag sampler intake efficiency testing results (thus far) by HIF (Wheat):

Wheat lab tested a combination of nozzles that are currently in stock and gave a presentation on the results. The selection included some nozzles that were not to the exact inlet diameter dimensions. The conclusion was that there were no discernable differences between nozzles with no deviation from dimensions to ones that are 0.003 inches undersized inlet diameter. Specifications allow the inlet diameter to be 0.005 inches undersized. Fulford showed a 2006 report that she had written, and mentioned that further testing and recommendations may be

needed on the inlet and outlet depth of taper because of the existing tolerances. She also noted that the importance of the exhaust ports and the possible need for additional testing.

Also, additional details are discussed later in the meeting notes regarding the large river sampling workshop, but Landers noted during this discussion that Wayne O'Neil attended the workshop and drilled out nozzles that he thought were wrong, but it turned out he was not correct in the way he was measuring them.

Wheat reported that 10 new D-96 samplers were received by the HIF and that six passed testing and all four that failed, only failed because the tray did not fit properly.

Update on HIF QA database (Fulford):

Fulford presented a draft spreadsheet serving as quality assurance spreadsheet. The current spreadsheet includes overall length, rear and front inlet opening, and a pass/fail column. Also, from the discussion, depth of taper will be added to the spreadsheet.

ACTION ITEM: At the next FISP meeting, demonstrations and diagrams of the nozzles and testing equipment should be included.

Report from Gray's Ad-Hoc committee on camera-mounted samplers (Gray):

Gray was not present during the meeting, but Hilldale briefly discussed the use of a GoPro off the shelf pointed at the nozzle of a bedload sampler with WiFi through the water is being tested. Initial testing has shown that adding lead to the frame of the sampler does stabilize it when deployed. This application does not work well in turbid conditions, but the possibility of including LED lights on the setup was discussed. Regardless, the committee agreed that the application will continue to help develop better procedures for bedload sampling, and that there could possibly be a session on this at the upcoming SEDHYD conference.

Bedload samplers and sampling (Hilldale and Gray):

Gray was not present, but Hilldale expressed that he would like to continue Gray's discussion on bed load sampler calibration acceptance to discuss the potential need/benefit for some velocity testing at and around the nozzles of various bed load samplers (BL-84, Elwha, TR-2, maybe Helley-Smith) with different mesh sizes for the bags. To his knowledge there is little to no information on the hydraulic effect at the nozzle if the mesh size of the bag is changed. The question was raised whether only one mesh size for each sampler was recommended? If not, what effect does it have on, say, an Elwha sampler if one uses a 1mm or 2mm mesh bag? Can a TR-2 be used with a 4mm or 8mm mesh instead of the typical 2mm mesh? Hilldale noted that we won't be able to determine bed load sampling efficiency by only doing velocity testing, but we can at least demonstrate the differences in the flow field around the nozzle, if any, when the mesh size is changed.

Landers noted that Gray has been hired back by the USGS on a half time basis for six months and that Gray's top priority are two bedload reports with one of them being the work that was done at the University of Minnesota a few years ago. That testing included a variety of sediment types and samplers (BL-84, Elwha, and Helley-Smith). Hilldale mentioned the documented hiccups in that data, but did acknowledge that it would be a step forward.

ACTION ITEM: Landers to write a memo to Gray to get an update and encourage a finished product, and request attendance at the next FISP technical committee meeting for transfer of information and pass down of next steps. Kuhnle motioned to accept the action and Hilldale seconded the motion. The motion this was passed unanimously.

Gray's work did not include testing of mesh size and it was mentioned that this could be complimentary work.

ACTION ITEM: Hilldale will draft a FISP Technical Committee research plan for testing bag sampler mesh effects on sampling efficiency

Lastly, there was no documentation found that the BL-84 nozzle was ever accepted by the FISP nor USGS. The committee agreed that this should be done, but no formal action was taken.

Sediment Acoustic Leadership Team (SALT) Update (Landers):

Landers gave a presentation on the recent activities of the SALT (append to minutes). Below are some of the highlights that he noted.

- SALT website launch
- Continued development and release of the Surrogate Analysis and Index Developer tool.
- Landers noted that the guidance is solid and a draft document is close to being released on the procedures for continuous fixed-mount sediment acoustics. Also, an update on discrete measurements was presented later in the meeting by Boldt.
- Demonstrations sites are coming soon with sites being considered in all regions of the country
- Fact sheet has been published and gives an overview of potential and growing use of sediment acoustics (<http://pubs.usgs.gov/fs/2014/3038/>).

Joe asked if all USGS offices were equipped to do this work. Landers answered that all offices are potentially capable of doing this work and that with the upcoming guidelines coming out, it will help standardize procedures. Joe also mentioned that the Tar Creek project would be a possible high profile EPA demonstration site.

FISP Member Recruitment:

Potential additional members to include on the FISP were discussed.

ACTION ITEM: Landers will follow-up with both NOAA and the Forest Service on possible membership. Recent communication has occurred with both agencies regarding their possible involvement.

Joe will also follow-up with the EPA National Program director to pitch getting funding from EPA for FISP. It was mentioned to also possibly cater the next meeting location to where she is located in North Carolina.

Report on large river sampling workshop (Landers):

Landers gave a presentation summarizing the workshop. Below are the highlight components from the presentation.

- Background use and specifications on samplers
- Safety issues
- Cranes
- Efficiency checks (volume vs. mass checks)

Some of the findings included

- Methods used by the various crews are comparable among the three samplers (D96, D99, and P6-200)
- Comparisons of sampling from top to bottom versus 0.9 depth or to 2 ft of bed shows bias as expected.
- Initial efficiency testing results showed that additional analysis is needed and FISP discretion money is being used for the additional work.

Update on FISP funded research:

- Laboratory and Field Measurements of Bed Load Using SGN (JR Rigby, USDA-ARS)
- Computational Fluid Dynamics Analysis of Suspended Sediment Sampler Efficiency -- Justin Boldt, USGS, KY
- A Development of a Portable Passive-Acoustic Bedload Monitoring Surrogate for Non-Experts -- Brian Carpenter, NCPA, Oxford, MS
- Using close-range remotely-sensed multispectral imagery to quantify the effects of particle size distribution on instream turbidity -- Adam Mosbrucker, USGS, CVO, WA
- Estimating the size of the measurement volume for passive acoustic monitoring of Self-Generated Noise (SGN) -- Dan Wren, USDA ARS Oxford, MS

Report on estimating cross section SSC from ADCPs (Boldt):

Boldt presented work on discrete measurement versus the continuous measurement that FISP has primarily been working on (append to minutes)

Discussion of fall meeting location and logistics:

The fall meeting location was narrowed to the following strategic locations:

- Vermont sediment acoustic site, which could also include involving the potential NOAA representative Matt Collins
- North Carolina to include meeting with the EPA National Program director to pitch getting funding from EPA for FISP. Joe suggested a one page summary of the FISC work/mission as a good intro to the director. Others agreed that this would be useful in their respective agencies.
- Wisconsin to include Gray

Depending on follow-up contacts with the above parties a final location will be chosen.

For the spring 2015 meeting it was agreed that the meeting should be concurrent with the SEDHYD/FISC conference.

FISC Sessions:

The following sessions were suggested for the spring 2015 SEDHYD/FISC conference:

- SSC Surrogates – Acoustics (continuous and discrete), Optics, Lasers, and “others”
- Bedload Surrogates – Gravel/cobble, sand bed
- Bedload Traditional – Encourage Gray to have a talk

Adjourn:

Meeting was adjourned at 5:06 on May 19, 2014