

FISP Technical Committee Meeting Minutes

29 -30 October 2013

USGS Hydrologic Instrumentation Facility (HIF), Stennis Space Center, Bay St. Louis, MS

Attendees

Mark Landers - USGS

Rob Hilldale - USBR

John Gray - USGS

Jim Selegean - USACE

Roger Kuhnle – USDA-ARS

Joe Schubauer-Berigan - USEPA

Myron Brooks – USGS-HIF

Johnny Wheat – USGS-HIF

Janice Fulford – USGS-HIF

Cole Rossi – BLM (by phone)

Meeting called to order at 8:05 am

Brooks welcomed the TC and gave a brief history of the HIF

Announcements

The Forest Service has notified the TC that they will not be part of the TC due to funding and a lack up management support. Gray is going to speak to Cenderelli regarding how to best proceed.

Gray motioned that we accept the meeting agenda - passed unanimously.

FISP Budget

Landers reviewed the FISP activities for FY13 and presented the FY14 budget (append to minutes). Budget was approved.

Discussion with HIF

Wheat presented the 2013 FISP equipment sales report.

There was also a discussion on reported pin-hole leaks in the plastic bags in the D-96.

Wheat presented the findings of an examination of using a short tray vs. standard tray in the D-96. The D-96 performs within +/- 10% of isokinetic (per standards) in the flume for different nozzle sizes and there does not appear to be an efficiency difference depending on which tray is used. Tests also used a new sampler and one used in the Colorado River in Grand Canyon AZ with no significant differences. See additional discussion below under FISP technical memo on bag sampler calibrations.

Wheat presented the results of the DH-81 test with all three nozzle sizes (8 tests per nozzle). They all tested super-efficient averaging from 120% to 126%. The problem was found to be the tolerance in the taper (1/32"). Wheat created a new drawing with a tighter spec, and these have all tested well in the flume. The loose tolerance allowed the contractor to make the length of the taper within the nozzle longer which resulted in an outlet diameter being too large and subsequently affected the efficiency. The HIF will order new nozzles immediately. The super-efficiency was deemed by the Technical Committee to not require a recall of existing DH-81 nozzles. This decision is based on the relatively small bias in SSC under this condition, per FISP Report 5; and on the relatively low sand concentrations likely to be entrained when sampling with a DH-81.

Testing Sampler and Data Base of Results

The HIF policy and practice is to test in the flume 10 percent or a minimum of 5 (whichever is larger) of each lot of samplers provided by a vendor; and to perform thorough visual inspections of each sampler. The TC discussed the value of recording all test results in a data base. This would be valuable to assess the quality of products from specific vendors and the value of obtaining products through the FISP. Landers is working with the HIF to begin recording all test results in a database for future reference. The TC would like for results of testing to be part of the annual report to the TC from the HIF.

High Level Discussion on FISP Samplers

Landers reviewed data on number of SSC samples collected by sampler type within USGS for a 2-year period, March 2011–13, which may be reasonably representative. We observed that some 42% of the samples were obtained using pumping samplers. This raised the question of whether sediment training and policy and research should focus more on collecting representative pump samples, by calibration

with cross section samples. Gray asked the TC to ask the USGS Office of Water Quality for the status of the Glysson report on guidance and use of pump samplers. Hilldale will write this letter.

We also discussed the 'portfolio' of FISP instruments. There are four D-74s in stock at HIF. These are still ok for sediment but should not be used for water quality. The D-96 should be used for water quality and sediment. There was a discussion about what samplers should be discontinued and added but no conclusions.

Presentation by Cole Rossi – BLMs sediment related program/efforts/needs

Cole emphasized the importance of sediment samplers that do not require electricity (pump samplers), as there are demands for FISP samplers in developing countries.

Bob Boyd (BLM) mentioned that they have been recently getting into watershed management activities. They are very decentralized across the western US and have their experts at only a few places.

Rossi gave a talk on the use of models and model applicability.

Presentations of FISP funded research

J.R. Rigby – Laboratory and field measurements of bed load using self-generated noise (SGN)

T. Straub – Sediment acoustics index development, SAID tool development

J. Brown – Analysis of densimetric-based SSC on the Rio Puerco, NM

B. Schmandt – Seismic and infrasound monitoring of bed load

Bedload samplers

On page 25 of TWRI-3-C2 it is stated that in May 1985 the TC approved the use of a bedload sampler with a 1:1.4 entrance. Gray wanted the TC to revisit this statement and revise as necessary. Landers is going to look for the minutes from 1985 to learn more about the basis for this statement. Gray is going to look for supporting data at St. Anthony Falls, where the bedload sampling flume study was performed.

Hilldale discussed the issues he is facing on measuring bedload on the Elwah River with respect to the 2 mm bags filling very quickly. He was looking for ideas on how to keep the sampler on the bed longer without it overflowing. Switching to an 8 mm bag was discussed as well as making concurrent measurements with 2 different bags.

Wheat informed the TC that he has two 6 in Helly Smith samplers in stock and was told years ago not to sell these. He asked if that is still the TC's position. Hilldale is going to contact Kristen Bunte about data

she may have to support or refute the use of this sampler. The committee will decide on this once they have more information.

Hilldale reviewed a few of the more interesting talks from a sediment conference he attended in Switzerland.

Proposals

The FISP TC received 18 proposals in response to our call for proposals. The TC carefully reviewed each proposal individually. The proposals represented an excellent range and quality of sediment-related research. The TC then discussed each proposal and selected the following (in this priority) for funding:

1. Computational fluid dynamics analysis of suspended sediment sampler efficiency – Mueller - \$28,000
2. Development of a portable passive-acoustic bedload monitoring surrogate for non-experts – Carpenter - \$23,581
3. Using close-range remotely-sensed multispectral imagery to quantify the effects of particle size distribution on in-stream turbidity – Mosbrucker - \$8,140
4. Estimating the size of the measurement volume for passive acoustic monitoring of self-generated noise (SGN) – Wren - \$12,892
5. Develop seismic monitoring of bed-load transport in coordination with the Trinity River Restoration Project – Schmandt - \$19,186

The total cost to fund all 5 proposals is \$91.8k; however, only \$90k was budgeted in the FY14 budget. The TC approved moving \$1.8k from the \$20k carry over in order to fund all 5 proposals.

The TC reviewed and edited the spring 2013 minutes before approving them.

Schubauer-Berigan brought up the issue of potentially modifying our charter to look at nutrients and other water quality parameters. Gray believes that this language is sufficiently in our charter and that over the years we have developed specific nozzles and sample bodies for use in water quality data collection. The TC concluded that water quality issues that are directly related to sediment (sorbed particle, etc.) are within our mission but other water quality issues are not.

It was brought to the TC's attention that ISO is updating the standard for the collection of bedload. No action is needed by the TC.

FISP technical memo on bag sampler calibrations

This memo (from 6 May 2013) recommends Q/A steps needed to assure proper use of the FISP samplers. The TC reviewed this memo prior to the meeting and it is posted on the FISP web site. No action needed by the TC.

FISP funded the study, "Theory, calibration and error with acoustic, laser and pump samplers for SSC" by Topping, Wright et al. Gray is corresponding with Topping and Wright regarding the publication from this work.

HIF Fees

Brooks briefed the TC regarding the fee structure associated with the purchase of FISP and HIF samplers. Below is a summary of the fee structure:

18% overhead is charged on all HIF purchases regardless of what agency is purchasing the equipment. This funds the testing of the samplers, QA and all other activities at the HIF.

An additional 25% fee is added to all purchases of FISP samplers to fund FISP.

There is an additional fee of 11% charged on all non-USGS money brought into the USGS. This is an overhead charge that goes to fund management and HQ functions. This fee does not apply to USGS purchases.

An example of the fees on a \$100 sampler is shown below:

USGS purchase: \$100 (cost of sampler) + \$25 (FISP fee) + \$18 (HIF overhead) = \$143

Non-USGS purchase: \$100 (cost of sampler) + \$25 (FISP fee) + \$18 (HIF overhead) + \$11 (USGS overhead) = \$154

SALT Update

Landers reviewed the activities of the last year. Interim guidance is expected to be out for review in Jan 2014. This sub-committee has been having bi-monthly conference calls, has produced a fact sheet and conducted a training workshop.

Meeting was adjourned at 5:30 on 30 October 2013.

Attachment 1

Agency Updates

USACE

The Corps is involved in a wide variety of projects throughout the nation and the world. Nearly all of these projects have some issue that pertains to the collection, modeling, management or understanding of sediment in order to ensure a successful and sustainable project. These activities include the collection of sediment data to calibrate and validate numerical models, the use of physical models to understand and solve sediment problems in the coastal and riverine setting and the construction of sediment budgets to identify sediment sources. In the Great Lakes much of our efforts related to sediment have revolved around a series of dam removals, the understanding of how sediment fluxes in the connecting channels of the Great Lakes (Detroit River, Niagara River and St. Marys River), a study of the sediment storage capacity remaining in reservoirs in the Great Lakes and a large bank erosion monitoring study that will ultimately provides equations for predicting bank erosion rates throughout the Great Lakes and perhaps beyond. Additional sediment related activities include assessing the fate and effects of dredging operations and the placement of dredge material. Beneficial reuse of dredge material is a priority and regional sediment management approaches are emphasized.