

RECLAMATION

Managing Water in the West

Federal Interagency Sedimentation Project

Research and Development Office
Science and Technology Program
(Interim Report) ST-2015-2559-1



U.S. Department of the Interior
Bureau of Reclamation
Research and Development Office

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Mission Statements

The U.S. Department of the Interior protects America's natural resources and heritage, honors our cultures and tribal communities, and supplies the energy to power our future.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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NUMBER(S) ST-2015-2559-1****12. DISTRIBUTION / AVAILABILITY STATEMENT**Final report can be downloaded from Reclamation's website: <https://www.usbr.gov/research/>**13. SUPPLEMENTARY NOTES****14. ABSTRACT** The Federal Interagency Sedimentation Project (FISP) is the national leader in the identification, evaluation, and development of standardized, calibrated equipment and methods for consistent, accurate quantification and analysis of sediment characteristics and transport in surface waters, which support the proper characterization and management of natural resources. The FISP committee is made up of representatives from several Federal agencies. The FISP advances part of its mission through contracted research, primarily surrogate sediment measurement methods and instrumentation. The remainder of the FISP mission is met through approving new and overseeing existing sediment measurement methods, equipment, and procedures. The ultimate goal of the FISP is consistent and accurate measurement of fluvial sediment across all Federal agencies and other entities.

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Review Certification

Peer Reviewer: I have reviewed the assigned items/sections(s) noted for the above document and believe them to be in accordance with the project requirements, standards of the profession, and Reclamation policy.

Reviewer Mike Sixta Date reviewed September 30, 2015
(Signature)

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FISP Background

The Federal Interagency Sedimentation Project (FISP) is the national leader in the identification, evaluation, and development of standardized, calibrated equipment and methods for consistent, accurate quantification and analysis of sediment characteristics and transport in surface waters, which support the proper characterization and management of natural resources. The FISP was created in 1939 by the following agencies: the U.S. Department of Agriculture, the Bureau of Reclamation, the Office of Indian Affairs, the U.S. Geological Survey (USGS), U.S. Army Corps of Engineers (USACE), and the Tennessee Valley Authority (TVA). The FISP was created to unify the research and development activities of Federal agencies involved in fluvial-sediment studies.

Currently, the FISP is headed by the US Geological Survey and the chief is Dr. Mark Landers. Other partner agencies include the Bureau of Reclamation, U.S. Forest Service, Agricultural Research Service, U.S. Army Corps of Engineers, USEPA, and Bureau of Land Management. The committee interacts with other organizations including federal agencies, academia, and private industry for research and development of standardized, calibrated equipment, and methods to allow consistent and accurate quantification of sediment characteristics and transport in surface waters. FISP activities focus on the measurement and analysis of suspended sediment, bed load sediment, bed material, bed topography, adsorbed constituents, and sediment characteristics using physical samplers and surrogate technologies.

The FISP meets twice each year, once in the fall and again in the spring. The location of these meetings is typically co-located with a current or past FISP-funded project or other location relevant to sediment measurement. The fall meeting is when research proposals are reviewed, judged, and awarded. During the spring meeting presentations are provided by each funded researcher as a progress update. Regular FISP business is conducted at both meetings. The FISP is funded by partner agency contributions and from the sale of sediment sampling equipment developed by the FISP. The Hydrologic Instrumentation Facility

(HIF), located at Stennis Space Center in Mississippi, handles the sales and oversight (QA/QC, etc.) of FISP sediment measurement equipment.

FISP activity can be tracked on the following web site:

<http://water.usgs.gov/fisp/research.html>

Project Update

Fall Meeting

In FY2015 the FISP held two committee meetings. The fall meeting was held in Baltimore, MD, October 6-9, 2014. Details of this meeting include:

- Discussion on the investigation of D-96 suspended sediment sampler not sampling isokinetically. Testing was performed by HIF personnel.
- Discussion on the investigation of sampler nozzles. Testing was performed by HIF personnel.
- Discussion on suspended sediment sampling procedures – do they need to be updated and included in annual training?
- Presentations of FISP funded research.
- Discussion on bed load samplers. FISP has only approved the BL-84 sampler, but it is only suited for sampling material sizes up to medium gravel. Need to test the hydraulic efficiency of the larger Elwha and TR-2 bed load samplers for eventual Federal approval.
- Discussed a FISP technical memo released in May 2014 that addresses the error of suspended sediment samplers. The memo is posted on the FISP web site.
- Review and approval of FISP funded research. Eighteen proposals were submitted. Funded proposal titles are:
 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

Spring Meeting

The spring FISP meeting was held in Reno, NV, April 18-19, 2015. This meeting coincided with the Federal Interagency Sedimentation Conference (SedHyd), which was being attended by all committee members. Details of this meeting include:

- Review of FISP budget.
- Update on nozzle testing by the HIF.
- Review of bag sampler testing efficiency.
- Reviewing possibility of changing velocity standards.
- Discussion of various sample depth methods, looking to recommend the best method and inform of potential error with other methods.
- Discussion on former FISP funded research project to obtain suspended sediment concentration with a single frequency side-looking acoustic Doppler.
- Project updates for FISP funded projects.

Data Sets that support the final report

There are no data sets associated with this project.