

RP 285 – Real-time Bridge Scour Monitoring and Evaluation at Selected sites in Idaho, Water Years 2020-2022

- Project Description:

Of Idaho's nearly 4,500 bridges, 265 (about 6 percent) are listed as "scour critical" (2017 National Bridge Inventory (NB I) item 113 coded as 0, 1,2, or 3). The plan of action developed for each scour critical bridge requires monitoring and inspection during and after flood events. This study presents a method to directly monitor the streambed elevation at three selected scour critical bridge sites in Idaho (fig I). Monitoring the streambed elevation is the most accurate method for determining whether a bridge is at risk of closure or failure. The streambed elevation will be monitored in 15-minute intervals, and scour depth data will be recorded onsite and transmitted to the U.S. Geological Survey (USGS) National Water Information System: Web Interface (NW IS Web). USGS and ITD personnel will select the three sites for this study based on the most suitable hydraulic and geomorphic conditions as they relate to scour susceptibility, logistical access, and overall site safety. Data will be collected over a range of hydraulic and geomorphic conditions to help explain the variability in scour. Combined, the hydrologic, hydraulic, and geomorphic data will provide required site data and parameters to (1) compare against previous scour measurements at the sites, and (2) improve existing scour equations using observed site data in Idaho.
- Project Objective:

The objectives of this project include:

 - Monitoring the streambed elevation at three selected scour critical bridge sites in Idaho with diverse hydraulic and geomorphic conditions.
 - Using the data to assess scour conditions at these sites.
 - Incorporating the data into the USGS's national data to help improve the scour estimates for bridges in Idaho more generally.
- Estimated Completion Date: September 30, 2022
- Budget: \$359,000 with ITD contributing \$263,600 and USGS contributing \$95,400
 - Project Manager: Jake Legler (208) 334-8129 jake.legler@itd.idaho.gov
- Principal Investigator:

Ryan Fosness (208) 387-1319 rfofness@usgs.gov
- TAC Members:

Matt Farrar, (208) 334- 8538 matt.farrar@itd.idaho.gov
Dan Gorley, (208) 334-8407 dan.gorley@itd.idaho.gov
Herbert McDowell, (208) 334- 8540 herbert.mcdowell@itd.idaho.gov
John Ingram, (208) 334-8436 john.ingram@itd.idaho.gov
- FHWA Advisor: Ed Miltner (208) 334-9180 Ext. 122 ed.miltner@dot.gov