

Study 21

USGS Sediment Monitoring

**Final
2015 Monitoring and Analysis Plan**



USGS will monitor suspended sediment and bedload sampling at 3 sites in FY15 or the next year with substantial flows. Each site will be sampled every other week by the USGS for a period of 16 weeks starting approximately in February and ending approximately June. Each USGS crew will spend one full day at each of the sampling sites, collecting one set of suspended sediment samples, one bedload sample, one bed material sample, and making at least one streamflow measurement. All sampling is to be conducted using standard USGS sampling protocol. Suspended sediment samples collected by USGS will be analyzed for sand/fine split. The bed load sampler and bed material samplers used in Reach 1 should be able to collect particle sizes of at least 64 mm in diameter without bias, meaning that the sampler width should be at least 128 mm. The previous bed load samples used by USGS on the San Joaquin had an opening width of only 74 mm and potentially excluded some particles in the 32 to 64 mm diameter size class.

Reclamation will use Reach 2B sediment monitoring data to predict the expected reach response after levee setbacks are completed. Reach 2B is expected to be generally depositional, but there is some uncertainty as to how much sediment will enter reach. Reclamation needs to understand sediment transport in Reach 2B to set the sill elevation at the head of the compact Mendota Pool Bypass.

In 2013 Reclamation developed a Sediment Budget Report based on 2009-2012 USGS sediment monitoring data and other data sources. Reclamation will continue to refine the Sediment Budget and strategies for spawning habitat management using results from these sites.

USGS and Reclamation met on December 11, 2013 to review the sediment transects monitoring program and prioritize sites. Considerations included study of spawning habitat, restricted flow releases from Friant Dam due to downstream channel capacity constraints, and future SJRRP construction actions. The sampling sites include:

1. SJR at Gravelly Ford 11253058. This site has significance as the flow compliance location for the SJRRP and a main indicator site for sediment transport. There have been boat launching issues in the past and USGS may consider launching in a different location. Sediment sampling should occur at the same location at all flow rates.
2. SJR located above mile 219 and below Gravelly Ford. This site was established in 2012 to study sediment transport into the Chowchilla Bifurcation Structure. Sediment sampling should occur at the same location at all flow rates.
3. SJR below Chowchilla Cn Intake (bifurcation) 11253115. Monitoring at this site will include documenting Chowchilla Bifurcation Structure gate operations during monitoring events so Reclamation can understand how operations influence sediment distribution to the Chowchilla Bypass and the San Joaquin River.

Schedule: every other week for a period of 16 weeks during spring pulses (approximately February 2015 and ending approximately June 2015).

Deliverable: web-hosted data on USGS NWIS interfaces.