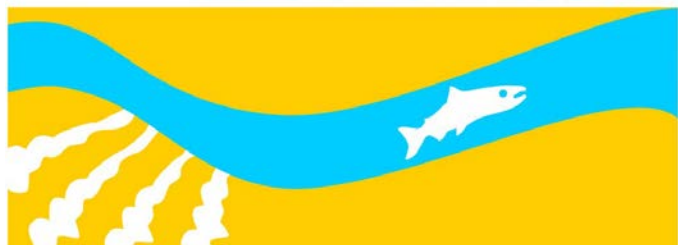


Effect of Scour and Deposition on Incubation Habitat in Reach 1A

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RESTORATION PROGRAM



Monitoring and Analysis Plan Study 27
Effect of Scour and Deposition on Incubation Habitat in Reach 1A

Status

This study is on hold until the results from previous artificial redd experiments can be synthesized. Future monitoring efforts will depend on the quality of the data collected thus far and their ability to provide trends with certainty.

Data Collection

Bed permeability and fine sediment accumulation within the artificial redds was monitored since installation in November 2012 until March 2013. Sediment samples from this experiment are currently being sieved and must undergo quality assurance analysis. Data from this experiment will be compiled with results from previous artificial redd experiments as well as with the USF&WS's egg survival study results.

Key Findings

Scour is negligible (i.e. <2cm) throughout the artificial redd study sites for all the monitored flows. See previous Annual Technical Reports for previous interim findings.

Reports and Schedule

To date, data and interim results have been presented in the previous Annual Technical Reports. The final technical memorandum will present trends in egg survivorship and health of fry in relation to changes in location, permeability, bed load transport, and fine sediment accumulation. The final memorandum, which will require inter-agency internal review, is anticipated by December 2013.

Table 2: Onset of mobility and full mobility thresholds as observed from the tracers at RC40. “Retaining sieve” sizes represent the smallest particle diameter within each size class. Shear stresses represent the value for the entire size class. Given that the D50 of ~90mm was measured using the sieve method its threshold shear stresses (in red) are best represented as between the 64mm and 90mm size classes. The discrete shear stress is nearly equal between size classes. The mean onset of mobility shear stress for this site is 23.8 Pa. Full mobility of tracers about the D₅₀ appears to be >38 Pa. Grayed out cells indicate the sizes for which full mobility threshold was not reached during the 2011 peak flow events.

Retaining Sieve (mm)	Shields τ^*		Discrete Measurements τ (Pa)	
	Onset	Full	Onset	Full
32	0.036	0.046	27	33
45	0.025	0.040	25	34
64	0.018	0.032	25	38
90	0.013	0.023	25	≥40
128	0.007	0.016	17	≥41
		Mean:	23.8	35.0

The preliminary key results are that the Shields critical shear stress for the D₅₀ of the study sites, RC38 and RC40, are 0.033 and 0.028, respectively, while the critical shear stress is about 40 Pa.

Reports and Schedule

A technical memorandum that includes the results of both the tracer mobility observations and force gauge prediction of the critical shear stress is presently being compiled and is anticipated to be distributed by December 2013.