Upper Colorado River
Endangered Fish Recovery Program

Dated: October 14, 2011

Water Acquisition and Biology Committee Joint Webinar Draft Summary
1:00 p.m. – 2:40 p.m., Thursday, October, 13, 2011

PARTICIPANTS
Water Acquisition Committee: .Jana Mohrman, .Dan Luecke, .John Shields, .Brent Uilenberg, .Tom Pitts
Biology Committee: .Melissa Trammell, .Dave Speas, .Doug Osmundson for Dale Ryden, .Tom Pitts, .Harry Crockett, .Pete Cavalli
Other participants: .Cory Williams, .Tom Chart, .Angela Kantola, .Bob Burdick, .John Pitlick, .Bob Mussetter, .Patty Gelatt, .Scott Wright (USGS), .Leslie James

Assignments are indicated by ">" and in Attachments 1.

CONVENE: 1:00 p.m.

1. Technical issues – Dan Luecke asked if Cory Williams' and John Pitlick's differing results on the Gunnison were resolved. Cory added information on median particle size to figures 22 and 23 to aid comparison with John Pitlick's results. John Pitlick liked the added information on the difference in grain size. John thinks that Cory's transport thresholds based on critical shield stress is substantially high. That translates directly to flows required to transport sediment. Cory used a minimum of 0.035 and maximum of 0.05. John believes Cory's are too high, he thinks .025 would be more accurate, based on two published reviews of similar rivers. The only way to determine the appropriate value is through direct observation. Cory asked if the reduction of critical shear in those other systems results from the incorporation of sand; John didn't know. Cory discussed the interaction of multiple grain sizes in the report (especially as it relates to the Jensen site), and affects shield stress. John Pitlick said perhaps the best way to summarize this issue is that it is an area of uncertainty. Cory added that his results are specific to the sites they analyzed in this USGS study. Bob Mussetter said he thinks 0.03 is a generally-accepted number for this kind of system, but there may be cases where it may be lower when there's a lot of sand (e.g., 20-30%) in the system because it changes from a clast-supported to a matrix-supported system. The lower the critical shield stress, the lower velocity flow required to move sediment. Cory said he based his critical shear values on his assessment of site conditions and the best available literature. Dan Luecke said their comments were restricted to methodological issue of how you measure D-50 and they were satisfied with the response to that. Cory emphasized that just reaching critical shear stress does not result in substantial motion of D-50 (which the literature reports may require twice the critical shear). John Pitlick said he agrees that critical sheer stress is only incipient motion, not significant movement. Cory asked if movement of a few rocks (incipient motion) is what we want to measure? John said it's one of the sediment transport objectives, but likely not the only one. Dave asked how we can measure actual values. John said it can be derived, but not measured directly. Cory said it can be derived at the site at the flow condition at which you want to calculate the shear stress. John asked what the high flows did this year? Doug Osmundson said he was in the field June 7 and heard what sounded like the bed moving below the boat in the Delta area, then saw evidence of fresh cobble bars (everything completely scoured of sand/sediment/vegetation and just rock left) in the Escalante reach. Bob Burdick described what they observed at the Redlands fish trap peak June 7-8. The trap usually gets a lot of fine silt this time of year in the 6x15' flume behind the Redlands diversion dam. On June 7, there was lots of fine silt in the fish trap. The next

morning they noticed not only sand particles, but also gravel-sized rocks mixed in the fish trap, which is unusual. Flows went from 13.3K cfs to 14.2K cfs in that timeframe. In subsequent days there was very fine silt in the trap. The maximum gravel size that can get into the trap is ¾" due to the trash rack. Jana asked if that doesn't support the assumption that bankfull flows around 14K cfs cause significant motion. Cory said these observations are important, but he can't address what that means for a specific site and said he would need to more about the backwater effect and gradient behind the dam. Cory's recollection is that it's an area of slackwater habitat just below the dam. John Pitlick said that the fact that we saw gravel in this kind of a backwater reach is very important. Doug agreed that important validation is to take a look at these sites and see what they look like after this year's high flow. Tom Pitts asked about John and Cory's different methods for determining the D-50 size. Cory said both are approved methods, but they are different; Cory described the pros and cons of the two methods. John Pitlick said he doesn't think their different approaches this measurement can be resolved on this call. John said there is significant variability in grain sizes from one place to the next, which is why he made measurements over a large range of sites. Tom Chart said John adjusted for the grain size difference and plotted Cory's data among the data from his earlier 54-transect study; John wasn't as alarmed by Cory's results in the context of that larger data set. Does the report discuss this? John said the report focuses on the two sites, but mentions the 50+ sites Pitlick measured. John said he does think the Program needs to consider this larger context (and the critical shear stress issue), though it doesn't necessarily need to be in this report. John said he's satisfied with the report itself, although he would have liked to have seen a little more discussion of the uncertainties. Melissa agreed that we can take all this into consideration for future evaluations without needing to make any changes to the report at this point. Dan Luecke said he felt the explanations that Cory provided in response to questions raised are adequate. Pete Cavalli asked if there's enough explanation the controversy about critical shear stress values used characterization of D-50. Cory will add a few sentences about the shields parameter selection. Cory is also willing to re-plot fig 22 and 23 critical shear stress relative to the D50 of 53mm will be adjusted to reference a .025 shields parameter and add a few sentences explaining why Pitlick's critical shear stress is lower.

2. Scope of work issues – Dave Speas said he originally had different expectations of this study (e.g. related to fish habitat), but at this point it's a Program responsibility to figure out where to go from here. Melissa Trammell and Tom Pitts agreed. Dave emphasized that in the future, the Biology and Water Acquisition committees need to be very sure that we're asking the right questions relative to work proposed.

3. Vote to approve as Program document – The committees approved the report, with the revisions Cory proposed above.

4. Future plans – How will we use this information in re-evaluating the flow recommendations? Tom Pitts asked the technical experts how they would recommend we go about that? Cory said one of the major findings is regional assessments can get you part way, but site-specific assessments are vital and should be driven by where you see good and poor habitat (to determine how to maintain good habitat or improve poor habitat). The report demonstrates a technique, but does not apply it directly to evaluation of flow recommendations. Melissa asked if Cory would recommend this SWMS modeling method used at Jensen; Cory said he does recommend it and is using it in Deerlodge on the Yampa now. For $40K, Cory said they collected and did the analysis for ~$25K in in-kind funds. Cory said it is a very powerful tool and the report only a very limited application (where 80% of the cost was data acquisition). John Pitlick said one thing that has limited use of

this technique on the Gunnison and Colorado rivers is a lack of well-defined spawning sites. Cory added that this can also be used for a number of things outside of spawning habitat. The report demonstrates a technique that can be used at sites judged to be biologically critical. With regard to the Green River Study Plan, a big question was whether the identified flow durations are necessary. Can this method get to duration? Cory said if you wait long enough, particles will move at flows lower than you might expect. Two and three-dimensional computer modeling can aid in determining the effect of flow magnitude versus duration. John Pitlick said that duration also is important in maintaining mass balance (and that's why it's in the Gunnison River flow recommendation). John Shields and Melissa Trammell pointed out that SWMS can make very site-specific analyses, but we have to evaluating flow recommendations on a large geographic scale. Dan agreed, saying he always saw this study as providing information as a piece of the puzzle. To determine where to go from here to connect this work to evaluation of flow recommendations, we will need to pull together the Biology Committee, Water Acquisition Committee, and geomorphology panel. Cory said he is willing to participate in these discussions. Cory will be making a presentation on different site specific applications of 2D modeling at the researchers meeting. >Jana will attach John Pitlick's memo to this summary, as the issues John raised will be important to keep in mind as we discuss how to go forward.

FY	Total	USGS	Recovery	Wyoming	Argonne	Notes
2004	**$ 193,770.00**	$ 77,510.00	$116,260.00			Recovery also purchased equipment $7,100
2005	**$ 139,000.00**	$ 48,650.00	$ 90,350.00			
2006	**$ 169,000.00**	$ 13,000.00	$117,000.00	$ 24,000.00	$15,000.00	MD-SWMS Demo was $40,000 Gross
2007	**$ 155,000.00**	$ 22,500.00	$107,600.00	$ 24,900.00		
2008	**$ 64,000.00**	$ 18,653.00	$ 19,700.00	$ 25,647.00		Data Report USGS DS-409 (USGS in-kind $36,600)
2008	**$ 20,500.00**	$ 1,500.00	$ 19,000.00			Delta Incipient Motion
2009	**$ 102,000.00**	$ 19,043.00	$ 24,737.00	$ 25,620.00	$32,600.00	SIR USGS 2011-XXXX (USGS in-kind $38,200)
Total	**$ 843,270.00**	**$200,856.00**	**$494,647.00**	**$100,167.00**	**$47,600.00**	