PHYSICAL-GRAVEL WORK GROUP MEETING AGENDA

Monday, Feb 26, 2018
9:00 am – 3:00 pm
TRRP Office, Weaverville, CA

	Webex info: **Phone Number:** **Access code:**
Desired Meeting Outcomes	• Streamflow and sediment transport monitoring needs for the next 5-10 years and recommendations to streamflow and sediment transport monitoring network • Draft summary approach describing how the Program assesses (eg., metrics, monitoring, and synthesis reports) long-term achievement of the physical objectives and adapts to changes. Draft handout will be provided at meeting. • Synthesis Report updates
Meeting pre-work	• Review streamflow and sediment transport monitoring stations worksheet • Contemplate how the Program assesses the physical objectives

Time	Topic	Presenter/Moderator
9:00	Introductions, Agenda Review, and Meeting Objectives and Outcomes	Wes
9:15	**2018 Physical WG coordinator selection**	Group
9:30	**Streamflow and Sediment Monitoring**	Group Discussion
	What do we obtain from sediment transport monitoring and how do we use the information? What are the streamflow and sediment transport monitoring needs for the next 5-10 years to achieve the Program objectives? Recommendations to the streamflow and sediment transport monitoring network.	Dave Todd and Wes Group discussion
11:15	**Short Break**	
	Continue	
12:00	**Lunch**	
12:30	**Physical Objectives and Metrics/Synthesis Reports**	
	Review approaches to assess long-term achievement of the Program's physical objectives Draft physical metrics for rehabilitation design alternatives and/or monitoring	Wes and Group Dave G.
2:00	**Short Break**	
	Continue	
	Synthesis Report Updates	Group
	Other agenda Items??	
3:30	End Meeting	Exit Stage Left

Meeting Notes

Agenda items

We switched the morning (Streamflow and sediment monitoring needs) and afternoon (Means for achieving objectives) agenda items to facilitate a more fluid conversation.

2018 Physical WG lead

Wes was re-nominated and voted in unanimously as the Physical WG lead.

Physical Objectives and Metrics/Synthesis Reports

Review approaches to assess long-term achievement of the Program's physical objectives

Desired outcome: Draft summary description of how the Program assesses (eg., metrics, monitoring, and synthesis reports) long-term achievement of the physical objectives through the use of metrics or assessments.

We quickly reviewed the Program's overarching goal, strategy, and physical objectives. Wes provided a list of the objectives and several known assessment examples. The group filled in the rest based on their collective knowledge (See below). The following description attempts to capture the main discussion points.

The WG discussed how the 1.1 (level 2) and 3 objectives provided a big picture approach to improving "habitat diversity and variability." The Level 3 objectives are also general metrics (e.g., sinuosity); however, they lack specificity especially given the detailed data available on the Trinity to be use much use. We don't have a diversity of quantitative metrics and target ranges to assess the level 3 objectives. Or for that matter, detailed objectives that relate directly to aquatic habitat. Robert reminded us that there were eventually supposed to be Level 4 and/or 5 objectives and detail performance measures/metrics with detailed assessment plans. This process stalled. The group decided that at a future Physical WG meeting these objectives and/or Level 4 and 5 objectives needed to be refined/developed to improve the Program's ability to determine what we need to achieve (e.g., habitat diversity and variability) and if we are achieving it. We decided that next fall following the development of several draft Synthesis reports might be the best time to do this work.

Metrics for Objective 1.1 and sub-objectives

The WG discussed various metrics that would provide more detailed information given our need and ability to examine changes from a small polygon or design element scale to the entire 40 mile reach.

Dave mentioned that the edge length from the Habitat Assessments was a useful metric to assess 1.1.

Complexity (e.g., standard deviation of depth distributions). Dave produced a 40 mile complexity map??

Robert mentioned several means to measure the current level 3 objectives and the group added in based on the desired scale of concern (e.g., reach or meter scale thalweg sinuosity): aerial photos, repeat bathymetry, etc.

Andreas mentioned the need for a comparison between the 2012 and 2016 bathymetry at a 40 mile scale.

Desired Ranges

We also discussed, as John Bair mentioned in the Flow WG meeting, that metrics require a desired range (i.e., the other half of an objective) and temporal timeline. In general, we concluded that while the Channel Design Guide (HVT 20XX), First Steps toward a River Corridor Management Plan (Gaeuman et al 20XX), and other information help identify desired ranges of various metrics (e.g., scaled down channel geometries). However, we still don't have specific metrics that fit the Program's needs.

Discussion led to the fish production model and what it uses, physical habitat or model output? They use the habitat modeling to check the modeling output. The physical metrics should tie back into the physical habitat and fish production model to determine what scale changes in the metrics will move the river (metrics) toward its desired conditions (target ranges).

Jenny refocused us to only discuss what we have or are doing now. We proceeded to go through all the Level 2 and 3 objectives and list the reports, papers, etc. that assess whether the Program is achieving the objectives,

<u>General Conclusions and Recommendations</u>

We need to develop more specific and physically habitat related objectives or sub-objectives, "modern" quantitative metrics, and desired target ranges. For example, many of the Level 2 objectives contain relatively vague terms (e.g., habitat diversity and variability; channel dynamics) that while desirable need to be quantitatively defined. This leads to general lower level objectives, metrics, and target ranges. We decided to have a working meeting later in the year to address these issues.

Synthesis Report Updates

We briefly discussed how the hold up on funding for the Tribes has significantly limit progress.

Each PI will report out on Synthesis Reports.

Streamflow and Sediment Transport Monitoring

What do we obtain from sediment transport monitoring and how do we use the information? What are the streamflow and sediment transport monitoring needs for the next 5-10 years to achieve the Program objectives?

Desired outcome: Recommendations to the streamflow and sediment transport monitoring network.

Todd summarized the flow work group recommends: discontinuation of the Grass Valley Creek and North Fork Trinity River gages. HVT recommended cutting the Trinity River at Cedar Flat if we needed to cut a gage. However, Robert reiterated that HVT would like to have more gages but that if the Program needed to cut a gage TRCF would be the one.

Dave provided an introduction to what sediment transport monitoring data we currently collect and how it is used.

The four mainstem stations where we collect bedload/hydro-acoustics and limited SS/turbidity.

TRLG has had the lowest gravel transport rates. This is the reach where we expected to have the lowest transport given the limited tributary inputs and installation and operation of Hamilton Ponds at the bottom of grass Valley Creek.

Sediment transport rates picked up at all sites in 2017 especially at TRLG.

Dave showed a table from one of his new in review transport reports describing a sediment budget for Lowden Meadows. There were marked increases in 2017 which are also qualitatively seen at other locations upstream and downstream. We have very detailed information at the four stations and reaches around TRAL and TRGV.

Todd was wondering how this information can be scaled up for use across the entire river.

Dave mentioned that a similar budgeting approach can be done from Diversion Pool downstream to the old USFWS augmentation site. Andreas and others discussed other approaches which I did not capture (e.g., topographic differencing).

We are using the sediment transport monitoring data to develop sediment budgets, gravel augmentation rates, asses objectives (1.3, 1.4, and lower level objectives).

Dave mentioned the changes that have recently occurred in the sediment transport monitoring efforts including the addition of hydroacoustic bedload monitoring (surrogate for bedload similar to turbidity for SS), the reduction in TRAL bedload sampling, and reductions in SS sampling.

Dave mentioned and recommends:

TRAL can be monitored relatively cheaply using hydro-acoustic and limited bedload samples.

TRGV and TRLG provide information on augmentation and where are sediment routing holes are in the river.

TRDC could be reduced depending on needs given it is directly below the “sediment” deficit reach.

SS and turbidity sampling can be discontinued at all four stations.

The Physical WG recommended cessation of SS measurements and turbidity at the 4 mainstem stations. The Fine Sediment synthesis report will examine the usefulness of the existing measurements.

We discussed when bedload should be monitored eg., >5,000 cfs. We recommended that bedload monitoring above 5,000 cfs could be evaluated annually once the Flow WG selects hydrographs.

We discussed the potential usefulness and/or benefits of sampling in the winter at TRLG and the tributaries to achieve our objectives (1.4.1 and 1.4.2). We did not make any recommendations.

Discussed future meeting needs

We briefly rehashed the first discussion (see above) regarding the need to refine objective 1.1 and lower level objectives to tie them directly to biological significance and physical habitat. The first thing to do is to clarify Objective 1.1, habitat diversity and variability. We need to look at what metrics get us down the road. We need to start kicking around the can. We need to try a metric and ensure it ties into a biological need.

Robert suggested I email the Physical WG with the Objectives and ask for good ideas on refinement, metrics, and desired targets. As mentioned above we will work on this need in the future meetings.

Objectives and Metrics/Assessments Review (Draft, I will be working on improving this but feel free to add in comments)

Program's Overarching Goal

Restore and sustain natural production of adult anadromous fish populations downstream of Lewiston Dam to pre-dam levels, to facilitate dependent tribal, commercial and sport fisheries full participation in the benefits of restoration via enhanced harvest opportunities. The TRRP strategy for accomplishing this goal restores and perpetually maintains fish and wildlife resources (including T&E species) by restoring the processes that produce a healthy alluvial river system.

The Program strategy for accomplishing this goal restores and perpetually maintains fish and wildlife resources (including threatened and endangered species) by restoring the processes that produce a healthy alluvial river ecosystem.

The above restoration strategy will be achieved by implementing management actions in a science-based adaptive management program.

1.1 Increase physical habitat diversity and variability

Physical Habitat mapping to support fish production (This focuses on fry rearing habitat), Rehabilitation reports (shows differences in Alternatives)

The following level 3 objectives provide a general guide but require specifics relative to the river corridor and target ranges. The Channel Design Guide and the First Steps toward a River Corridor Management Plan lay out some desired ranges for the following

See my notes…edge length

A 40 mile bed complexity from RCMS

USGS geomorphic change report examined multiple metrics

1.1.1 Increase the size, frequency, and topographic relief of bar/pool sequences

Sediment Storage Synthesis Report

1.1.2 Increase channel/thalweg sinuosity

We are using the habitat assessments (edge length)

1.1.3 Increase geomorphic unit and substrate patch diversity

1.2 Increase coarse sediment transport and channel dynamics

1.2.1 Increase and maintain coarse sediment transport rates

There is not a desired range of course sediment transport rates aside from Dave's scaled work

GMA sediment transports, Sediment Budgeting and reports, Dave's reports on scaling TRDC to other gages, gravel augmentation reports (published papers), augmentation tracer work, Dave's current reports in review, , First Steps Reports (morpho-dynamic model output)

1.2.2 Frequently exceed channel migration, bed mobility, and scour thresholds

Channel migration/erosion

No channel migration desired target range

USGS channel change report (look to remind what they examined)

Mike M's SAB channel erosion work

Bed mobility and thresholds

Bed mobility and scour threshold target ranges (Flow Study) – HVT/McBain & Associates annual reports and synthesis report TRRP-2012-018

1.2.3 Encourage bed-elevation fluctuations on an annual to multi-year time scales

Pool depth report and newer data, Lowden Meadow work examining bed changes with augmentation, delta survey comparisons, 40 mile bathymetry comparisons (some work in progress),

1.2.4 Route coarse sediment trough all reaches *(but not necessarily at the same rates)*

GMA annual sediment transport monitoring reports (GMA 20XX), TRRP Sediment Budget Reports (Gaeuma), see above RCMS, tracer studies,

1.3 Increase and maintain coarse sediment storage

Sediment Storage synthesis report TRRP-2018-22, Sediment budgets (GMA, Wilcock, Gaeuman), Performance Measure report summarizing coarse sediment budgeting (Gaeuman 2012), Active Bar Report (2015), delta monitoring, Rehabilitation augmentations included in sediment budgets, Facies mapping efforts,

1.3.1 Increase bars, side-channels, alcoves, and other complex alluvial features

Active bar Report (2015) Rehabilitation design reports (All), USGS geomorphic assessment (2015),

1.4 Reduce fine sediment storage in the mainstem Trinity River

Fine Sediment Synthesis Report, Pool Depth report, Gravel Augmentation and Pool Dredging Report (Kraus 2012), Performance Measure report (Gaeuman 2012),Facies Maps, % fines, Change in Fine Sediment Storage Performance Measure Memo (Gaeuman 2012)

1.4.1 Transport fine sediment through the mainstem at a rate greater than tributary input

Sediment Budgets, earlier GMA sediment transport monitoring reports (2004 and 2005)

1.4.2 Reduce fine sediment supply from tributary watersheds

See partner agency and Trinity River Watershed Council groups reports on sediment reduction efforts, Sierra-Pacific RWQCB reports, Grass Valley Ponds Report, BOR efforts to address GVC

1.4.3 Encourage fine sediment deposition on floodplains

Andreas Krause's Fine Sediment Management Efforts Presentation at the Sediment Lessons Learned Meeting (Sept, 15, 2015), and Fine Sediment synthesis report TRRP-2018-027, See annual Riparian Reports,