Meeting Summary
FLOW WORKGROUP
TRRP Office, Weaverville, CA
August 30,2013

Friday August 30, 2013, 9:00 AM

Participants

John Bair (HVT consultants), Steve Cannata* (CDFW), Ernie Clarke (TRRP, USFWS), Teresa Conner* (C DWR), James Lee (TRRP, HVT), Andreas Krause (TRRP, BOR, Eric Peterson (TRRP, BORWG Coordinator), Robin Schrock (TRRP, BOR), Rod Wittler (TRRP, BOR).

Note takers: Ernie Clarke and Rod Wittler

* = Via Webex

List of Action Items Developed at the Meeting

Do we need a Normal Year hydrograph with a spring habitat bench? Fish workgroup to review the portfolio for ascending limb benches and propose modified hydrographs

Ask Variable Flows subgroup to produce example concepts, even hydrograph(s), for the purpose of identifying potential analyses by Nov conference call.

John to produce Extremely Wet hydrograph with riparian descending limb, incorporating Andreas's findings.

Seth / Andreas to verify that ramping rate criteria is met for multi-peak alternatives

Andreas / Seth to discuss the purpose of the 'test' as described in the multi-peak supporting documentation, with the possibility of modifying the peaks to accomplish a purer Qs test.

Rod to coordinate variable flow release schedule with CVO.

John will put together a description of criteria / target / triggers for seed dispersal / degree day curves.

Eric / Ernie will develop analysis method templates.

Request Fish Workgroup to consider hydrograph analyses/metrics for (1) fish habitat and (2) outmigrant timing.

Andreas / John will modify the timing of Extremely Wet and Wet Physical / Riparian within the historic range – talk to DJ about construction constraints plus Aaron regarding monitoring; can receding limb be shortened.

Eric to doodle / schedule October and November conference calls.

Summary Meeting Notes by Agenda Items

1. Introductions/ Action tracker

Eric reviewed the agenda distributed via email on August 15, 2013. Addition of a variable timing discussion was added later in meeting (revised version attached).

Status of outstanding tasks:

- All of the hydrographs used so far will be sent to the group
  STATUS: Completed (2013-07-29)
- Distribute proposal package and timeline (this was already sent in Jan-Feb; it will be re-sent to make sure everyone has it) along with Eric's timeline process/schedule.
  STATUS: Completed (2013-06-14)
- Rod Wittler will send contingency instructions to CVO, (e.g. the rampdown rate after a gate malfunction, after the WG deliberates those instructions).
  STATUS: Completed. Rod followed up with Thuy Washburn.
- Wiseman said he could calculate a volume of water needed for the period October 1 to April 22 for all water years and provide the supporting template.
  STATUS: Outstanding. Variables flows group last met in April.
  James will pick up on John's riparian concepts and develop these into a written proposal addressing summer baseflow to be submitting in February as part of the workgroup process.
  STATUS: Outstanding. Variables flows group last met in April
- Flow Workgroup will address the issue of managing base flow variability by considering the major issues of vegetation, fish and temperature.
  STATUS: Outstanding. Variables flows group last met in April
- Wiseman will draft a question to the Fish Workgroup related to the effect of variable low flows (450 – 300 cfs) on spawning. The question will be circulated first to the Flow Workgroup for revision, then forwarded to the Fish Workgroup
  STATUS: Outstanding. Variables flows group last met in April

2. 2014 Flow scheduling process / calendar

Introduction: Eric reviewed Page 2 of the agenda (attached) which includes the process developed at the June 2013 meeting. Change from the past few years: (1) starting earlier to ensure alternatives are fully vetted, (2) planning for multiple water year types, and (3) will include high-flow gravel options in flow planning. Intent is to try to get major ideas out on the table earlier. The group can hybridize hydrographs or fill gaps between now and November.

- Revisit process / intent of portfolio:
  - Portfolio is inclusive of all water year types.
  - If-then decision tree in Feb will include portfolio options.
  - Between August and October the portfolio will be amended.
  - In November a subset of hydrographs will be selected for analysis.
  - Between November and February analysis will be conducted.
  - January - develop considerations for the annual cycle.

February - Build Decision tree & submit to TMC

Discussion points:

- In future years Andreas suggests we start a little later to avoid summer field season.
- Workgroup expresses concerns with the process is general. Does the process preclude January ideas? This is a workload issue.
- Ernie asks the group to undertake the process for this year. We can troubleshoot as needed after.

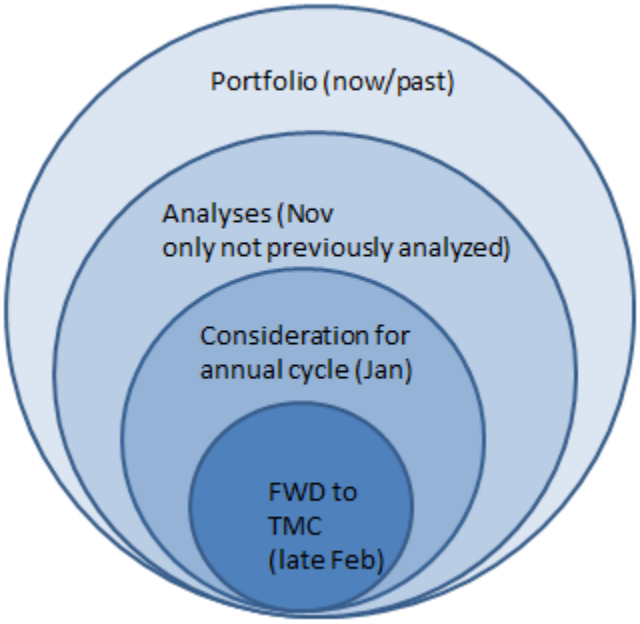
3. Portfolio review, discussion, identification of gaps

Introduction: On July 29 and again on August 15, 2013 Eric emailed the DRAFT portfolio document to the flow and temperature workgroups (filename: *Abbreviated Portfolio Doc.pdf*). The document is a preliminary cut at a portfolio of past hydrographs to aid in WY2014 flow scheduling. Eric included enacted hydrographs since water year 2004 plus a few hydrographs that were proposed and analyzed, but not enacted (e.g. the WY2013 alternatives). The summaries of each hydrograph are very brief and include Management Objectives, Peak Flow Gravel Augmentation, Post-Flow Analyses and Key Findings.

Eric provides a general description of the portfolio and an example hydrograph. Eric asks for input on: 1. Format; 2. Additional detail needed; 3. Gaps; and 4 Can any hydrographs be removed?.

Discussion points:

- General
  - Good collection of hydrographs.
  - Flow workgroup has considered a host of other hydrograph. For example in 2006 roughly 40 alternatives were considered. Many were tweaks.
- Format
  - Group thinks it is effective.
  - Add a table showing year developed, evaluated, enacted for each hydrograph.
- Additional details needed
  - Add year implemented or proposed in parenthesis (covered by table mentioned above).
  - Included the specific pre-flow analysis completed since this varied over time.
  - Add "constrained" to title of constrained hydrographs.
  - Add citations for post-release evaluations.
- Gaps in suite of hydrographs
  - Move 2004 and 2005 hydrographs into the constrained section.
  - Class of considerations that are independent of WY (e.g. variable timing of start based on degree day which will be discussed during the afternoon.
- Can some hydrographs be removed from the portfolio?
  - Not at this point in the process. Later we'll screen to a more refined list.
  - During further discussion of how the portfolio fits with the new scheduling process, Eric developed the following graphic on-screen:



Action items developed during this agenda item:
Do we need a Normal Year hydrograph with a spring habitat bench? Have IDT request that Fish WG (Tim/Aaron) review the portfolio for ascending limb benches and propose modified hydrographs

Ask Variable Flows subgroup (Eric W., James L, Rod W.) to produce example concepts, even hydrograph(s), for the purpose of identifying potential analyses by Nov conference call.

Robin – Need guidance on how to factor ecological consequences of extra-TMC actions on restoration objectives and expected outcomes? [This was answered later in meeting: The consequences of actions outside TRRP control (e.g. Klamath Flows) need to be evaluated in the context of those actions (e.g. NEPA eval for Klamath Flows).

4. Presentation of newly proposed hydrographs - geomorphic

Krause describes hydrograph. Documentation for this alternative was shared with workgroup on August 15, 2013 in an email from Eric. (see file: *Flow Proposal Wet Year.krause.doc*).

PowerPoint presentation by Krause is appended

Action item developed during this agenda item:
John to produce ExWet hydrograph with riparian descending limb, incorporating Andreas's findings (Andreas has not produced an Ex Wet hydrograph, only Normal & Wet to complement the 2013 Dry & Normal Phys WG proposals). (Gap in current portfolio)

----------LUNCH----------

5. Presentation of newly proposed hydrographs - multipeak

No presentation, author not present – hydrographs described by workgroup coordinator (Eric). Documentation for these alternatives was shared with workgroup on August 15, 2013 in an email from Eric. (see files: *Dry year multi peak flow schedule.doc, Normal year multi peak flow schedule.doc,* and *Wet year multi peak flow schedule.doc*).

Action item developed during this agenda item:
Verify that ramping rate criteria is met for multi-peak alternatives. – Seth/Andreas

Andreas wants to work with Seth to clarify the purpose of the 'test' as described in the supporting documentation, with the possibility of modifying the peaks to accomplish a purer Qs test. Need discussion between Naman & Krause.

Plan to conduct an Operations Feasibility analysis by CVO – Rod; heads-up- any limits variable flow release schedule

6. Gravel augmentation recommendations - Physical WG

The physical workgroup is implementing a proposal process for gravel augmentation recommendations. The high-flow gravel augmentation piece will be integrated into the flow schedule planning document. The plan is to provide the TMC with consolidated flow / gravel augmentation recommendations.

7. Discussion – review of portfolio and proposals

No further discussion on portfolio or specific alternatives. There was discussion on variable timing that could apply to any hydrograph.

Seed dispersal / degree day curves – Bair describes a correction method using 2004 curve; degree day thresholds may be different for fish outmigration; there is a linkage that needs to be made; how would a change based on seed dispersal degree day impact. This could constrain start / stop days.

FYLF. Accumulated degree day peak based on ambient temperatures may have benefits related to egg laying.

Action item developed during this agenda item:
John will put together a description of criteria / target / triggers [Rod to talk to CVO] How would you do it? Block of time? Triggers? Action? When could you make the call to make a change? (Maybe accumulate multiple variables – tributary stage)

Fish workgroup – degree days for outmigrants.

8. Discussion – analyses for hydrographs

Analyses have two objectives: (1) refining a hydrograph, and (2) to assist decisions of which hydrographs best match drivers for a particular year.

Analyses discussed

1. Temperature
2. Sediment transport (e.g. total transport based on rating curve)
3. Habitat (2000 cfs bench) need better resolution (Eric shows habitat metric from design)

   a. Request Fish WG to give a flow metric some thought NEW TASK – Ready to apply in November? Can share what Eric did.
   b. Andreas – need clarity on habitat bottleneck.
4. Outmigration timing (Tim/Fish WG) New task; need a metric to apply in November; benefit of 2000cfs bench.
5. TARGETS (regen) – 1-d model that is x-section based; pick index locations and extrapolate to system; in future move to planform world.
6. FYLF Egg mass development model (John will get it to James)
   a. 1-d model that is x-section based; pick index locations and extrapolate to system; in future move to planform world.
7. Meet ramping criteria? (validation)
8. Recommended gravel augmentation volume

Discussion points: some members desire a more defined decision process.

Action item developed during this agenda item:
Andreas / John will modify the timing of Extremely Wet and Wet Physical / Riparian within the historic range – talk to DJ about construction constraints plus Aaron regarding monitoring; can receding limb be shortened?

Eric and Ernie will develop analysis method templates – 1-2 pages on each analysis

9. Next Steps/Review of work assignments/Find new workgroup coordinator

Calendar (See Attached agenda) - Group decides to add a 2-hour conference call in October – allow broad involvement

New workgroup coordinator – Eric unavailable for Fiscal Year 2014; Ernie / Rod will manage until another volunteer is identified.

Adjourn 3:00 PM

ATTACHMENT

Final Version (as revised during meeting)

Aug 30, 2013
9:00AM

Flow Workgroup Meeting Agenda

TRRP Office, Weaverville
WebEx: web-link
Call in: 1-408-792-6300
code=578 255 419

Coordinators:	**Eric Peterson** **Rod Wittler**
Desired Outcomes:	Review and guide revision of draft proposals Identify gaps in draft portfolio Identify general analyses required by proposals New workgroup coordinator
Please read/review:	Proposed Hydrographs Hydrograph portfolio
Please bring:	Plans for hydrograph revision, portfolio completion, and analyses

Agenda Items

Time	Topic	Presenter
	2012 Flow Scheduling	
9:00	Introductions / Action Tracker	Eric Peterson
9:05	2014 Flow scheduling process / calendar (see below)	Peterson/Wittler
9:30	Portfolio review, discussion, identification of gaps	Peterson/Wittler
10:30	Presentation of newly proposed hydrographs - geomorphic	Krause
11:30	Lunch	
12:00	Presentation of newly proposed hydrographs - multipeak	Naman or Alt
12:30	Gravel augmentation recommendations - Physical WG	Krause
12:45	Discussion – review of portfolio and proposals	Round Table
	Variable timing of hydrograph	
1:45	Discussion – analyses for hydrographs	Round Table
2:45	Next steps / review work assignments / find new workgroup coordinator	Peterson
3:00	Adjourn	

Outstanding Action Items

From 2013-06-12:

- All of the hydrographs used so far will be sent to the group **[completed 2013-07-29]**
- Distribute proposal package and timeline (this was already sent in Jan-Feb; it will be re-sent to make sure everyone has it) along with Peterson's timeline process/schedule. **[completed 2013-06-14]**
- Rod Wittler will send contingency instructions to CVO, eg. the rampdown rate after a gate malfunction, after the WG deliberates those instructions. **[Rod has talked with Thuy – reminder of ramping rates]**

ATTACHMENT

From prior:

- Wiseman said he could calculate a volume of water needed for the period October 1 to April 22 for all water years and provide the supporting template.
- James Lee will pick up on John Bair's riparian concepts and develop these into a written proposal addressing summer baseflow to be submitting in February as part of the workgroup process.
- Flow Workgroup will address the issue of managing base flow variability by considering the major issues of vegetation, fish and temperature.
- Wiseman will draft a question to the Fish Workgroup related to the effect of variable low flows (450 – 300 cfs) on spawning. The question will be circulated first to the Flow Workgroup for revision, then forwarded to the Fish Workgroup.

Proposal Process as Developed at the June Meeting:

Work Activity (present – August): We will use the same hydrograph proposal template and scheduling worksheet as we did for the WY2013 process. Please develop your individual or team draft hydrographs by reaching out to other disciplines from the start, to create the most technically sound proposals possible. Proposals should be based on 'management by objective' concepts from the Flow Study and be broken down by hydrograph components as described in the Flow Study and subsequent efforts including the tables requested for last year's proposals. *However*, proposals will include complete hydrographs with balanced water volumes to ensure that specific focal components function within a whole hydrograph. For non-focal components, approximate the ROD hydrographs by default. Draft proposals will identify both completed analyses (data and methods already known and available), and desired analyses (please identify resources needed to accomplish necessary analyses). Proposal drafts will be due to the WG Coordinator by August 8, for distribution to the WG on August 16. You will be provided with a link to the hydrographs previously developed by the Program.

Meeting (August 30): The Flow Workgroup will meet to review the draft proposals, identify common components, guide revision of proposals, and categorize general analyses required by proposals. Revision will include identifying where components from multiple draft proposals might logically be combined to optimize final hydrograph proposals. Identification of needed analyses at the August meeting is requested of the WG to enable planning of those analyses for the coming fiscal year.

Work Activity (August – October): Complete/finalize hydrograph proposals for recombined hydrographs with balanced water volumes, and fully address the combined drivers/objectives/purposes/constraints.

Conference Call (November): Review completed hydrographs, prioritize hydrographs for analysis, and identify further analyses that might be needed.

Work Activity (November – December): Complete analyses of prioritized hydrographs.

Meeting (January): Update drivers for WY2014 hydrograph based on possible water year types and range of available hydrographs. Identify WY-specific fine-tuning .

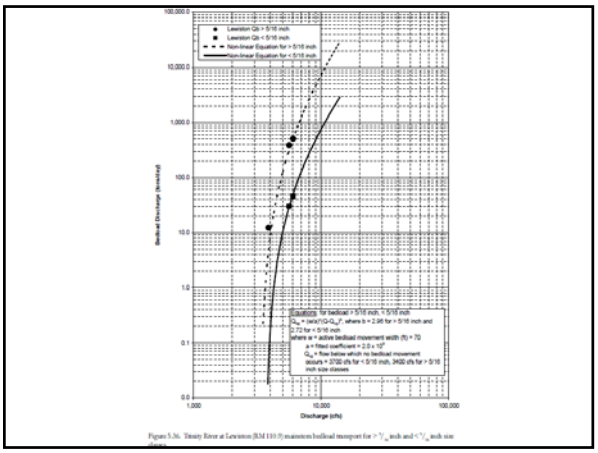
Work Activity (January-February): any action items from January meeting)

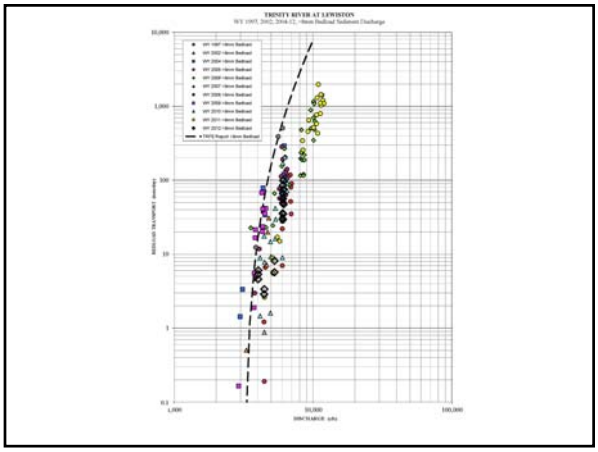
Meeting (ca. Feb. 25th): Determine which hydrographs to forward to TMC and succinctly describe hydrograph priorities (e.g. a decision tree), providing single hydrograph for each of the possible water year types based on current basin hydrology.

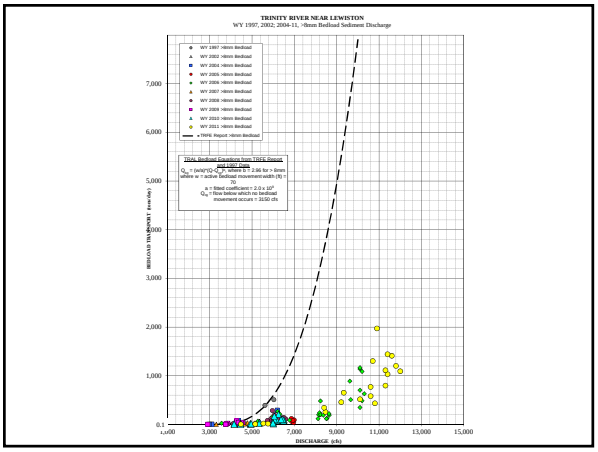
TMC Meeting in March: Review and/or approve Flow Workgroup's hydrographs.

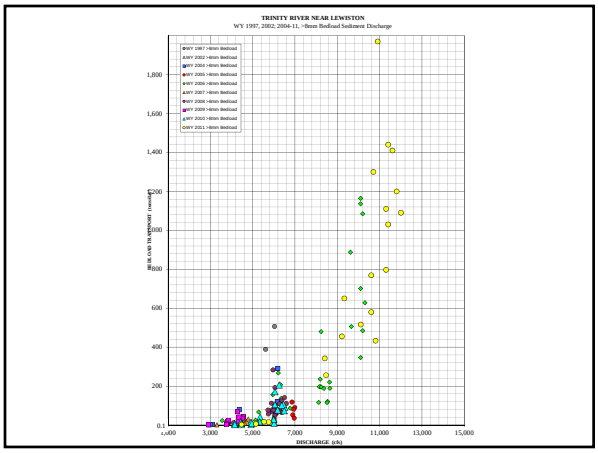
Backup Flow WG meeting in *March*: if TMC requests further technical information from the Flow Workgroup.

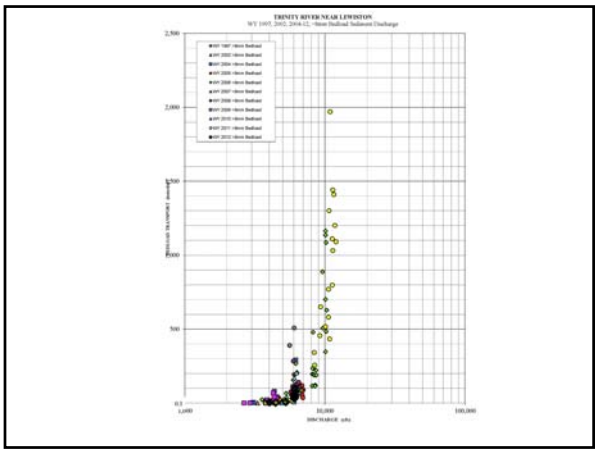
WY14 Sediment Transport Rates

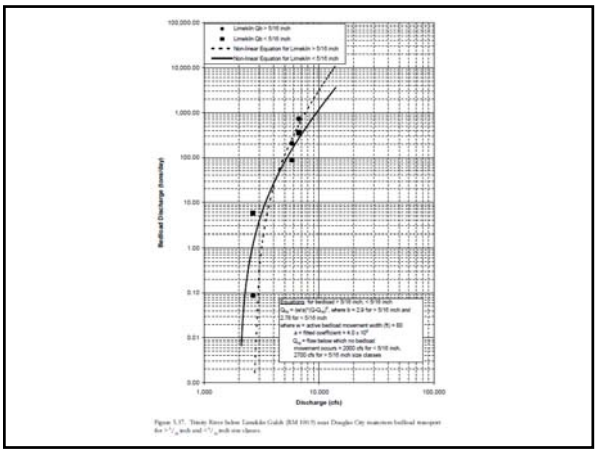


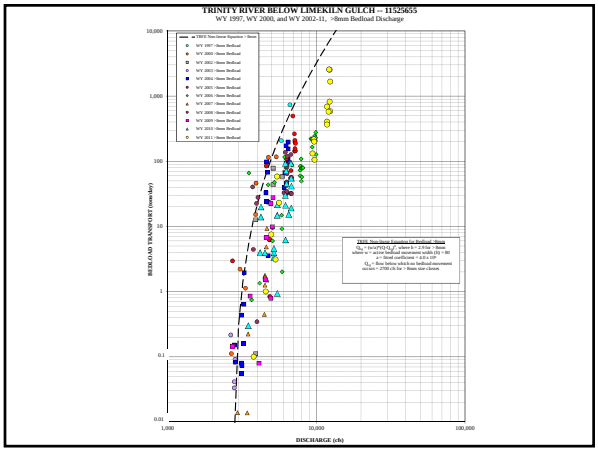


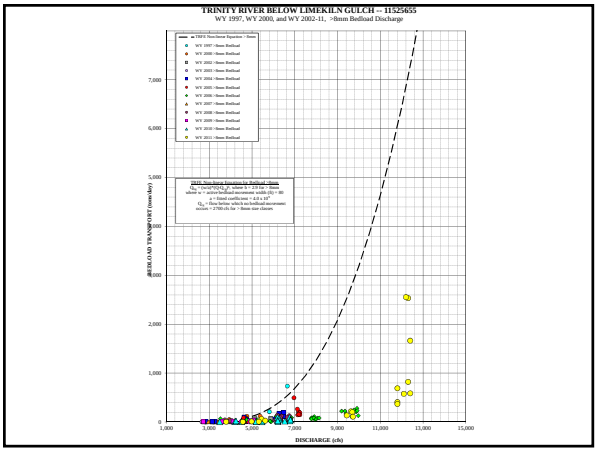




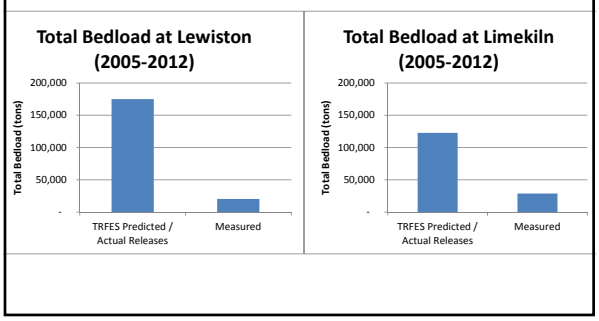


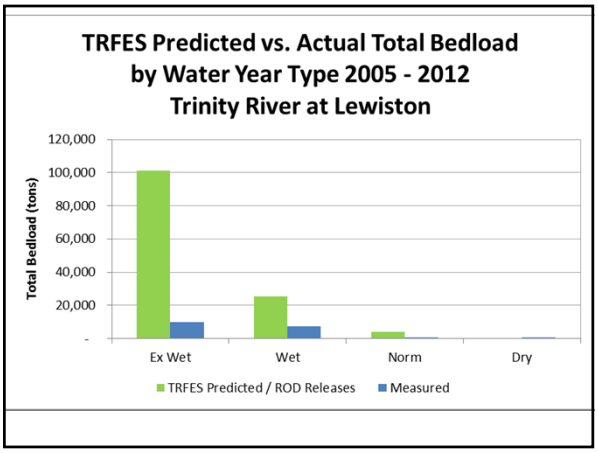


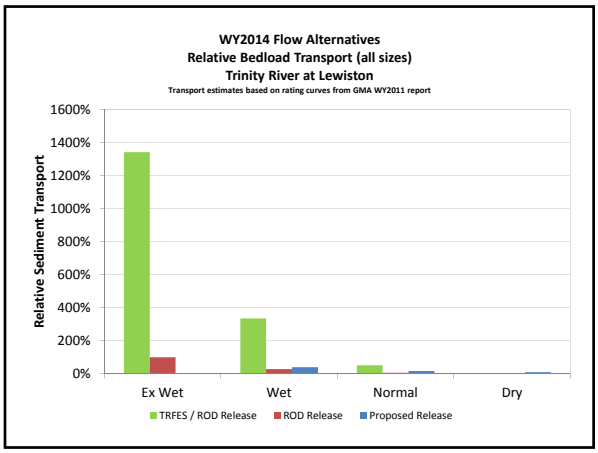


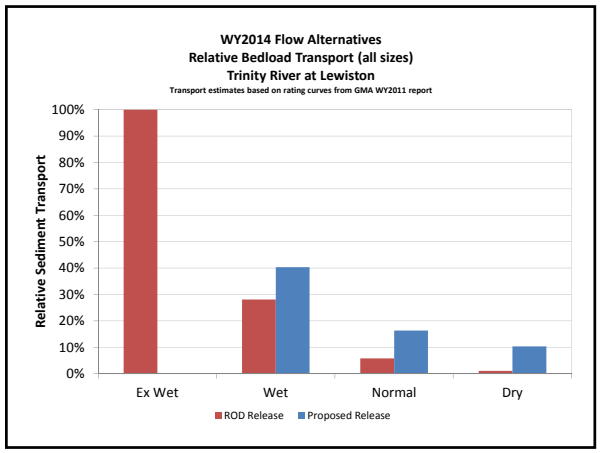


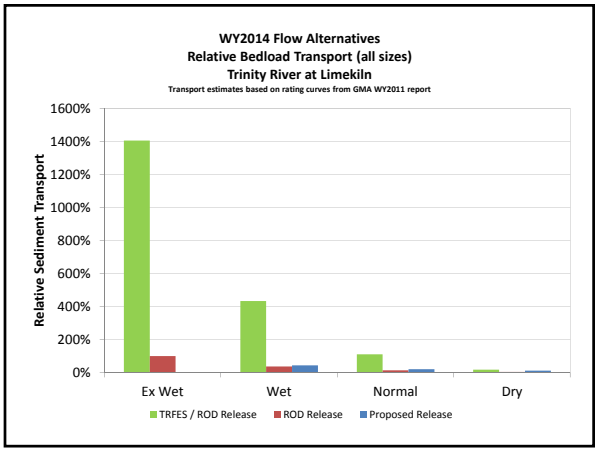
Predicted vs. Actual Bedload

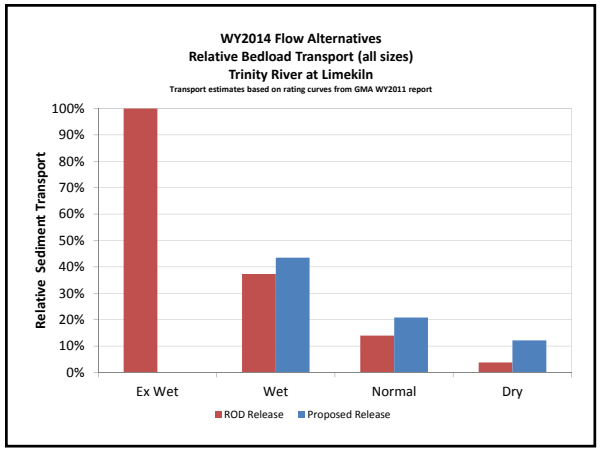





WY2014 Flow Alternatives
Relative Bedload Transport (all sizes)
Trinity River at Lewiston
Transport estimates based on rating curves from GMA WY2011 report
Relative Sediment Transport
1600%
1400%
1200%
1000%
800%
600%
400%
200%
0%
Ex Wet
Wet
Normal
Dry
TRFES / ROD Release
ROD Release
Proposed Release


WY2014 Flow Alternatives
Relative Bedload Transport (all sizes)
Trinity River at Lewiston
Transport estimates based on rating curves from GMA WY2011 report
Relative Sediment Transport
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Ex Wet
Wet
Normal
Dry
ROD Release
Proposed Release


WY2014 Flow Alternatives
Relative Bedload Transport (all sizes)
Trinity River at Limekiln
Transport estimates based on rating curves from GMA WY2011 report
Relative Sediment Transport
1600%
1400%
1200%
1000%
800%
600%
400%
200%
0%
Ex Wet
Wet
Normal
Dry
TRFES / ROD Release
ROD Release
Proposed Release


WY2014 Flow Alternatives
Relative Bedload Transport (all sizes)
Trinity River at Limekiln
Transport estimates based on rating curves from GMA WY2011 report
Relative Sediment Transport
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40%
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20%
10%
0%
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