NOTES | June 28, 2011

Mono Basin Core Working Group Meeting

Prepared by Center for Collaborative Policy

Core Working Group finalized Aug 23, 2011

Key Outcomes

Lee Vining Creek: The Core Working Group determined that Southern California Edison may be able to increase Lee Vining Creek flows by 40cfs during a one-week period to meet Stream Ecosystem Flow peak requirements as defined in the Synthesis Report Lee Vining diversion table. The Core Working Group will continue to investigate ramping issues under sudden changes in flow, with final language regarding ramping rates ready for review in the fall.

Modeling: The Modeling Work Group is moving toward recommending eStream as a primary tool for the Core Working Group and will next conduct verification of Mono Lake level forecast equations. The Core Working Group has agreed to focus efforts on the stream needs and delivering the Stream Ecosystem Flows while the Modeling Work Group will run several modeling scenarios to help the Core Working Group better understand Synthesis Report recommendations. The Modeling Work Group will move forward with these scenarios while Core Working Group members review and sign the terms of the eStream licensing agreement.

Next Meeting: July 13 & 14, 2011, in Sacramento

Topics: Modeling Outputs & Scenarios; Rush Creek; Parker & Walker Creeks

Action Items

Timeframe		Action Items
7/1	Schlafmann	Take high resolution photos of high flow conditions of SCE flows in Mono Basin (in particular, riffles and low-lying flats) and share with group
7/13	All	Sign up for briefing sections
7/13	Coufal	LADWP presentation: operations at Parker and Walker
7/13	Moges	LADWP presentation: overview of Rush Creek operations, including safety issues.
7/13 if possible; otherwise 8/1	Trush	For Special Conditions for Lee Vining, investigate ramping issues: - whether ramping rates need to be specified under both scenarios (run-off events as well as 5-Siphon Bypass) - ramping the diversion - early emergent fry
7/15	All	Have legal counsel review eStream licensing agreement and sign. As needed, convene legal team to discuss areas of concern.
7/19	Parmenter	Have DFG attorney submit comments on charter
7/6 at 9:00	Modeling Work Group	Conference call to determine details of running the scenarios, including consideration of automation in the longer-term.
7/7	Tanaka	Run eStream for (a) base scenario and (b) under physical structural changes (increasing flows in MGORD to 750 cfs) to present at 7/13-14 (share outputs on 7/7 with Peter Vorster for review before vacation)

8/14	Vorster & E. Tillemans	Determine availability of usable dataset for 1976-1979; if usable, run the data.
8/15	Modeling Work Group	Determine: potential to bring back to an 8-year event (Synthesis Report, p. 78); modeling approaches for Parker/Water diversions (under the 98-05 rules)
8/15	Moges & Reis	Define parameters of what to model for SCE operations
9/1	Schlafmann Parmenter Vorster Trush	Determine that SCE 40cfs flows on Lee Vining contributes significantly to hitting flows for 1-week period on Lee Vining diversion table (possibilities are to develop a spreadsheet) before asking SCE to change operations formally
done	Bartlett	Confirm Barbara Evoy's presence at 7/13 SWRCB briefing
done	Bartlett	Confirm time of Monitoring Work Group meeting: July 19th or 20th,
done	Martin	Add language about fish monitoring to Special Conditions for Lee Vining Conduit (Martin, 6/23/11)
done	Bartlett	Preparation for 7/13 SWRCB briefing: draft meeting agenda, talking points for group, briefing packet with key documents
done	Bartlett	Incorporate edits to Special Conditions for Lee Vining Conduit Operations (Martin, 6/23/11)
done	Pau	Circulate licensing agreement to MLC, DFG, California Trout
done	Bartlett	Incorporate edits to May 17 Meeting Summary and send to SWRCB for posting

LADWP Report on Current Flow Conditions

LADWP is in its first year of implementing the Stream Ecosystem Flows (SEF) in the Mono Basin. Rush Creek and Lee Vining Creek flow conditions are high. Very few years compare to this spring's flows. SEF changes at Lee Vining Creek are occurring as planned, and no water is going into the conduit due to the high flows. Operations at Rush Creek are running smoothly although the big test will be in a couple of weeks when larger flows arrive. On July 7, LADWP will put 380cfs in the MGORD (return ditch).

SCE Flows / Releases to Lee Vining Creek

Dan Golden and hydrologist Vince White from Southern California Edison (SCE) attended the meeting to explore SCE's operations on Lee Vining Creek. As the FERC license for Lee Vining Creek specifies only a minimum flow requirement (and no maximum), there may be flexibility to modify the management or timing of the creek's peak flows to meet SEF requirements.

Current Flow Regime

Each April, SCE and USFS decide on a flow regime (revisited in August) designed to maintain a riparian corridor between Saddlebag and Ellery Lakes. A typical SCE spring release for Lee Vining Creek is a range of 9 - 14cfs. SCE's maximum potential release is 40cfs, as determined by the capable bypass flow through the Saddlebag bypass outlet. For 2011, SCE and USFS agreed to release Lee Vining Creek flow at 40cfs (SCE's maximum capacity and, until a few weeks ago, the natural flow rate) due to high flows and plans for scheduled maintenance. This regime has been in effect since early April. SCE's goal has been to pass as much of the water as possible at 40cfs and anticipates that these 40cfs maintenance flows will

remain until the fall. During the peak (around June 23-24), the flows passing out of Tioga and Saddlebag were around 65cfs.

Constraints and Considerations that affect SCE Capacity to Modify Flow

- SCE's primary concern is **public safety**, followed by **facility protection** and then **power generation**. SCE decisions are driven by the need to prevent uncontrolled discharge that could threaten public safety. SCE foregoes power generation to meet public safety and facility' protection.

- **Peak patterns on Lee Vining Creek**. Due to step drainages within the basin that release flows at different times, Lee Vining Creek has several peak flows. Snowpack between Ellery and Tioga Lakes typically causes the first peak, with higher-elevation snowmelt usually responsible for the second peak.

- To **maintain riparian habitat in Upper Lee Vining Creek**, SCE must shift the flow around. There have been very few years in which SCE has had to shift the flow as much as in 2011. According to SCE's agreement with LADWP, SCE is allowed to carryover 5% for storage.

- **Outlet capacity**: SCE is limited by the capacity of its outlets, which are small and few (one each on Saddlebag and Tioga) and restrict the amount of water that SCE can pass from Saddlebag and Tioga. One remedy that SCE had this year was to release higher flows than normal earlier on Saddlebag, which resulted in higher flows in Lee Vining Creek in April and May.

- **Saddlebag Lake** presents operational constraints due to its large size and the fact that it rarely fills (last occurrence was 1983). As SCE cannot spill natural flows from Saddlebag (and as natural flows in this part of the drainage are insubstantial anyway) without 2 consecutive wet years. SCE has limited flexibility in timing peak flows and spill discharge with its reservoirs. The only way for SCE to modify flow is through collaboration with LADWP, and only then in cases where SCE feels that it is safe to bring Tioga to spill. Other constraints on Saddlebag are (1) the very limited timeframe within which SCE can conduct maintenance (fall only), and (2) the fact that the Saddlebag drainage culverts (maintained by the County) are currently full.

- The limited storage capacity at **Tioga Lake** presents additional constraints. SCE's primary concern is controlling flows and cutting a channel between the reservoir and Tioga Pass Resort. Melting – and subsequently passing – the ice on Tioga Lake is a key public safety issue and concern. SCE avoids snow and ice coming over the spillway. Standard procedure for high flow situations is to bypass natural flows (40-50cfs) in the reservoir until the channel has been cut, after which SCE shuts the outlet to fill Tioga. Tioga's limited storage capacity restricts SCE flexibility in cutting the channel.

Potential Solutions

There may be an opportunity to release 30-40cfs on Lee Vining Creek to meet SEFs for the 1-week period required on the Lee Vining diversion table, at least during wetter years. If the group can confirm that 40cfs would contribute significantly to meet the SEF requirements, SCE is open to considering this option. In order to determine this:

- USFS and DFG will have to assess the effects of a 40cfs flow on habitat in Upper Lee Vining Creek. There is a data gap regarding biological impacts, which are expected to be more significant in the late summer. Once DFG and USFS determine these impacts, USFS can present concerns to SCE for consideration when USFS and SCE establish flow regimes. The Monitoring Work Group should consider this as part of its agenda.

- SCE and LADWP could coordinate timing so that an unimpaired Tioga spill occurs during the proposed period where Saddlebag is unimpaired.

Next Steps - by July 1

- Mike will take high-resolution photos of high flow conditions of SCE flows in Mono Basin (in particular, riffles and low-lying flats) and share with group

- The Modeling Work Group will determine the potential to bring back to an 8-year event regarding the flood and timing aspect. (Synthesis Report, p. 78)

- The Modeling Work Group will determine whether SCE 40cfs flows on Lee Vining Creek could meet SEF needs. The group may develop a spreadsheet as needed.

- The Core Working Group will have to determine if it wants to formally request the change for 40cfs and what changes are required for the FS and FERC permits.

Lee Vining Creek – Operations under Special Circumstances

LADWP presented additional language addressing ramping rates under special circumstances: high flows while in diversion mode and 5-Siphons Bypass operations (See *Special Conditions for Lee Vining Conduit Operations*, Martin, 6/23/11). The earliest that DWP would be able to install a bulkhead into the Lee Vining Conduit is October. A final draft of the document will be ready for attorney review in late fall.

Next Steps - by July 21

- Dave will add language about moderating flows for the safety of fish monitoring.

- Gina will make text edits to the paragraph on high flows while in diversion mode:

    - *Lines 1-2*: substitute 'run-off event' for 'rain or snow event or thunderstorm'

    - *Line 6*: substitute 'stream environment' for 'fishery'

- Bill will investigate ramping issues under sudden changes in flow: whether ramping rates need to be specified under both scenarios (run-off events as well as 5-Siphons Bypass), ramping the diversion, and consideration of early emergent fry.

Modeling Considerations

For a detailed report on the outcomes of the Modeling Work Group meetings to date, see *Modeling Work Group Presentation to the Core Working Group* (June 28, 2011).

Key Findings and Actions of the Modeling Work Group (MWG)

- The MWG is moving toward recommending eStream as a primary tool for the Core Working Group, as eStream is the tool that is most promising for the Stream Ecosystem Flows (SEFs). The eStream model specifies operational rules to develop daily flows in each stream. Before finalizing this recommendation, the MWG needs to conduct verification of Mono Lake level forecast equations.

- In its evaluation of eStream and the Stream Scientist Models, the MWG found that when both models were run with the same inputs and assumptions, they generated the same outputs. Discrepancies (in particular regarding storage volumes for Grant Lake) were due to differences in how evaporation rates were incorporated. Once this difference was eliminated, the two models' outputs were quite similar.

- The MWG has made the following refinements and modifications to eStream (see p. 4 *Modeling Work Group Presentation to the Core Working Group*) and updated the user's guide to reflect changes:

Proposed Refinement / Modification	**Status**	**Priority Level**
Incorporate daily flow data back to 1980	Complete. MWG will also incorporate daily average flows from 2009-2010.	High
Incorporate downstream constraints on exports	MWG decided this is not necessary, as there are no downstream constraints to the Los Angeles Aqueduct.	High
Specify year-types by another method	Users specify a total volume of flow.	High
Incorporate Mono Craters Tunnel capacity limit	Complete.	High
Add April 1 Mono Lake levels to output	Complete.	Medium
Add monthly summary to output	Complete.	Low
Add May 1 year-type forecast	Complete. This will provide increased flexibility by allowing adjustments to be based on April or May.	Low
Add spillway rating curve	Complete. No routing or lag in these models. Everything assumed to happen the same day.	Low

Input from the Core Working Group

In considering whether to model the D1631 and 98-05 flows and compare outputs to SEFs (i.e. re-run the modeling to propose lake levels and export), the Core Working Group agreed that this type of data comparison was not a priority within the mandate and time constraints of the facilitated process. As the Stream Scientists developed scenarios to restore streams to pre-1941 conditions (and did not consider their impact on water export or Mono Lake levels), the focus of this process should remain on the stream needs and on delivering the SEFs in the near term. The group acknowledged that Mono Lake levels and exports are an important consideration and suggested that the State Board may want to review this data in the future (i.e. 2014).

A priority for the MWG will be to resolve the difference in acre-feet in the models, in particular regarding evaporation and losses in Grant Lake Reservoir. While some group members estimate a gap of 8,000 – 10,000 acre-feet, not all are convinced that this is accurate. The group agrees on the need to resolve this prior to refining equations for the lake.

Modeling Scenarios

The MWG will run the following modeling scenarios in eStream to help the group begin understanding the impacts of different recommendations:

1. **Base scenario under SEF rules with existing facilities**. The MWG will run the model with and without the 5-Siphons Bypass to determine the potential to use the 5-Siphon Bypass during peak flows.

2. **Scenario under Grant physical changes**. This scenario will modify the base case to have additional output capacity and consider the impact of increasing flows in MGORD to 750cfs. (How capacity is reached to be determined.)

3. The modeling will help the Core Work Group evaluate whether it is possible to deliver SEF flows on Rush Creek and Lee Vining Creek without drawing Grant Lake below the minimum threshold.

The Core Working Group and MWG will also consider the following analyses over time:

- **Modeling Parker and Walker diversions under the 98-05 rules**. If the Core Working Group is interested in pursuing this further, it will have to determine the specific factors (i.e. environmental factors, effects on streams, temperatures) to include in the modeling. Of particular interest is the potential effect of changes in flow on stream habitat and ecology. (Synthesis Report Table 3.1) This would change the Stream Scientist recommendations and have to be evaluated.

- **Parameters of what to model for SCE operations.** As SCE flows impact LADWP management options, it will be important for the model to incorporate SCE operations. The MWG will define these parameters and present them to SCE.

- **Incorporate climate change** in the scenarios, given that projections are for 50 years.

- **Automate the longer-term**. Automation presents challenges (due to technical issues that arise with different versions of Excel) but may be feasible.

- **Modify hydrology.** (p. 3 *Modeling Work Group Presentation to the Core Working Group*). The Core Working Group will consider development of synthetic hydrology at a later date. The Modeling Work Group will determine the availability of usable dataset for 1976-1979 and run the data if possible. By capturing the extremes of a very dry and very wet period, inclusion of this data will help assess variability in Grant Lake levels.

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Licensing

LADWP clarified issues pertaining to the eStream licensing agreement:

- The agreement is between LADWP / Watercourse and individual users (rather than organizations). If there are multiple users from the same organization, each user must sign the agreement.
- All users can use the model to generate results and present them to the Core Working Group for discussion. Users may also share the results internally with others at their organization. Any derivative or results generated from the model belong to the City of Los Angeles.
- To avoid the issue of individual users presenting competing results to the public, no results may be shared with the public while the Mono Basin facilitated process is underway (at least until June 2012 or when the final agreement is submitted to the SWRCB). LADWP has not yet determined how data generated from eStream may be shared with the public once the Mono Basin process has concluded.
- Any results that are discussed at Core Working Group meetings may be included in the Meeting Summaries.

The parties interested in using eStream are Mono Lake Committee, Department of Fish & Game, and California Trout. The parties would like more clarity around public use of the data once the Mono Basin facilitated process has concluded.

The group agreed that it needs additional time to review the agreement and that, until all agreements are signed and individual users authorized to generate results, the Modeling Work Group will move forward with running scenarios.

Next Steps

- Have legal counsel review eStream licensing agreement and sign.
- As needed, convene legal team to discuss areas of concern.

Document Review

May 17 Meeting Notes

Gina will add Mark Drew as a member of the Monitoring Work Group (p. 4) and send the revised document to the SWRCB for posting.

Agenda Items Not Addressed

Parker and Walker Operations – Presentation and Discussion

Due to time constraints, this was rescheduled for the July 13th meeting.

Revised Charter

The group will review the Charter at the July 21st meeting, after DFG's attorney has had a chance to review it.

Calendar Update and Future Meeting Preparation
Upcoming Work Group Meetings

Work Group	Date & Time	Location
Modeling	Wed, July 6, 9:00-10:00	Conference Call 800-509-6344 Code: 6049721# https://www2.gotomeeting.com/join/392751954
Modeling WG welcome to join Core Working Group	July 14, 8:30-11:30, will discuss modeling runs if you wish to attend (Note: the Core Working Group is meeting July 13-14)	CCP, 815 S Street
Monitoring*	July 20 in the afternoon	Mammoth Lakes at Mark Drew's Office
Modeling	August 15th (1:00-4:30) through August 16th (8:00-12:00)	CCP, 815 S Street

*Due to the change in the Monitoring Work Group's schedule, the group will no longer present monitoring outcomes at the July 13-14 meeting as originally planned.

July Core Working Group Meetings

July 13 & 14

Primary Topics

1) Modeling Work Group will present modeling outputs for 2 scenarios

2) LADWP will present an overview of its operations at Parker and Walker Creeks, addressing the current management scenario and related issues.

3) LADWP will present an overview of its operations at Rush Creek, addressing the current management scenario, safety considerations, and related issues.

Secondary Topics

- General discussion of hydrographs, including those that the Stream Scientists used to arrive at recommendations. Discussion will address: unimpaired hydrographs, pre-1941 hydrographs, and obligations under the Decision and Orders, as well as hydrographs related to SCE operations.

- Lee Vining ramping

- Special considerations on Lee Vining Creek: fish monitoring

Priority Review

- Synthesis Report
- LADWP Feasibility Report

Other Background Materials

- Appendices to the Synthesis Report
- GLOMP/Rush Creek (optional)

Attendance

IN PERSON

Gene Coufal, Los Angeles Department of Water and Power (LADWP)
Lisa Cutting, Mono Lake Committee (MLC)
Mark Drew, California Trout
Dan Golden, Southern California Edison (SCE)
Ali Karimi, LADWP
Dave Martin, LADWP
Geoff McQuilkin, MLC
Bruk Moges, LADWP
Steve Parmenter, Dept. of Fish and Game
Paul Pau, LADWP
Mike Schlafmann, Inyo National Forest
Stacy Tanaka, Watercourse
Eric Tillemans, LADWP
Peter Vorster, MLC
Vince White, SCE

BY PHONE

Greg Reis, MLC
Darren Mierau, McBain & Trush
Bill Trush, McBain & Trush

Facilitator Gina Bartlett, Center for Collaborative Policy (CCP)
Note-taker Hannah Murray (CCP)