Jeff et al.,

Thanks for coming over yesterday afternoon to continue the conversation regarding the draft proposed Shasta RPA amendment and associated workshop #4. Below is a summary:

Attendees: Jeff Rieker, Randi Field, Josh Israel, Nancy Parker, David O'Connor, James Gilbert, Barb Byrne, Evan Sawyer, Garwin Yip

Modeling of the draft proposed Shasta RPA amendment:

- Various modeling results slides from a 50+ slide PowerPoint presentation were shown.
- Modeling:
  - CalSim:
    - Base "Current Operations" scenario: CalSim was adjusted to reflect current operations, which includes implementation of TUCP actions in the Delta in the driest Critical years. Folsom operations were not adjusted. CalSim, which is an operations model with a monthly time step, reflects storages, reservoir releases, and contract allocations based on the historical hydrologic record.
    - "Shasta amendment" scenario: Inputs were the peak spring storage targets, end-of-September storage requirements, and monthly Keswick release schedules.
  - Outputs of CalSim were input to the temperature model, which utilizes TCD gate changes to try to meet 53°F daily average temperature (DAT) at CCR.
  - Outputs of the temperature model were input into the temperature dependent mortality model.
- Results of the "Shasta amendment" scenario model run indicated that:
  - Spring and end-of-September Shasta Reservoir storage volumes cannot be met for all years. Of particular concern are those dry and critically dry years following dry periods that span multiple years. "There just isn't enough inflow to meet storage targets (Randi Field)."
  - Modeling indicated that there would be more flood/reservoir management releases resulting from the high Shasta storage targets. Some of that increased spill could be diverted or would help to meet flow or water quality standards, but some would be what Reclamation terms "unusable spill."
  - Based on the modeling, implementation of the Shasta RPA amendment did not meet the temperature-dependent mortality objectives during a portion of the years. However, there was reduction in temperature dependent mortality, particularly in the Dry and Critically Dry year types, in the "Shasta amendment" scenario compared to the "Current Operations" scenario.

Next steps for modeling:

- Reclamation will work on a report that walks through the modeling effort, to include the assumptions going into the model runs (including the details of the base run and Shasta amendment run), and explanation of the outputs.
- NMFS requested that Reclamation try to model Shasta Reservoir storages needed in the spring and end of September in order to support/meet 53°F DAT at CCR throughout the temperature management season.

Water year 2018:

- Looks like another pilot study year is in order to further model and fine tune an amendment
- Reclamation and NMFS agree to continue to evaluate a 53°F DAT at CCR operational target as a biological surrogate for the most downstream WR redd.

Science and monitoring workplan:

- Distributed for agency management review
- Should be distributed to the Shasta workshop e-mail list for review and comment as soon as we have management support. No need to wait until workshop #4.
- Request for stakeholder input would not be for additional management questions (although we would not turn them down), but rather, ask for specific study ideas that would help answer any given management question.
    - Josh and Evan will provide further guidance on what type of information is being requested.

Next steps:

- Jeff: Confirm January 26, 9 a.m.-12 p.m. for Shasta RPA amendment workshop #4, to include a Google calendar invitation and "save-the-date" e-mail to the list of interested folks, and to look for a venue to have the workshop.
- Garwin and Jeff: After confirmation of the January 26 workshop, identify two dates to have NMFS/Reclamation pre-meetings.
- Upon receipt of management support for the science and monitoring workplan, distribute widely for comments.