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Sent: Friday, March 22, 2019 10:36 AM
To: Cathy Marcinkevage - NOAA Federal; Garwin Yip - NOAA Federal; Evan Sawyer - NOAA Federal; Howard Brown - NOAA Federal
Cc: Maria Rea - NOAA Federal
Subject: Shasta modeling meeting - March 22

Notes for *Shasta modeling meeting*:

1. Meeting summer temperature thresholds as monthly averages (exceed roughly 50% of time) this is very different than how current RPA is written as do not exceed. Make sure PA is clear. Will the temperature threshold be implemented as a monthly average? If so, do we have the correct predictions of temperature dependent mortality?
 2. I believe Katrina's response says that predictions of how frequently tiers will be attained is based on CalSim's "Perfect foresight" and that tier 1 will be attained 75% of years - - but then says real frequency will be "slightly less" due to perfect foresight - is this accurate? How much less if using 90% exceeded expectations ? (Separately, I couldn't find if 90% exceedence is being used to decide on tiers).
 3. Forecasting 4.0 on May 1st- - what are they using to make these forecasts? 90% in which month? Any more "real-time" forecast information from NOAA being considered?
 4. Why May 1st for 4.0 target. This seems very early in season for storage target, and will have effect of minimizing relationship between storage and cold water. June 1 or July 1 are also relevant to evaluate.
1. CalSim- Have they modeled the COS correctly in dryer years?
 - A. Is it coded for cutting all non discretionary deliveries?
 - B. For meeting Delta demands through Folsom and Oroville and export reductions first before drawing on Shasta storage?
 - C. For Wilkins going down to 4000? (Rather than 5000 cfs)
 - D. For Keswick flow releases in June, July being limited? For example in drought years, we implemented maximum releases of 7500 cfs in June and July under the current RPA. Is this coded in correctly?
 - E. The current RPA allows for flexible locations of temperature compliance from Clear creek to Jelly's Ferry. What does the COS temperature modeling output assume about choices in compliance location? Choosing an artificially downstream compliance location could result in modeled temperature dependent mortality that wouldn't be implemented in real life.
 1. Comparison of COS and PA - if coded correctly, we would expect to see change in June and July storage, due to factors in current RPA to build storage in dry scenarios, that are not carried over in the PA (see #5 above). Do these results show up in the CalSim comparison? Why or why not?
 1. Predicting temperature dependent mortality for each operational tier - -I realize there is an "exceedence plot" but to beak this down further, it would be very helpful for SWFSC to predict temperature dependent mortalities for each of four tiers, to evaluate this plan of operation. This evaluation might allow for allowing some tiers to move forward and some not

(requiring reinitiation), depending on predictions. With the tiers rolled up together, it doesn't allow for a full evaluation of the deconstructed action.

1. Does the PA CalSim modeling show that any discretionary contract deliveries will be shorted in years where it is dry? Katrina's response makes it sound like contracts will never be shorted to preserve storage. Is this correctly modeled?

Norma Hinton for Maria Rea

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