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Sent: Sunday, April 7, 2019 10:29 PM

To: Derek_Hilts@fws.gov

Cc: Evan Sawyer - NOAA Affiliate; Garwin Yip; Howard Brown

Subject: NMFS ROC LTO Shasta Analysis

Derek --

Happy (?) Monday!

In preparation for the Tuesday 4/9 3 pm call with Maria, SWFSC, and some of us re: Shasta operations and effects in the ROC LTO, I have some materials to pass on.

As you know, Maria has some key aspects on her mind given her experience. One in particular is concern that the inability to short discretionary contract deliveries (since it is NOT included in the COS modeling) discounts the effect of Reclamation proposing to NOT short those deliveries in the PA. Evan is finding it challenging to describe those deliveries in an exposure-risk-response way (or even measure them since they're not described in the BA). Evan is thinking that making (or, flipwise, shorting) the discretionary contract deliveries would affect Reclamation's ability to build storage. This would affect the Tier for summer ops, and could therefore be captured in the modeling by how often Reclamation expects to be in each Tier. The effects to species are then dependent on the operational Tier -- so maybe that's how to get at "exposure".

Evan's not quite sure how to go at this, but we were thinking maybe you and he could try to talk through it. An idea he had would be to know or plot the May 1 Shasta storage against the quantity (or proportion) of discretionary allocations. This could tell us for a given allocation what the likelihood of achieving a particular May 1 storage is (and what the summer management Tier would be) which ultimately gives us the exposure and risk to species. Does CalSim track the discretionary allocation amount?

You don't have to figure this out by Tuesday, I'm just setting it up based on recent chatter.

To hopefully also help with the conversation, I've attached Maria's markup of the Shasta division effects analysis as of Friday. Her comments on the first half are what I think are most useful for you to read to potentially increase your read on her concerns. While not a biologist, can you take a look at this to see if you can offer some potential ways for NMFS to look into these concerns?

Let us know if you want to touch base about these before the call. Otherwise, talk to you on Tuesday.

Thanks - Cathy