From: Evan Sawyer - NOAA Federal <evan.sawyer@noaa.gov>

**Sent:** Wednesday, April 10, 2019 12:06 PM **To:** Miles Daniels - NOAA Affiliate

Cc: Eric Danner - NOAA Federal; Cathy Marcinkevage - NOAA Federal; Garwin Yip - NOAA

Federal

**Subject:** Re: Summary/abstract on your IEP spring pulse/summer temp talk?

Hi Miles,

Thanks, but yeah that doesn't provide much more information.

After looking, I found your IEP presentation which Katrina Harrison (@ BOR) had forwarded to me. Could you (with supervisor approval) provide some detail on slides 6 and 7? Also would it be alright to use the figures on those slides (they say draft preliminary results <-- which is ok to use in a BiOp)?

Can you help explain slide 6 and 7 where you have figures of "Pulse water cost" and "winter-run egg survival" and how you got the results? Some specific questions:

- (slide 6) I don't understand what is meant by "water cost associated with sensitivity to pulse start date"?
- (slide 7) Are the survival/mortality results based on the change in survival caused by the change in Shasta storage associated with the pulse volume? For example in 2012 (BN) it looks like the mean pulse water cost would be ~26 TAF and the change in mean WR egg survival is a little less than 2%, is the change in survival just because of the ~26 TAF change in storage? Is that for a particular date of storage?
  - This may also be important as we're also trying to assess the relative effect of Reclamation's allocation of the (discretionary) agricultural service contracts which have a relatively small impact on Shasta storage but maybe (looking at your figures) could have an impact on temps/survival?

Thanks, Evan

On Wed, Apr 10, 2019 at 10:57 AM Miles Daniels - NOAA Affiliate < miles.daniels@noaa.gov > wrote: Hi Evan,

Attached is the IEP abstract, but it does not provide much detail. Let me know if you want more details or to talk about it more.

-Miles

On Wed, Apr 10, 2019 at 9:29 AM Evan Sawyer - NOAA Federal < evan.sawyer@noaa.gov > wrote: Hi Miles,

Do you have a summary or abstract for your IEP presentation on the relation between a spring pulse and summer storage/temp? I had included some information based on the presentation slides and our discussion of them but Maria is asking for some more details including any figures (apologies I know you sent me the presentation but I can't seem to find it atm).

## Thanks, Evan

## Evan Bing Sawyer,

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