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**From:** Barbara Byrne - NOAA Federal <barbara.byrne@noaa.gov>  
**Sent:** Thursday, April 25, 2019 3:25 PM  
**To:** Joe Heublein - NOAA Federal  
**Cc:** Brian Ellrott - NOAA Federal  
**Subject:** Re: Uncertainties

Here's what I'll include unless I get edits/additions from either of you.

### American River

- Based on the information provided in the ROC on LTO BA, reliance on an undefined planning minimum, and undefined future operations and resultant water temperatures associated with the planning minimum, it is unclear:
  - how well the modeled flows and temperatures capture PA conditions that implement the Water Forum proposal, and
  - whether Reclamation will consistently achieve the water temperature standards described in the BA.

The effects analysis for the American River Division thus has some uncertainties embedded in it.

- The level of detail provided in the BA for the “Drought Temperature Management” measure (*“Reclamation proposes to evaluate and implement alternative shutter configurations at Folsom Dam to allow temperature flexibility”*) is not sufficient to evaluate effects on CCV steelhead.

On Thu, Apr 25, 2019 at 2:29 PM Joe Heublein - NOAA Federal <[joe.heublein@noaa.gov](mailto:joe.heublein@noaa.gov)> wrote:

You two know this stuff better than I do but it seems like the main uncertainty in the PA is how close the modeled temps and flows will be to reality with implementation of 2017 agreement and the planning minimum. As far as effects go, the modeled PA and the COS are pretty similar so if the modeling is accurate you can look at how steelhead did over the last decade and get a pretty good idea of effects under the PA.

-Joe

On Thu, Apr 25, 2019 at 2:18 PM Barbara Byrne - NOAA Federal <[barbara.byrne@noaa.gov](mailto:barbara.byrne@noaa.gov)> wrote:

Sarah just asked GARwin that, and his response was "uncertainties in the effects analysis, but could be driven by uncertainties in the PA". So, both, it seems. Howard's context seems to be adaptive management, which lends itself to fixing certain kinds of uncertainties, but I'm still gonna include some process uncertainties from the Stan, like uncertainty about what the regulatory flow requirement for hte SJR will be come Jan 2020. If not what he's looking for, he can cut it.

On Thu, Apr 25, 2019 at 2:13 PM Brian Ellrott - NOAA Federal <[brian.ellrott@noaa.gov](mailto:brian.ellrott@noaa.gov)> wrote:

Thanks Barb! Looking for uncertainties with the PA, our effects analysis on the PA, or both?

On Thu, Apr 25, 2019 at 2:09 PM Barbara Byrne - NOAA Federal <[barbara.byrne@noaa.gov](mailto:barbara.byrne@noaa.gov)> wrote:

FYI -- Howard looking for Division uncertainties; suspect he left you off to you can either focus on I&S or just take a breath.

Unless I hear otherwise that you have time and inclination to do it, **I will pull what I think are key uncertainties for the American River** from the Effects analysis and sufficiency review worksheets.

----- Forwarded message -----

From: **Howard Brown - NOAA Federal** <[howard.brown@noaa.gov](mailto:howard.brown@noaa.gov)>

Date: Thu, Apr 25, 2019 at 2:03 PM

Subject: Uncertainties

To: Sarah Gallagher - NOAA Federal <[sarah.gallagher@noaa.gov](mailto:sarah.gallagher@noaa.gov)>, Barbara Byrne <[barbara.byrne@noaa.gov](mailto:barbara.byrne@noaa.gov)>, J. Stuart <[j.stuart@noaa.gov](mailto:j.stuart@noaa.gov)>, Evan Sawyer - NOAA Affiliate <[evan.sawyer@noaa.gov](mailto:evan.sawyer@noaa.gov)>, Cathy Marcinkevage <[Cathy.Marcinkevage@noaa.gov](mailto:Cathy.Marcinkevage@noaa.gov)>, Garwin Yip <[garwin.yip@noaa.gov](mailto:garwin.yip@noaa.gov)>

Sorry for this late-in-the-day request, but I am hoping you folks might be able to pull together a short list of key uncertainties from your effects analysis drafting. I am meeting with Reclamation and FWS tomorrow to discuss adaptive management and it would be more than helpful to get your latest views on uncertainty. I suggest now more than key uncertainties per division. Short bullet points would be perfect. COB today would be ideal!

Thank you!

Howard

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**Howard L. Brown**

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