

---

**From:** Evan Sawyer - NOAA Federal <evan.sawyer@noaa.gov>  
**Sent:** Tuesday, April 2, 2019 3:50 PM  
**To:** Eric Danner - NOAA Federal  
**Cc:** Cathy Marcinkevage - NOAA Federal; Garwin Yip - NOAA Federal; Howard Brown - NOAA Federal; Barbara Byrne - NOAA Federal  
**Subject:** Re: Physical drivers

Hey Eric,

Thanks for this. I have a couple of interpretations and questions:

- How would I describe these figures? Is it average difference (COS v PA) in Shasta storage (or Y-axis variable) by month and WYT over the course of the 82 year CalSim II record.
- Where does the increased Shasta storage come from? Shasta storage (page 2) shows an increased average storage Jan - May (maybe even all year) for BN, D and C years, as well as large storage increases Sept - Dec of W and AN years. But Keswick flows (page 4) only shows a decreases in flow (which I'm assuming as a surrogate for Shasta releases) in September and November of W and AN years. Is all the storage benefit "built" by reduced flows in September and November of W and AN years? Asked another way, for the COS what drives the high releases in September and November of W and AN years? I've heard the decreased September and November flows are attributed to Reclamation not implementing a fall X2 but I don't know? If that's the case though, recent discussions between FWS and Reclamation regarding adding back in a Fall X2 or an alternative could be problematic because it would "use" this water because it could potentially wipe out the Shasta storage benefit.

Thoughts on questions/interpretations?

Thanks,

Evan

On Tue, Apr 2, 2019 at 2:12 PM Eric Danner - NOAA Federal <[eric.danner@noaa.gov](mailto:eric.danner@noaa.gov)> wrote:

Hi Cathy and Evan.

Attached are updated plots and data that also include Shasta storage and Keswick release volume for the PA and COS.

Eric

--

Eric Danner, Ph.D.  
Supervisory Research Ecologist  
Fisheries Ecology Division, Southwest Fisheries Science Center  
110 McAllister Way  
Santa Cruz, CA 95060  
831-420-3917  
<http://swfsc.noaa.gov/>

--

Evan Bing Sawyer,  
Natural Resource Management Specialist  
*NOAA Fisheries West Coast Region*  
*U.S. Department of Commerce*  
Office: (916) 930-3656  
[Evan.Sawyer@noaa.gov](mailto:Evan.Sawyer@noaa.gov)  
[www.westcoast.fisheries.noaa.gov](http://www.westcoast.fisheries.noaa.gov)

