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**From:** Eric Danner - NOAA Federal <eric.danner@noaa.gov>  
**Sent:** Tuesday, March 19, 2019 9:32 AM  
**To:** Miles Daniels - NOAA Affiliate  
**Subject:** Fwd: Seasonal habitat capacity

Miles - any idea what is happening in the Yolo in summer? Not worth spending any time on this, but if there is a simple explanation...

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

From: **Evan Sawyer - NOAA Federal** <[evan.sawyer@noaa.gov](mailto:evan.sawyer@noaa.gov)>  
Date: Mon, Mar 18, 2019 at 9:43 PM  
Subject: Re: Seasonal habitat capacity  
To: Eric Danner - NOAA Federal <[eric.danner@noaa.gov](mailto:eric.danner@noaa.gov)>  
Cc: Cathy Marcinkevage - NOAA Federal <[cathy.marcinkevage@noaa.gov](mailto:cathy.marcinkevage@noaa.gov)>

Hey Eric,

Here is the short description of the modeling results you shared. I felt like I had a better understanding of it when we talked so this description seems a little off? Can you take a look and provide any feedback?

Figures 1-X describe the difference in habitat capacity modeled by the WRLCM, between the COS and the PA by season (or WYT) for the Upper Sacramento River (Keswick Dam to ...), Lower Sacramento River (... to the Fremont Wier (?)), and the Yolo Bypass. Overall there is no trend and little difference in the average habitat capacity between the COS and the PA. Furthermore, since the model results are clustered around zero, those instances where there is a difference between the COS and the PA do not carry through in way that would effect the species (e.g. affecting the cohort replacement rate).

Also I must not be understanding it correctly because I can't really explain what's going on in the Yolo in the "Summer?" It looks to me like there should some kind of negative trend but the average is still at zero? Is this zero-inflated? Is there a way (or a reason?) to look at this differently? Does a log scale make sense, or is there a way that corrects for (what I think are) so many zeros?

Thanks,  
Evan

On Mon, Mar 18, 2019 at 3:13 PM Evan Sawyer - NOAA Federal <[evan.sawyer@noaa.gov](mailto:evan.sawyer@noaa.gov)> wrote:  
Hey Eric,

Thanks, for this. I have some questions. Can I give you a call either today after 3:30 or tomorrow?

basically: is the red line on zero the average difference between COS and PA? Or is there an average difference, like average PA habitat capacity in "fall" is XX millions of fish more than the COS?

Thanks,  
Evan

On Mon, Mar 18, 2019 at 3:05 PM Eric Danner - NOAA Federal <[eric.danner@noaa.gov](mailto:eric.danner@noaa.gov)> wrote:  
Here is another one by WYT.

Eric

On Fri, Mar 15, 2019 at 9:43 AM Evan Sawyer - NOAA Federal <[evan.sawyer@noaa.gov](mailto:evan.sawyer@noaa.gov)> wrote:  
Hey Eric,

Thanks for the information yesterday. Can you provide a comparison of habitat capacity (from the WRLCM) between the PA and COS for the following "seasons":

Winter (Dec 1 - March 1)

Spring (March 1 - May 15 [maybe needs to be June 1? or May 1?])

Summer [temp mgmt.] (May 15 [or June 1] - Nov 1)

Fall (Oct. 1 - Dec 1) <-- I realize there's overlap with Fall.

These "seasons" generally correspond to the timing of Reclamation's operational decisions, so it may be a way to describe any differences in the operations (PA to COS). If there's no difference that's useful information too.

Thanks,

Evan

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Evan Bing Sawyer,

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