From: Evan Sawyer - NOAA Federal <evan.sawyer@noaa.gov>
Sent: Friday, June 14, 2019 9:24 AM
To: Cathy Marcinkevage - NOAA Federal
Subject: Re: Shasta Updates
Attachments: tier performance.docx

Hi Cathy,

1) Yes and No, Excel doesn't include what it deems outliers in the whisker plots it can generate. It identifies outliers as values greater or smaller than 1.5 the inter-quartile range (IQR for tier 1 is 4%) from the 1st (1%) and 3rd (5%) quartiles. So upper whisker for tier 1 is 11% (5% + 6%), and any data points above that are considered outliers. For the other tiers the Max values were less than the value of the 3rd quartile plus 1.5x the IQR, so the upper whisker uses the max value.

In the attached file I've included figures that include the "outliers". These figures (PA vs COS) are different figures than Shasta figure 2.5.2-21 (Martin v Anderson). The first compares TDM (Martin) for the same years based on the tier designation under PA (so in the COS some "tier 2" years are included in Tier 1 range). The second has the PA grouped by Tiers according to the PA but the COS has tiers assigned by the COS (could be a better representation of "expectations" because Reclamation is not committing to a tier and most of the "benefit" of the PA is attributed to achieving tier 1 more often). Lastly I plotted just the MAX PA TDM (Martin) against the COS where tiers assignment is based on storage in the COS.

2) The last figure in the attached document is the one to show Barry and ask "where is the benefit of the PA?" Using the Max TDM we CANNOT issue the level of "take" that Reclamation is asking for. The very first criteria for including take in an ITS is that the taking must: "not be likely to jeopardize the continued existence of listed species to destroy or adversely modify designated critical habitat". I would also point out that the WRLCM indicates that the PA is worse than the COS (3% decrease in abundance) and that it shows that the PA is not better than the COS.

3) I (we all) have a full plate but I'll look at these sections when I can. I just got revisions back from Brian on the flow survival 'chunk' so I'm going to polish that off and we can insert it.

4) Yes we stayed with the mean but it would be an easy fix to use the median. We discussed yesterday questions about whether the data is "normal" and I would say kinda? Outside of Tier 1 indicators of normalcy suggest it is but the mean and median don't line up which would suggest the data are not normal.

5) I'll wait for some direction from pretty much anybody else. I'll be busy regardless as I have other things to work on if there's nothing "new."

Evan

On Fri, Jun 14, 2019 at 1:09 AM Cathy Marcinkevage - NOAA Federal <cathy.marcinkevage@noaa.gov> wrote:

> A few things to start your morning:

1. Shasta Figure 2.5.2-21 is boxplots of TDM for Martin and Anderson for each Tier. Looking at the performance metrics text we provided to Rec, and the spreadsheet that Miles sent, we note that in Tier 1 years there is a max TDM of 39%. Why isn't that reflected in teh figure? Aren't the whiskers the range?

2. Howard has a meeting with Barry today at 1:30. I'm hearing that there is thinking that the J-game changed on Shasta as a result of the meetings and perf measures of the last few weeks. I of course do not agree. He's asked for any brief specific points about why Shasta is not better. I can definitely come up with some, but welcome any you would like to contribute. Now's your chance! (For instance: It's become clear that Rec wants it to be ok to have a TDM of 39% in GOOD water years.).

3. I revised Shasta effects section text, created I&S table entries, and drafted a supplemental section. I'm happy to have you review any and all as a QA/QC at the least, but to augment if you are able. They are named below, and I'll also cc you on my email to Brian and others.

2.5 and 2.6 Upper Sac Effects V18 srb.docx
Shasta_Supplement_V1.docx
2.8 Integration and Synthesis winter-run V9 MASTER.docx

4. Did we say to stay with mean for the TDM in the analysis? Right? If not I need to change some things..... And Maria has in her head we are using the median....

5. On the RPA things, we may hand that off to Howard after a chat. So don't make that a priority.

All for now.
Cathy

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