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**From:** Joe Heublein - NOAA Federal <joe.heublein@noaa.gov>  
**Sent:** Wednesday, April 10, 2019 5:55 PM  
**To:** Cathy Marcinkevage - NOAA Federal  
**Cc:** J. Stuart - NOAA Federal; Yip', 'Garwin; Howard Brown  
**Subject:** Re: Green sturgeon I&S

All, I responded to Jeff's comments and saved this as '2.8 Integration and Synthesis V2' in the I&S folder. Most references to sections and tables will have to be updated and I tried to flag all that.

Potential red flag- Jeff had multiple comments on effects of south Delta operations and barriers in the I&S for critical habitat. I double checked the recovery plan and 'channel control structures' under 'altered water flow' was a *very high* threat to recovery for juvenile and adult green sturgeon in the SF Bay Delta. The PA may increase these Delta migration and rearing recovery threats but also involves some habitat restoration. I still have the same conclusion for CH (no ad mod) but this is based on a meager amount of data for how rearing and migration in the Delta affects sDPS green sturgeon.

I deleted the steelhead I&S in this document (that was an incomplete version from an earlier draft) but will incorporate Jeff's steelhead comments as I work on that.

Early heads up on timing- the steelhead I&S is likely to come in right under the wire late on the 12th.

-Joe

On Wed, Apr 10, 2019 at 11:31 AM Cathy Marcinkevage - NOAA Federal <[cathy.marcinkevage@noaa.gov](mailto:cathy.marcinkevage@noaa.gov)> wrote:

Great, Jeff! Thanks!

Joe, I suggest that any revisions to address these comments be saved as V2 and initials removed.

On Wed, Apr 10, 2019 at 11:20 AM J. Stuart - NOAA Federal <[j.stuart@noaa.gov](mailto:j.stuart@noaa.gov)> wrote:

Hi Joe,

I left a copy of the GS integration and synthesis in the share drive folder (my initials "jss" at the end) "2.8 Integration and Synthesis V1 srb jch jss" in R:\Draft BiOp\2\_ESA\2.8-2.9 Integration and Synthesis and Conclusion. There are a couple of comments that you should take a look at. In particular there appears to be a cut and paste orphan paragraph from the CWF BiOp that doesn't quite make sense. In this PA, there is an increase in net negative OMR flows due to more exports, not a reduction, and the paragraph actually refers back to a section in the old CWF BiOp. Overall I don't have any major issues, just clarifying a few statements in your discussion.

Jeff

On Tue, Apr 9, 2019 at 11:43 AM Joe Heublein - NOAA Federal <[joe.heublein@noaa.gov](mailto:joe.heublein@noaa.gov)> wrote:  
Finished a draft of the GS I&S. It is saved as '2.8 Integration and Synthesis V1 srb jch' in R:\Draft BiOp\2\_ESA\2.8-2.9 Integration and Synthesis and Conclusion

I discuss recovery in: 2.8.7.2 Assess the Risk to ESU/DPS

If this recovery discussion seems reasonable, I will do the same for steelhead.

I had to format the stressor critical habitat tables with small font so they fit on the page and I could add comments/track changes. Still haven't included discussion of the ~8 Delta Division effects I wrote up but we're making progress on retrieving that document and hopefully it can be added later. Otherwise, have some suggested changes on Evan's effect conclusions for presumably beneficial actions like fish screens. If those changes make sense Evan may need to change his effects section slightly to reflect that.

I'm planning to stop working on GS I&S and move onto steelhead. Hopefully Jeff has time to review and revise GS I&S as needed.

Thanks,

Joe

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