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**From:** Rosalie del Rosario - NOAA Federal <rosalie.delrosario@noaa.gov>  
**Sent:** Wednesday, April 24, 2019 10:49 AM  
**To:** Howard Brown; Garwin Yip; Cathy Marcinkevage - NOAA Federal  
**Subject:** topics to discuss

Hi Howard, Garwin, and Cathy:

I am reviewing draft I&S sections and I'd like to discuss with you how we address the Jeopardy standard in the I&S. My observations are based on reviewing one draft I&S - I completed my *preliminary* review of the draft Green Sturgeon I&S yesterday and have a couple of recommendations I'd like to discuss with you:

- Recommend we address the jeopardy standard using terms "likelihood of survival" and "likelihood of recovery" instead of in terms of "extinction risk". The draft GS I&S is modeled after two BiOps: 2009 OCAP and 2017 CWF. I can see the desire to continue with the approach used in those two highly scrutinized and litigated BiOPs. And the analytical approach in OCAP, CWF, and draft LTO describe the relationship of extinction risk and J standard: *For the purposes of this analysis, NMFS equates a listed species' probability (or risk) of extinction with the likelihood of both the survival and recovery of the species in the wild for purposes of conducting jeopardy analyses under section 7(a)(2) of the ESA. In the case of listed salmonids, we use the Viable Salmonid Populations (VSP) framework (McElhany et al. 2000) as a bridge to the jeopardy standard.*

However, I recommend we use the terminology in the regulatory definition of Jeopardize... which is "likelihood of survival and recovery" rather than "extinction risk" in the I&S, and doing so would help address claims in the CWF litigation that we specifically address "likelihood of recovery". Would like to hear your thoughts - and this is in the realm of comments on page 11 of the latest draft of the LTO analytical approach that I believe are still unresolved.

- Summary tables in I&S include rows (action components) where the response of individuals and/or change of fitness is "uncertain". Let's discuss how uncertain effects is best presented in the I&S. I will need to better understand the role of the tables in the draft effects sections and the tables in the I&S because the I&S tables leave a lot of uncertainty that we should discuss how better to address.

That's it for now,  
Rosalie

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