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Sent: Thursday, December 20, 2018 6:36 PM
To: Cathy Marcinkevage; Evan Sawyer - NOAA Affiliate
Cc: Garwin Yip - NOAA Federal; Howard.Brown; J. Stuart
Subject: Some materials from Barb on Delta effects analysis

Cathy and Evan -- As the most likely to be participating in Delta effects Tiger Team meetings next week, wanted to share with you some materials that might provide some useful talking points/rebuttals to the materials that you may see next week (which we heard today are being prepared by Cramer Fish Sciences). Don't feel like you NEED to present any information from these documents; just wanted to provide some food for thought.

**I've placed some existing materials relevant for Delta effects in the following google drive folder:
ROConLTO/BA/Effects Analyses/Materials from Barb for Delta effects**

The four docs I posted in the primary subfolder are (relatively) general docs with some potential talking points/reactions to things that may be in the Delta effects analysis. The subfolders within this folder contain more detailed information, including the full correspondence regarding Dec 2017 materials prepared by Cramer Fish Sciences and shared with NMFS by John Watts (of Senator Feinstein's office).

If there is use of the "50% overlap in velocity distribution" metric as a tool to define export footprint, I suggest we push back strongly. This metric comes from the Dec 2017 materials from Cramer Fish Sciences and while "proportion overlap in velocity distributions" is a great metric for summarizing relative differences in velocity distributions, it's not a great metric for summarizing effects to fish, at least not as applied by Cramer Fish Sciences. Note that I mischaracterized in my summaries the intent of CFS as calling overlap <50% not significant -- I think their intent is actually to call overlap >50% not significant, which makes my example of a 30% overlap not relevant. *However*, my concern over 50% as a meaningful threshold still holds and the following example (excerpted from my detailed comments in the subfolder), still holds:

"For example, since the delta is tidal, a zero export pattern might include roughly 50% positive flows (on the ebb tide) and roughly 50% negative flows (on the flood tide). If, under a higher export condition, the distribution of velocities shifts such that most or all velocities throughout the day are negative, that distribution (which represents a fundamental change in flows from a bi-directional tidal pattern to a uni-directional tidal pattern) might still show approximately 50% overlap with the zero export condition"

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