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**From:** Cathy Marcinkevage - NOAA Federal <cathy.marcinkevage@noaa.gov>  
**Sent:** Monday, February 4, 2019 11:34 PM  
**To:** Garwin Yip; Howard Brown; Barbara Byrne  
**Subject:** A Few ROC on LTO Science Items  
**Attachments:** Analytical Methods Requested for ROC on LTO.pdf

Hey Fantastic Four --

Two things.

1. Attached is a list of analytical tools that were (generally) used in CWF but are not (or do not have the same analysis using results) in the ROC BA. They are in no particular order. I made this to take to 1) Russ and Katrina on Tuesday to see if we can get help from them to do some and 2) for the Wed meeting with Paul and others so he can see the dearth of biological modeling for our species. I can revise before both.

2. Below is a loose list of assistance needs for whomever provides us CalSim help. I'll discuss this with Ecorp on Tuesday and will provide for Maria in furthering a request for Derek's time. While I don't think this needs to be high-resolution-inclusive, please let me know if there is a major component that we'd want assistance with that I'm missing.

NMFS is requesting assistance in the following:

- Understanding limitations or nuance of how the proposed action (PA), as written, is implemented in CalSim logic.
- Understanding and interpreting results that are relevant for evaluation of effects to species under NMFS' jurisdiction, including identification of model artifacts, sensitivities, or insensitivities that should be considered when analyzing results.
- Identifying trade-off or constraining logic effects of implementation of CalSim logic and how those manifest in results that NMFS may want to use in analysis.
- Identifying major differences between the Current Operations scenario and the Proposed Action scenario, to better understand the proposed action and how that does or does not incorporate previously-consulted upon actions.
- Identifying and evaluating proposed revisions/modifications to the PA to better support species persistence, and possibly developing and conducting CalSim scenarios to propose as alternative actions.
- Developing useful and illustrative visualizations of relevant CalSim results.

Happy Tuesday.  
Cathy