From: Evan Sawyer - NOAA Federal <evan.sawyer@noaa.gov>

**Sent:** Tuesday, May 7, 2019 9:22 AM **To:** Miles Daniels - NOAA Affiliate

Cc: Cathy Marcinkevage - NOAA Federal; Eric Danner - NOAA Federal; Garwin Yip - NOAA

Federal

**Subject:** ROCON Egg to Fry mortality calculations

**Attachments:** temp mort 96 - 16.xlsx

Hi Miles,

Can you help us with some questions related to the non-temperature dependent sources of mortality as they relate to the modeling of egg-to-fry survival?

Yesterday we had a briefing with Reclamation and FWS where we shared the figure in the attached excel sheet. In that figure there is the modeled TDM using the Martin model, the modeled egg-to-fry mortality (1.0 - survival), and the estimated 'actual' ETF mortality (1.0 - survival). A number of questions came up related to the figure that I was hopping you could help answer:

- How is ETF survival modeled?
- Are the modeled TDM results included in the calculation of modeled ETF survival?
- (from the figure) it seems that both the modeled and estimated ETF mortality are pretty consistent over the last 20 years such that the non-TDM is relatively low when TDM is high (e.g. 2004 or 2008) and vice versa (non-TDM is high when TDM is low, e.g. 2002, 2003). Is there a simple explanation of this relationship?

Let me know if want to chat about any of these questions and I can give you a call.

Thanks, Evan

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