**From:** Miles Daniels - NOAA Affiliate <miles.daniels@noaa.gov>
**Sent:** Tuesday, May 7, 2019 2:15 PM
**To:** Evan Sawyer - NOAA Federal
**Cc:** Cathy Marcinkevage - NOAA Federal; Eric Danner - NOAA Federal; Garwin Yip - NOAA Federal
**Subject:** Re: ROCON Egg to Fry mortality calculations
**Attachments:** Brood Year 2015 Juvenile Salmonid_FINAL_Annual_Report_100417.pdf

Hi Evan,

I have never calculated ETF survival and it is my understanding that this is done by USFWS. I think Bill Poytress is the best contact. However, I do have a limited understanding of the method (see attached document for more details) and can try to help answer the questions.

1) Essentially, I think ETF survival takes into account 3 primary pieces of information: 1) the estimated number of females spawned, 2) estimated number of eggs/female, and 3) estimated number of fish caught at the RBDD screw trap. Of course there are other factors, such as trap efficiency that are taken into account and which are explained more in the attached document.

2) ETF does not directly use information on temperature-dependent mortality, but it should be indirectly accounted for in the estimate as the number of fish caught in the screw trap should in some way reflect temperature-dependent mortality (i.e. temperature-dependent mortality is a component of ETF mortality). At least that is my interpretation

3) As far as the relationship between TDM and EFT mortality, based on the way you have calculated non-TDM, this should be the case. For example, if we assume TDM is a subset of total mortality than as TDM increases non-TDM has to decrease and vise versa.

Please let me know if you want clarification on any of this,
Miles

On Tue, May 7, 2019 at 9:21 AM Evan Sawyer - NOAA Federal <evan.sawyer@noaa.gov> wrote:

> 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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