From: **John Hamill** <jhamill@trcp.org>
Date: Tue, May 26, 2015 at 3:19 PM
Subject: RE: Lees Ferry Fishery Management Recommendations Draft Report
To: "Vanderkooi, Scott" <svanderkooi@usgs.gov>

Scott – I greatly appreciate the time you and your staff devoted to reviewing the LF Recommendations. Lots of good comments for us to consider.

Is it OK for us to follow-up directly with Melis, Korman and Yackulic or would you prefer that we go through you? I would be interested in TK's assessment of the comments on the need to control the density of young trout as the best way to improve the LF fishery. It seems most of the commenters believe that managing the trout densities using TMF's is the best way to improve the quality and stability of the fishery. There seems to be considerable doubt whether the bug flow experiment will yield positive results.

Thanks,
John

Kennedy, Theodore **<tkennedy@usgs.gov>** May 27 (5 days ago)

to Scott, John

John,

Disclaimer: I am an ecologist, and not a fishery biologist.

I have been opposed to the idea of Trout Management Flows ever since I first learned about the idea at the June 2011 Knowledge Assessment workshop, because TMFs don't address the root cause (i.e., equalization flows, simple food webs that are inherently unstable), they simply address the symptom (i.e., overabundance of small fish). TMFs are culling, plain and simple, and as an ecologist I find this very unsatisfying. TMFs appear to be a classic example of the 'western' approach to management in that they are not at all holistic, and it is believed they can be done with surgical precision (i.e., no collateral damage to other resources). I find it interesting that we are the only tailwater that I know of that has this problem of boom-bust cycles in trout. I also find it interesting that we are the only tailwater that I know of that doesn't support any EPT insects. Prior studies by my group indicate simple food webs that are inherently unstable are at least partly to blame for the boom-bust cycles. But rather than address the root cause (e.g., by increasing invertebrate diversity and food web complexity through bug repatriation and bug flows, or spreading equalization water deliveries over 2-3 years instead of 1) many folks have embraced the idea of TMFs (i.e., there are too many small trout during equalization years so we will just kill them). It might be that TMFs represent an improvement over current practices, but I don't believe TMFs are the best possible approach to management.

I am not surprised by Korman's skepticism of bug flows, because Korman doesn't think we should even be concerned with low invertebrate diversity. In fact, at the 2014 annual reporting meeting he called EPT and invertebrate diversity a 'marginal issue' that didn't warrant further discussion. Korman has taken a lot of swings at bug flows over the past year, but he has never identified any flaws in the logical basis for bug flows or the hypothesis that hydropeaking leads to high mortality of insect eggs. Korman's main argument against bug flows is that steady flows have been done in the past but there has never been any documented EPT response. This and other criticisms from him are rebutted in the attached Word doc, which contains the Science Advisor review of our workplan and the bug flows experiment (p1-7, glowing), criticisms from Korman and our rebuttal (p.7-13) and correspondence between me and Kirk LaGory (p 14-15). In fact, now that I have spent time in upper basin tailwaters and have had numerous additional conversations with stream ecology colleagues I am more convinced than ever that egg mortality is a significant bottle neck on aquatic insect

diversity and production downstream of Glen Canyon Dam. It is certainly possible that the combination of bug flows and translocations won't increase invertebrate diversity and productivity, but conducting these experiments will still be a success because we will have learned something about the factors that are preventing EPT from inhabiting the Colorado River.

sincerely,
Ted