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MEMORANDUM

TO: Kathryn Kostow, ODFW

FROM: Michele DeHart

DATE: November 28, 2011

RE: Response to comments on 2011 Comparative Survival Study Annual Report Draft

Following are the CSS Oversight Committee response to your comments on the draft CSS Report. The response to each comment is in italic font and follows the original comment.

In the analysis of age-at-maturity of PIT-tagged Chinook, significant stock and migration year effects were found. Would it be possible to take some further steps on these points:

1. Compare the two wild stocks to the eight hatchery stocks in the analysis: is there a hatchery/wild effect?

Response: *We have provided two figures displaying the overall mean age at maturity (Figure 7.2) and the mean jack proportions (Figure 7.4) for each of the ten stocks. There are several hatchery stocks (e.g., Leavenworth, Carson, Dworshak) that have similar mean age at maturity as the two wild stocks, but others (e.g., Imnaha) are very different compared to the wild stocks.*

2. Can you identify which of the ten stocks are showing the strongest effects?

Response: *Figures 7.2 and 7.4 show the mean age at maturity and mean jack proportions for each of the ten stocks.*

3. Any suggestions as to what environmental variables might be contributing to the year effect?

Response: *Most research indicates that the “decision” of whether or not to mature is made during fall or winter. So focusing on environmental variables collected during the fall or winter timeframe and in the area of the ocean where these stocks may be residing would be a good starting point. We have not conducted an analysis of which factors may be contributing to the year effects, so stating which factors may be driving the variability is speculative at this point. However, the year effects quantify the observed pattern and therefore can be used to evaluate whether or not candidate environmental factors are consistent with the observed pattern in the year effects.*

4. Any idea as to why environmental effects might be producing more jacks now than in the past? I'm especially thinking about the four recent record outmigration years

1999 = 24,000 jacks (but not a high jack fraction -- this year may have just been a good survival year);

2007 = 22,000 jacks (high jack fraction);

2008 = >80,000 jacks (high jack fraction); and

2010 = >60,000 jacks (I bet there will be a high jack fraction, but too early to tell).

Response: *The jack proportions vary by stock (stock effects) and by year (year effects). Outmigration years 1997, 1999, 2004 and 2005 had fairly low jack proportions across stocks, while years 2007 and 2008 had relatively high jack proportions across stocks. The jack proportions for hatchery stocks can be influenced by hatchery mating practices (Hankin et al. 1993, Heath et al. 1994) as well as hatchery rearing and growth conditions (Thorpe 1991, Heath et al. 1994, Shearer et al. 2006). If there has been increased use of jacks in hatchery mating, then this can result in higher jack proportions over time. But given the differences that were observed between stocks, it may also be important to consider the stock composition of the overall return. For example, the high jack proportions in the overall, mixed-stock return may be due to the influence of a few hatchery stocks that contribute high numbers of jacks rather than an indication of high overall survival for the run at large.*

Briana Anderson

From: Kathryn Kostow [kathryn.e.kostow@state.or.us]
Sent: Wednesday, September 07, 2011 10:13 AM
To: Steve_Haeseker@fws.gov
Cc: howard_schaller@fws.gov; Michele Dehart; Tom Rien; NIGRO Tony
Subject: Brief comment on Chap. 7 of CSS report

I have a brief couple of comments on Chapter 7 of the draft CSS annual report. I believe Steve Haeseker is the right person to send these to; if not please pass them to the appropriate person.

In the analysis of age-at-maturity of PIT-tagged Chinook, significant stock and migration year effects were found. Would it be possible to take some further steps on these points:

1. Compare the two wild stocks to the eight hatchery stocks in the analysis: is there a hatchery/wild effect?
2. Can you identify which of the ten stocks are showing the strongest effects?
3. Any suggestions as to what environmental variables might be contributing to the year effect?
4. Any idea as to why environmental effects might be producing more jacks now than in the past? I'm especially thinking about the four recent record outmigration years
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Answers to these questions would be very useful to TAC as we continue our efforts to manage the high jack numbers and forecasting. We'd enjoy having more discussion with Steve about these points.

Cheers & thanks
Kathryn

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