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**From:** Hannon, John <jhannon@usbr.gov>  
**Sent:** Friday, June 14, 2019 10:36 AM  
**To:** Evan Sawyer - NOAA Federal  
**Cc:** Barbara Byrne - NOAA Federal; Garwin Yip - NOAA Federal; Cathy Marcinkevage  
**Subject:** Re: [EXTERNAL] Re: To IOS, or to IOS--that is the question

Hi All,

Here is an updated section with the requested edits. I used the version I last sent to Garwin on 6/3, accepted all the tracked changes and deleted the comments from that version to work from a clean copy, and made these changes in track changes. That version had figure and table references partially updated by an editor, it looked like, and this version is still like that. The spreadsheet of calculations is also attached.

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On Wed, Jun 12, 2019 at 11:00 AM Evan Sawyer - NOAA Federal <[evan.sawyer@noaa.gov](mailto:evan.sawyer@noaa.gov)> wrote:  
Email I just got from Steve Z. says 5,000 with 3,087.5 females?  
Evan

On Wed, Jun 12, 2019 at 10:05 AM Barbara Byrne - NOAA Federal <[barbara.byrne@noaa.gov](mailto:barbara.byrne@noaa.gov)> wrote:  
Evan & John -- can you also chase down the differences in the noted "seed population" size in your write-ups?

On Wed, Jun 12, 2019 at 9:59 AM Evan Sawyer - NOAA Federal <[evan.sawyer@noaa.gov](mailto:evan.sawyer@noaa.gov)> wrote:  
Hi Garwin,

I went back to the LCM write up and updated the median for the COS and PA escapement from IOS, then calculated the percent difference. I calculated the percent difference like this:

$(\text{Median [PA]} - \text{Median [COS]}) / \text{Median [COS]} * 100 \text{ percent}$

The revised percent difference is 1.2 percent (based on the median escapement = 3,864 [COS], and 3,909 [PA])

Evan

On Tue, Jun 11, 2019 at 4:38 PM Garwin Yip - NOAA Federal <[garwin.yip@noaa.gov](mailto:garwin.yip@noaa.gov)> wrote:  
Evan--please:

- include year 2002 into your calculation, then adjust the result in the LCM section
- convey to John Hannon your approach using the median, so John can update his Chinook salmon SRKW prey analysis section.

John--please:

-- update your IOS calculations using Evan's approach, and check the write-up so the rest of the document reflects and is consistent with the calculation and numbers.

-- send the revised document to us when done. We'll forward to Dan to update his SRKW effects analysis.

Thanks.

-Garwin-

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*Garwin Yip*

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On Mon, Jun 3, 2019 at 12:57 AM Evan Sawyer - NOAA Federal <[evan.sawyer@noaa.gov](mailto:evan.sawyer@noaa.gov)> wrote:  
Hey Barb, and everyone,

It's been a heck of a week that I wish I could say was more restorative than it was. To top it off we missed our flight home today. So I'm limited in my ability to resolve any issues related to the LCM analysis (I'm doing this on my phone).

That said, here's what I got:

- I miscalculated the median escapement, or I should say that I failed to include the full time series in calculating the median. For whatever reason I did not include the last year in the 82-year time series. You can confirm but without 2002, the median escapement for the COS and PA are 3856 and 3865 (1926 - 2001) respectively.

- As far as which approach is "better" or "right" I don't know, but I would say that my mistake (identified above) shows that basing a conclusion on a single data point ("ending" escapement in a year [2002]) is dependent on which year the simulation ends on.

- In my description of the starting assumption of the IOS model I state that initial abundance is 5,000, of which 3,087 are females. I was unsure of these numbers but it was my understanding that Cramer FS

confirmed them. The SRKW analysis has an initial abundance of 3,000. I don't know the effect of this difference on the overall analysis but if the SRKW analysis is based on an ending abundance relative to an initial abundance I could see it as being important. Given the modeled escapement in 1926 (for both the COS and PA) is around 2,100, the initial abundance of 3,000 might make more sense but that's really just a guess. Please re-confirm with Cramer FS.

If all of this amounts to an error or errors on my part I am sorry. The pace of all of this has been fast and it's clear that I made at least one mistake. I really hate thinking that my poor performance has contributed to other's (your) increased workload/stress.

If there are any other questions or specifics that I could respond to I will try to do so.

With apologies,  
Evan Sawyer

On 6/2/19, Barbara Byrne - NOAA Federal <[barbara.byrne@noaa.gov](mailto:barbara.byrne@noaa.gov)> wrote:

> John and Evan -- Looking for some help from you both in walking through the  
> calculations underlying your IOS summaries.

>

> Attached are:

> 1. \*IOS consistency check.doc: \*Summary of potential discrepancies,  
> drafted by me.

> 2. \*SRKWpreyappendix\_V4\_MASTER.doc\*: Drafted by John.

> 3. \*2.5.9 LifeCycle Models--V4\_ForDistribution.doc\*: Drafted by Evan

> 4. \* IOS\_results\_summary\_2\_28\_19\_see ESCAPEMENT TAB.xls\*: Pulled from ROC  
> LTO BA supplemental modeling files; I am assuming you both used data from  
> the "Escapement" tab.

>

> Please review item #1 and help me understand how the numbers in your docs  
> (#2 for John, #3 for Evan) relate to the escapement numbers in item #4.

>

> We don't necessarily have to have the exact same approach for IOS in every  
> section, but at least want to be able to

> (a) reproduce the numbers in each case (I couldn't, but maybe I don't  
> understand the approach you each took) and

> (b) explain the differences between the \*0.2% diff described in the LCM  
> section\* (Evan's approach based on median escapement observed during the  
> modeled period -- i.e. median PA minus median COS as a % of median  
> COS) and \*10.5%

> diff described in the SRKWprey appendix\* (John's approach based on the  
> difference in change in escapement over the modeled period -- i.e. (PA  
> end-PA begin) minus (COS end-COS begin) as a % of (COS end-COS begin)...I  
> think).

>

> Thanks for helping with figuring out these analyses.

>

> Barb

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