

Miller, Sara E (DFG)

From: Jim Murphy - NOAA Federal <jim.murphy@noaa.gov>
Sent: Friday, November 16, 2018 11:40 AM
To: Miller, Sara E (DFG)
Cc: Heint, Steve (DFG); Piston, Andrew W (DFG); Fair, Lowell F (DFG); Bowers, Forrest R (DFG)
Subject: Re: 2019 Southeast Alaska Pink Salmon Forecast News Release

Follow Up Flag: Follow up
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The range that I provided this year is based on bootstrap re-sampling model of juvenile CPUE. This is the approach that Alex W. developed for the forecasts, but it has not been used in all of the historic forecasts. This is generally referred to as a bootstrap confidence interval, or a confidence interval.

Each bootstrap re-sampling event generates a new juvenile abundance time series and prediction (all CPUE data are bootstrapped). The range is based on the 10th and 90th percentiles of the resulting distribution of predictions. This approach is different from using regression model confidence intervals and prediction intervals. For comparison, the 80% CI of the regression model is 12.6 - 23.3. The 80% bootstrap CI is 14.9 - 26.0. In this case the bootstrap CI is slightly larger than the regression confidence interval; but this has not always been the case, particularly in the early forecast years. Unlike the regression CIs, bootstrap CIs tend to be asymmetric, reflecting the asymmetric distribution of raw juvenile CPUE data. This can introduce some differences in interpreting the forecast when it is expressed as a range. The use of bootstrap CIs, I believe, is also part of the motivation behind replicate station sampling as it improves our estimate of the sampling distribution of juvenile CPUE data at the two primary transects that are used to estimate pink salmon CPUE (Icy Strait and Upper Chatham).

Hope this helps.
Jim

On Wed, Nov 14, 2018 at 12:05 PM Miller, Sara E (DFG) <sara.miller@alaska.gov> wrote:

I think they are 80% bootstrapped confidence intervals. Jim needs to confirm, but they seem too narrow to be prediction intervals.

From: Heint, Steve (DFG) <steve.heint@alaska.gov>
Sent: Wednesday, November 14, 2018 10:57 AM
To: Piston, Andrew W (DFG) <andrew.piston@alaska.gov>; Fair, Lowell F (DFG) <lowell.fair@alaska.gov>; Bowers, Forrest R (DFG) <forrest.bowers@alaska.gov>
Cc: Miller, Sara E (DFG) <sara.miller@alaska.gov>; Jim Murphy <jim.murphy@noaa.gov>
Subject: RE: 2019 Southeast Alaska Pink Salmon Forecast News Release

Hi Lowell – to be clear, Figure 1 shows hindcasts from the model that was used to forecast the 2019 harvest – those hindcasts will all be different than the actual forecasts shown in Figure 2. Figure 2 shows the history of NOAA's actual

forecasts – that is, annual forecasts compared to subsequent harvests – and I’m pretty sure the harvest forecasts for each year (again, not hindcasts) were generated using several slightly different models over time.

We will adjust the figure captions to make all of this more clear.

Steve

From: Piston, Andrew W (DFG) <andrew.piston@alaska.gov>
Sent: Wednesday, November 14, 2018 10:41 AM
To: Fair, Lowell F (DFG) <lowell.fair@alaska.gov>; Bowers, Forrest R (DFG) <forrest.bowers@alaska.gov>
Cc: Miller, Sara E (DFG) <sara.miller@alaska.gov>; Jim Murphy <jim.murphy@noaa.gov>; Heinl, Steve (DFG) <steve.heinl@alaska.gov>
Subject: RE: 2019 Southeast Alaska Pink Salmon Forecast News Release

Hi Lowell,

I made the changes you recommended to the captions. You are correct that forecast is slightly different in the way the juvenile index was calculated in 2017 (it was adjusted for unbalanced sampling), which unfortunately increased the forecast; if it had been done using the standard calibrated CPUE the NOAA forecast would have been 7 million or so. On the subject of confidence interval versus prediction interval, I think you are correct that these should be referred to as prediction intervals and they have been referred to that in most recent NOAA documents regarding past forecasts. Sara, can you confirm that this is correct? Jim is at a Yukon conference and may not be able to respond quickly.

Thanks,

Andy

From: Fair, Lowell F (DFG) <lowell.fair@alaska.gov>
Sent: Wednesday, November 14, 2018 9:55 AM
To: Bowers, Forrest R (DFG) <forrest.bowers@alaska.gov>; Piston, Andrew W (DFG) <andrew.piston@alaska.gov>
Subject: RE: 2019 Southeast Alaska Pink Salmon Forecast News Release

Are these confidence intervals or prediction intervals ... the calculations are different?

In Figure 1, the caption should note which years are shown in the figure. I'm guessing it is 1997–2018, unlike Figure 2. In the caption, "one to one" should be "one-to-one", and it should say "... shown as a gray circle and the 80% forecast range ...".

Comparing the numbers in Figures 1 and 2 my guess is that the 2019 forecast uses a somewhat different forecast method than the 2018 forecast? I say this because NOAA's 13 million point estimate from last year does not appear in Figure 1 with the 8 million actual, and their observed/predicted figure from last year's write-up is different than Figure 1.

In Figure 2, the caption should mention the error bars (or forecast bars).

From: Bowers, Forrest R (DFG) <forrest.bowers@alaska.gov>
Sent: Wednesday, November 14, 2018 9:35 AM
To: Piston, Andrew W (DFG) <andrew.piston@alaska.gov>; Fair, Lowell F (DFG) <lowell.fair@alaska.gov>
Subject: RE: 2019 Southeast Alaska Pink Salmon Forecast News Release

Hi Andy,

I agree this is a beautiful document. I am especially pleased with the discussion of uncertainty and freshwater survival, as well as information regarding ADFG-NOAA collaboration on the SECM survey. From my perspective this is ready for distribution.

Thanks.

Forrest

From: Piston, Andrew W (DFG) <andrew.piston@alaska.gov>
Sent: Wednesday, November 14, 2018 8:57 AM
To: Fair, Lowell F (DFG) <lowell.fair@alaska.gov>; Bowers, Forrest R (DFG) <forrest.bowers@alaska.gov>
Subject: 2019 Southeast Alaska Pink Salmon Forecast News Release

Hi Lowell and Forrest,

Last fall I believe you requested that we consolidate our usual forecast document into the news release document, rather than link to it in the news release. I have attached our beautifully crafted news release document for you to take a look at; it was a joint effort between NOAA and ADF&G. if it all looks good for a news release I will transfer it to the appropriate news release template and we will get it out.

Thanks,

Andrew W. Piston

Southeast Alaska Pink and Chum Salmon Project Leader

Pacific Salmon Commission Northern Panel

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