Vamsi,

    This is perfect. Thank you very much, especially for the guidance on how to extract this data from the DSS. Also, for future reference, the "DCC_open_close_state" files are all that I need. These follow the same format as the historical log available from BOR, so I already have the code to work with this format.

See my other email with the survival predictions and comments on how we should weight them for Delta fry.

Russ

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On Wed, Feb 13, 2019 at 11:34 PM Vamsi Sridharan - NOAA Affiliate <vamsi.sridharan@noaa.gov> wrote:
 Hi Russ,

 Two items to discuss in this email - the DSM2 inputs for your model, and effective Delta fry survival estimation.

 Survival model input CSV files:

 Please find the relevant CSV files attached. The filenames indicate what is in the file: cos - current ops, pa - proposed alternative, woa - no action.

 For the DCC, the 15 minute flow files are so huge that its breaking my download. The one .dss file I was able to download is so massive that the Excel plugin which I use to create the .csv files does not work, and I have to do a bunch of chunks manually. I am trying to download a python hec-dss reader to automate this, but this will not happen within a day.

I have both the gate operation status as an irregular timeseries (the instructions file explains how to read this timeseries), and the daily average flow through the DCC as a regular timeseries. A reading of your 2018 paper indicates that all you need is the gate operation schedule. Am I correct?

Effective Delta Survival from your model:

Here is what I'm proposing.

1. We get the survival probability point estimates (with the standard deviation if you have it) or distributions for each reach from your model.
2. We use equation 4 and table 2 from your 2018 paper to estimate the routing probability through each route of the Delta in each month for the average flow in that month and average gate operation status in that month (it will be 1 if the gate is open for more than 50% of the time that month and 0 if it is closed for more than 50% of the time). This assumes that fish uniformly arrive at the Sac-GS-DCC junction each month.
3. Since after tidally filtering, there are only 4 possible routes, we find the fraction of fish in each route as the product of the routing probabilities associated with that route.
4. We report the effective through Delta survival as a weighted sum of the full-route survival for each route.
5. If we have point estimates and the standard deviation, and make a reasonable assumption about the distribution of survivals, we can generate the 1000 points that Noble needs. If we have a distribution of survivals from your model itself, we can bootstrap a 1000 points.

Opinions?

Regards,
Vamsi

On Wed, Feb 13, 2019 at 3:05 PM Perry, Russell <rperry@usgs.gov> wrote:
Hi Noble,

OK. We'll move forward on both fronts. I'll plug the posterior median parameter values into the simulation function and try to get those results out tomorrow. There's still some work to do to figure out how to weight the reach-specific survivals, so perhaps this is the better option at this point.

Russ

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On Wed, Feb 13, 2019 at 2:35 PM Noble Hendrix <noblehendrix@gmail.com> wrote:

Hi Russ et al.

I just wanted to reiterate that for this version as in previous versions of the WRLCM, I'm going to be using a point estimate of smolt survival. This has the potential to reduce run time, which could be a benefit. I think that we do want to incorporate uncertainty in the estimates of survival at some point; however, for the current application and its restricted time-line I am going with point estimates.

Cheers,
Noble

On Wed, Feb 13, 2019 at 1:29 PM Perry, Russell <rperry@usgs.gov> wrote:
Hi Everyone,
  Just another quick update before the call. More good news / bad news.

Good news: Adam got the simulation code running on Yeti, and I updated the simulation code to allow "releases" into any reach. So we're ready to launch a run, and it should take no longer than overnight if the cores are available.

Bad news: Shortly after Adam finished testing on Yeti, he was contacted by our IT folks informing him that his laptop was infected with a virus. He was instructed not to connect it to the internet, so no access to Yeti. To make matters worse, our lab has been closed for the last 3 days (2 ft of snow at my house, more at the lab), so we have no way to launch the simulations.

We have a break in the weather today, so we're going to try and get a back up laptop for Adam to use so he can launch the simulations from home. We have more weather coming, so our lab be closed tomorrow too.

That's it for now.
Talk soon.
Russ

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On Mon, Feb 11, 2019 at 2:17 PM Perry, Russell <rperry@usgs.gov> wrote:
Hi Guys,
  I've got some good news and bad news:

Bad news: I wasn't able to make it up to our lab to get the finished runs because we're in the middle of a major snowstorm (see pics). We've got ~18 inches and expecting another foot!

Good news: Adam has nearly finished the code to run it on Yeti, and I've almost finished modifying the code to run survival probabilities for Delta Fry. The run we launched a week ago was just for through-Delta survival, so we still needed to work on a approach for Delta Fry.

For Delta Fry, here's what were doing:
1) "release" N individuals in each of the 8 survival reaches on each each day of historical period for each mcmc iteration.
2) simulate their travel time and survival from the start of each reach to Chipps Island.
3) summarize daily then monthly survival for each reach to Chipps Island.

That will provide a set of monthly survivals from the start of each reach to Chipps Island that can then be weighted by the expected proportion of fry entering each reach and their expected survival from fry to smolt. Noble, I'm hoping you can work out how to weight the reach survivals that we provide to you. Let us know if we can assist with that.

That's where were at. I'll send some updated timelines as soon as we've some timed test runs.

Russ
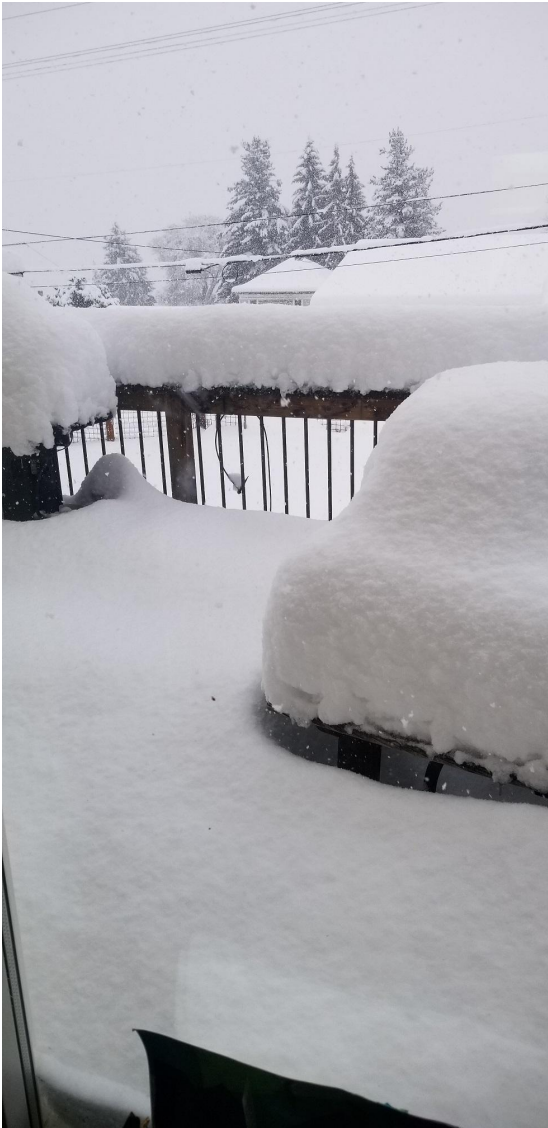
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