From:	Spegon, Jennifer
To:	Owen, Samantha
Cc:	Mahara, Carol J; Hanson, Heather G
Subject:	Re: [EXTERNAL] Wednesday meeting
Date:	Monday, April 18, 2022 9:56:34 AM

Good morning, Sam.

Thank you for meeting with Carol and me last week. We understand there will be upcoming consultations with the Service and other parties to the 1991 Agreement that provide for our input on measures that could mitigate damages to, enhance, and protect fish and wildlife, and during the Alternatives development. However, the 1991 agreement states that the studies need to examine, and quantify if possible, the impacts to fish and wildlife from the Eklutna project. It sounds like efforts are being made to do that and we'd like to help ensure you've got the right information. Given 90% of our questions are related to the 1D HEC-RAS model and sediment transport, we would like to schedule a time to meet when the person working on that model can be involved in a discussion with our subject matter experts at the Service.

Related questions:

1. Please provide data and analysis procedures for the sediment rating curve creation for technical review.
2. Has there been a decision that 150 cfs represents bankfull stage, or the channel forming 1-2 year recurrence interval flows? Section 3.1.1.1 states, "Monitoring during and after the 2021 study flow release of approximately 150 cfs showed that this flow was sufficient to accomplish three levels of flushing flows in the existing channel configuration." Statements made during the cultural working group meeting and data included in the report in section 2.2.4 indicate that the study plan authors believe that the 100-year flood flow is around 1,000 cfs. The USFWS assessed the hydrology based on the 2016 regression equations, gauge data collected prior to dam construction, and channel geomorphology; our hydrologic predictions do not support a bankfull flow of 150 cfs or a 100-year flood flow of 1,000 cfs.   We found bankfull flows around 1,400 cfs and the 100-year flood flow to be around 3,580 cfs. The entire plan for model calibration and habitat assessments are reliant on these values. This is a fundamental part of the study and it appears that the study authors are working from very different assumptions. We would like to ensure that we have a clear consensus on the appropriate values for the bankfull and 100-year flood in order to ensure that the flow studies will provide enough information to allow decision makers to consider all of the options to mitigate the impacts to fish and wildlife in the future.
3. Section 3.1.4.4 states intent to run the sediment transport model over a variety of different flow scenarios, but we cannot find the range of flows under proposal for flow

scenarios in the study plan. We cannot assess the validity of the study plan without this information. Our concern is that flow scenarios would be run at a much lower range than the historical bankfull flows. Please provide the range of flows that is intended to be used for modeling and how you would address our concern if you do not intend to model up to the bankfull flow of 1,400 cfs.

4. Please address how you intend to follow HEC-RAS best practices for creating a sediment-rating curve including the following: "A flow-load curve should span the entire range of flows, including a minimum of two points. The rating curve must include a low flow and a high flow that bound observed or expected flows and their accompanying loads. A common error involves developing a flow-load rating curve that only extends to the maximum flow with a concentration sample, and not the maximum flow in the model." (Full document available [here]).

5. We anticipate that channel morphology is going to change over time as flushing flows are released. It appears the model being developed is going to be based on channel geometry in 2021. We are concerned that this model will not be useful for understanding the flow requirements to maintain fish habitat after channel evolution occurs. Please explain how you intend to address this.

6. Section 3.2.4.4 outlines plans for 2D HEC-RAS modeling using LIDAR data. LIDAR does not provide data below water. Please indicate how data will be collected for any areas that are under water.

7. In section 3.2.4.5, outlines a plan to calibrate the 2D HEC-RAS model based on flow data collected in 2022. This includes collection at transects above the Thunderbird Creek, where there is minimal flow. Please explain how this approach will provide sufficient data for model calibration?

8. Please explain how you can move forward with the year 2 study when there are still scour chains and accelerometers that have not been collected from the 2021 flow release?

Let's look at calendars for this Friday.

Thank you,
Jennie Spegon

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From: Owen, Samantha <owen@mcmjac.com>
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Subject: [EXTERNAL] Wednesday meeting

Hey Jennie,

Hope you had a great weekend. I followed with my team to see who might be available for the meeting you scheduled on Wednesday. Unfortunately, no one from our instream flow or geomorphology team is available at that time. Please let me know what other dates/times this week would work for you and your team. We'll then try to find a time that works for us as well. Alternatively, you could send me your questions/comments in an email, and I'll coordinate with my team to get you responses asap.

Regards,

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