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MEMORANDUM

TO: FPAC

Michele DeHart

FROM: Michele DeHart

DATE: February 28, 2014

RE: Modeling of Change Form 12LMN007 Compared to CRITFC Alternative Operation for Modified Spring Spill Operations in 2014

In 2012, the Salmon Managers submitted a change form (12LMN007) for modified spring spill operations at Lower Monumental Dam. As discussed at FPAC, the change form represents the best implementable operations for fish passage at Lower Monumental Dam, within present operational constraints. The alternative options being discussed attempt to address the significant reductions in the proportion of spill when large numbers of migrants are passing. The reductions result from the operation with bulk spill patterns at flows in excess of 60 Kcfs, which impose total dissolved gas constraints that would not occur if a uniform spill pattern was used. The State of Idaho operation addresses the reductions of spill above 60 Kcfs, but accomplishes that by reducing spill during other periods using a maximum spill cap of 50% of total flow (FPC Memo to FPAC dated Feb. 14, 2014, <http://www.fpc.org/documents/memos/14-14.pdf>). The proposal offered by CRITFC also addresses the reduction in spill above 60 Kcfs, but does not reduce spill from the status quo during other periods (FPC Memo to FPAC dated Feb. 26, 2014, <http://www.fpc.org/documents/memos/23-14.pdf>). At the FPAC meeting on February 26, 2014, we were requested to compare the CRITFC proposal to the recommended operations in the change form 12LMN007. In response to your request, the Fish Passage Center (FPC) staff has modeled the operations outlined in the 2012 Lower Monumental change form (12LMN007), compared to the recent CRITFC Alternative Proposal for modified spring spill at Lower Monumental Dam (LMN) in 2014. Below is a brief synopsis of the two proposals.

Alternative “CRITFC” Proposal

As with the Idaho change form, the CRITFC Alternative proposal proposes to switch from a bulk spill pattern to a uniform spill pattern when flow exceeds 60 Kcfs and the bulk spill pattern would result in less than 30% spill. However, under the CRITFC Alternative proposal, only the uniform spill pattern will be capped at 50% spill. Regardless of flows, spill under the bulk spill pattern is not capped at a particular proportion, which is different from the Idaho Change Form. The result is that there is no reduction in spill from present operations associated with the CRITFC proposal.

12LMN007

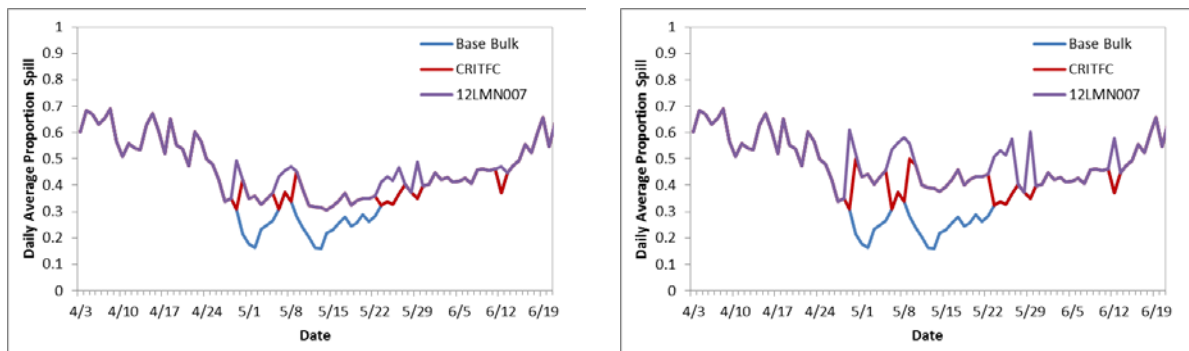
Under 12LMN007, a bulk spill pattern would be used when flows are below 60 Kcfs. When flows are above 60 Kcfs, spill at LMN would switch from the bulk spill pattern to a uniform spill pattern.

Methods

Modeling under both proposals followed the same assumptions and methods as those outlined in our February 14, 2014, memo to FPAC. As with the February 14th modeling, we modeled the CRITFC Alternative Proposal assuming both a 30 Kcfs and 37 Kcfs uniform spill cap.

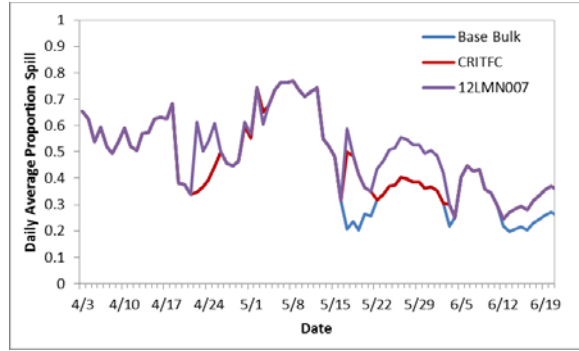
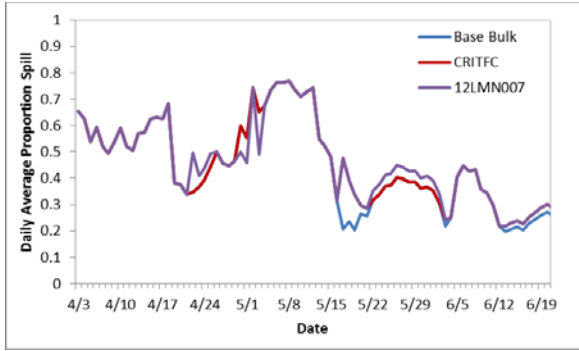
Results

Based on these latest modeling efforts, it is clear that the CRITFC Alternative Proposal provides less additional spill than change order 12LMN007. This reduction is primarily due to two factors. First, the CRITFC Alternative Proposal calls for the uniform spill pattern only when flows are above 60 Kcfs and the bulk spill pattern provides less than 30% spill. Change form 12LMN007 called for the uniform spill pattern whenever flows exceeded 60 Kcfs, under all conditions. Second, when the uniform spill pattern is provided under the CRITFC Alternative Proposal, it would be capped at 50%. Change form 12LMN007 does not have any cap under the uniform spill pattern. While the CRITFC alternative does not increase spill to the levels in 12LMN007, it does not cause a reduction in spill from the status quo.

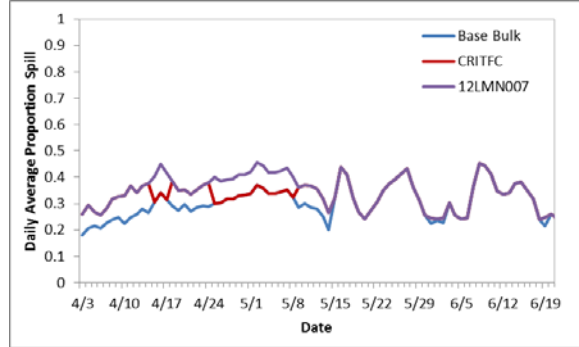
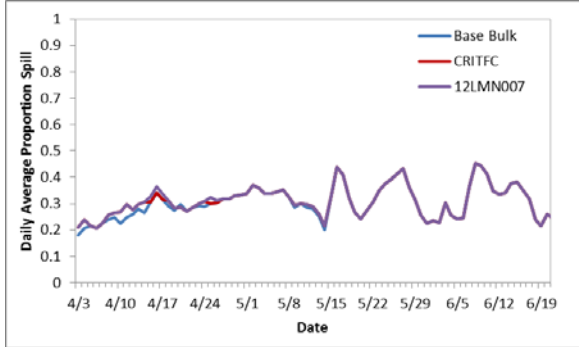


2007

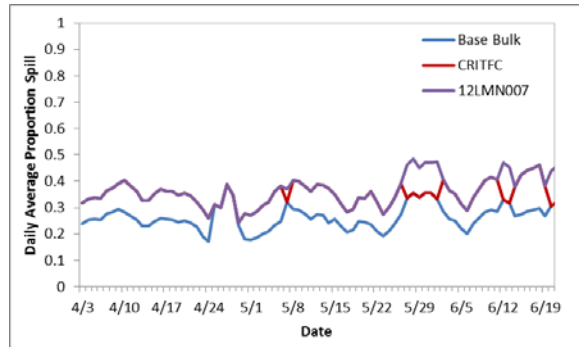
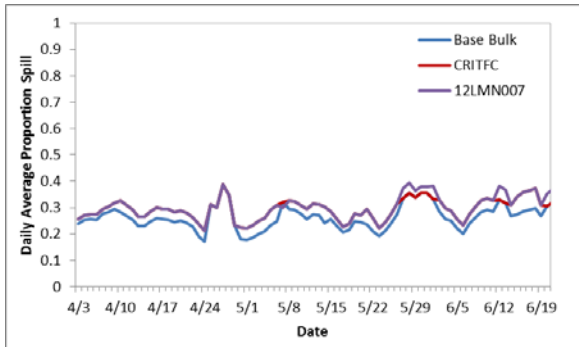
Figure 1 (Part 1). Modeled results of the base operations (Base Bulk), CRITFC Alternative Proposal, and 12LMN007, with uniform gas cap assumed to be 30 Kcfs (left) and 37 Kcfs (right).



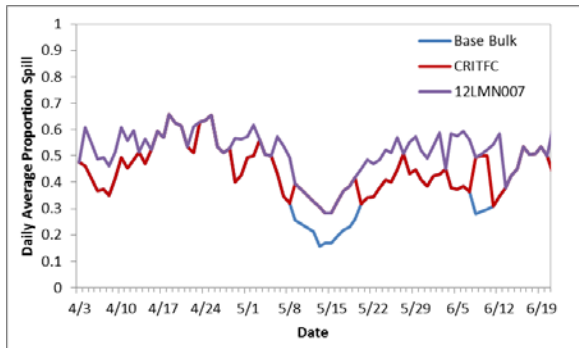
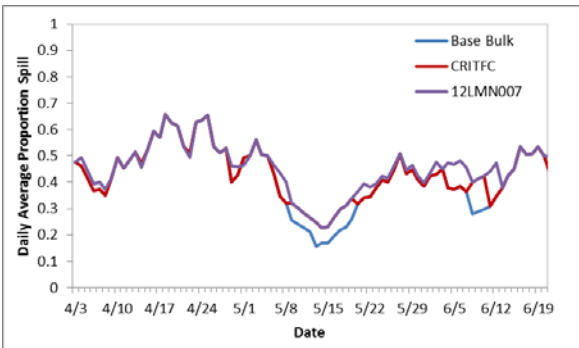
2010



2011



2012



2013

Figure 1 (Continued). Modeled results of the base operations (Base Bulk), CRITFC Alternative Proposal, and 12LMN007, with uniform gas cap assumed to be 30 Kcfs (left) and 37 Kcfs (right). Note: the reduction in spill for the change order April 30 to May 1, 2010, and May 4, 2010, is due to the assumption for uniform spill caps made in the model (30 and 37 Kcfs). The actual spill cap under the bulk spill pattern during this time was in the 36–40 Kcfs range, which is higher than the spill caps assumed for modeling the uniform pattern. In reality, the spill cap under the uniform pattern would be at least equal to the spill cap under the bulk spill pattern and the reduction would not occur.)