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MEMORANDUM

TO: Tom Lorz, CRITFC

FROM: Michele DeHart

DATE: February 25, 2014

RE: Modeling of CRITFC Alternative Operation to Idaho Change Form for LMN Spring Spill Operations in 2014

In response to your request, the Fish Passage Center (FPC) staff has modeled the CRITFC Alternative to the proposed Idaho Change Form for modified spring spill at Lower Monumental Dam (LMN) in 2014. Below is a brief synopsis of the two proposals.

Idaho Change Form

The Idaho change form 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. In addition, the proposed change limits spill at LMN to 50%, regardless of which spill pattern is used.

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.

Methods

Modeling under both proposals followed the same assumptions and methods as those outlined in our February 14, 2014, memo to FPAC (<http://www.fpc.org/documents/memos/14-14.pdf>). As with the February 14th modeling, we modeled the CRITFC Alternative Proposal assuming both a 30 Kcfs and 37 Kcfs uniform spill cap.

Results

When assuming a uniform spill cap of 30 Kcfs, the CRITFC Alternative Proposal provides the same benefit as the Idaho Proposal by implementing the uniform spill pattern when flows are greater than 60 Kcfs and the bulk spill pattern would have resulted in less than 30% spill (Figure 1). This benefit typically occurs in May when flows are increasing. However, the CRITFC Alternative Proposal eliminates the reductions in spill in April and early to mid-May that the Idaho Proposal imposed due to the capping of the bulk spill pattern at 50% spill (Figure 1). For example, in 2010, the Idaho Proposal would have capped spill at 50% for much of the first half of May. This is mostly due to the fact that flows during this time were less than 60 Kcfs and the bulk spill cap during this time equated to over 50% spill. This cap of 50% spill at flows of less than 60 Kcfs would not have occurred under the CRITFC proposal. It is important to note, however, that under the CRITFC Alternative Proposal, spill under a uniform spill cap of 30 Kcfs will never equate to greater than 50% spill.

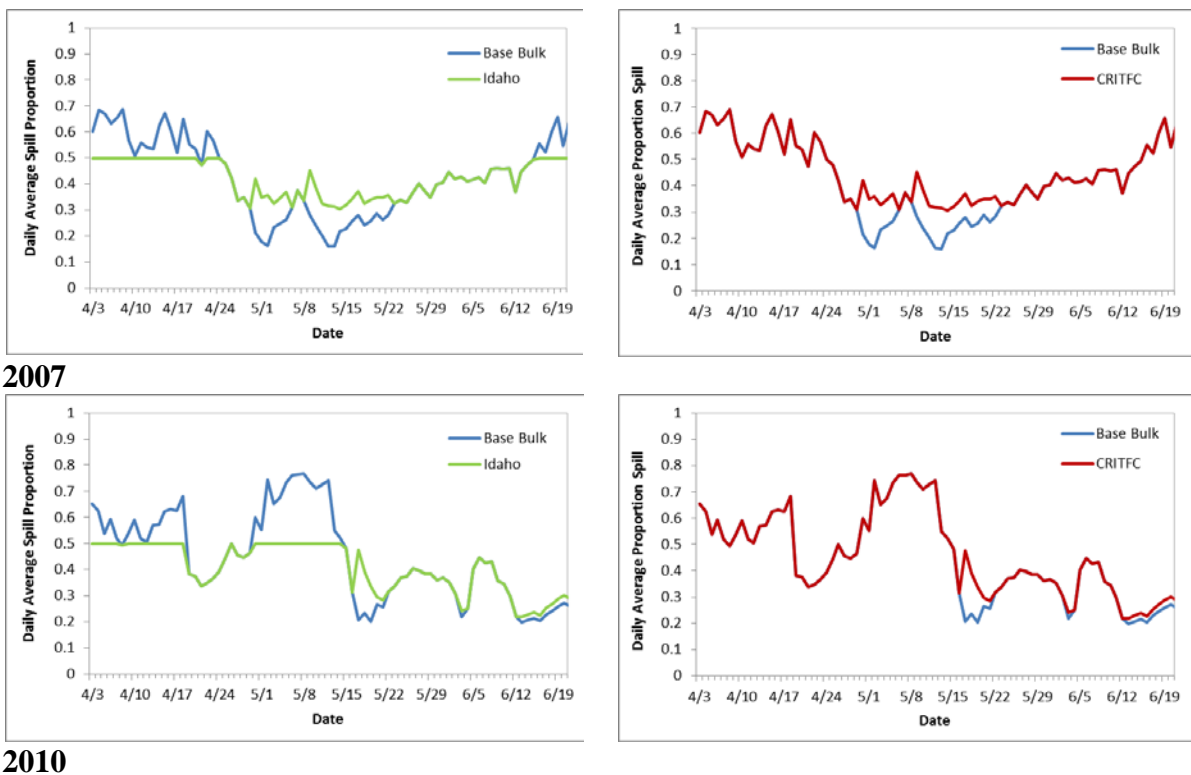
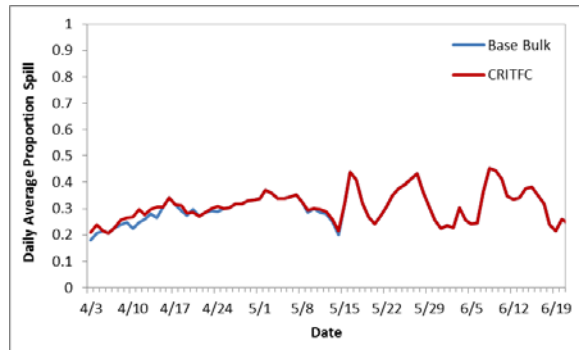
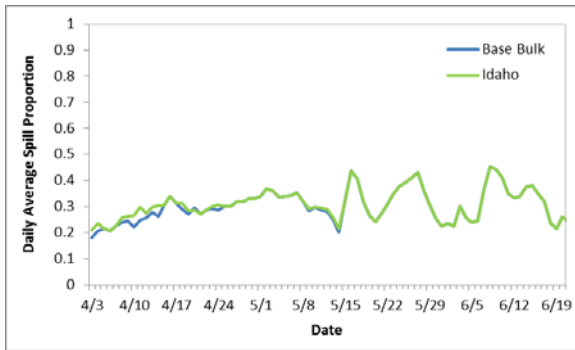
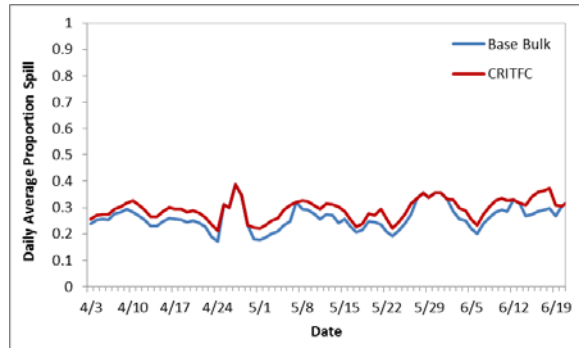
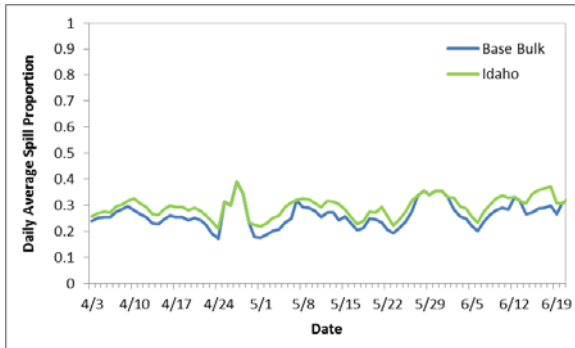


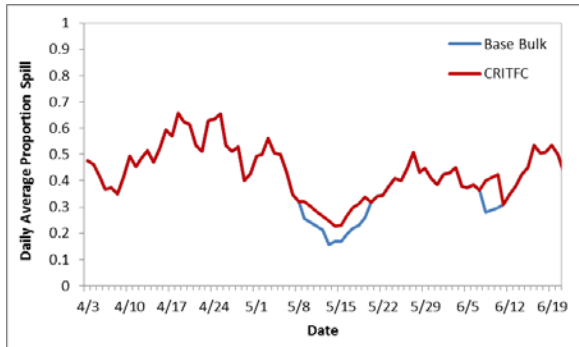
Figure 1 (Part 1). Modeled results of Idaho Change Form (left) and CRITFC Alternative Proposal (right) with uniform gas cap assumed to be 30 Kcfs.



2011



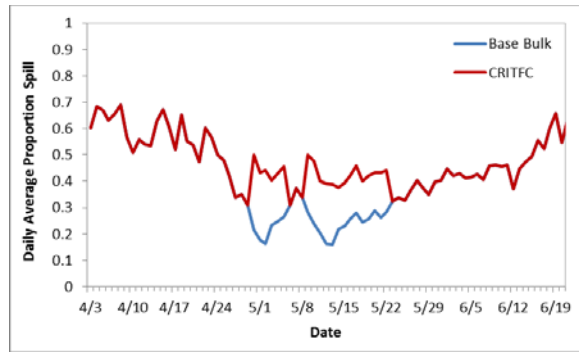
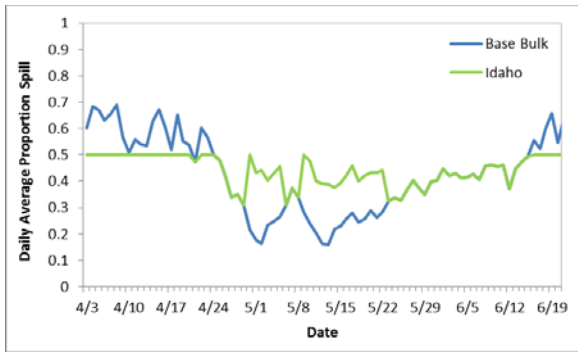
2012



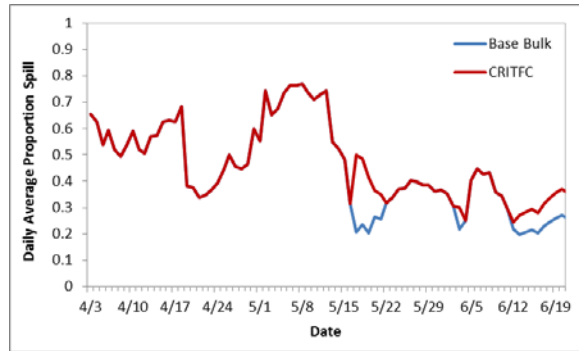
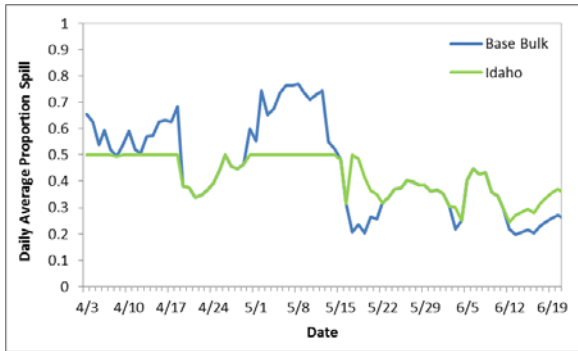
2013

Figure 1 (Continued). Modeled results of Idaho Change Form (left) and CRITFC Alternative Proposal (right) with uniform gas cap assumed to be 30 Kcfs.

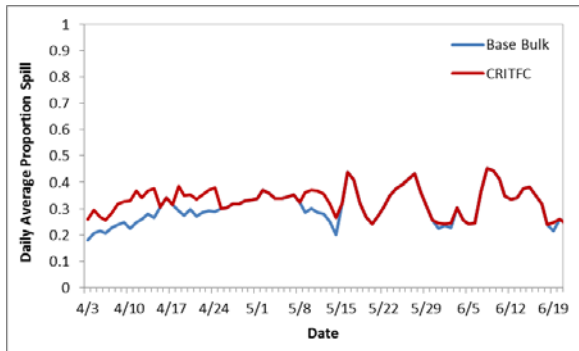
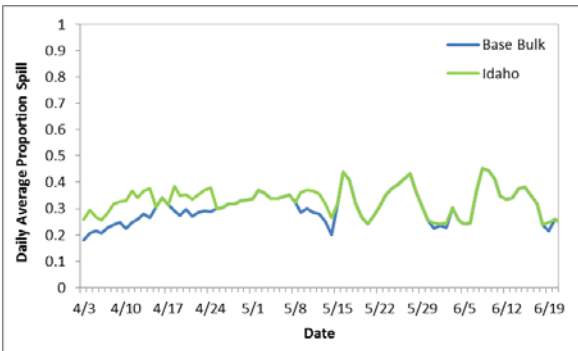
The only conditions when the CRITFC Alternative Proposal would impose the 50% cap to spill under the uniform spill pattern is when the uniform spill cap is greater than 30 Kcfs and flows are in the 60–80 Kcfs range. To illustrate this, we modeled these two proposals under a uniform spill cap of 37 Kcfs (Figure 2).



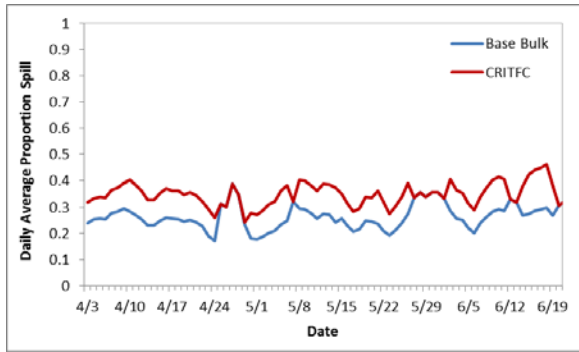
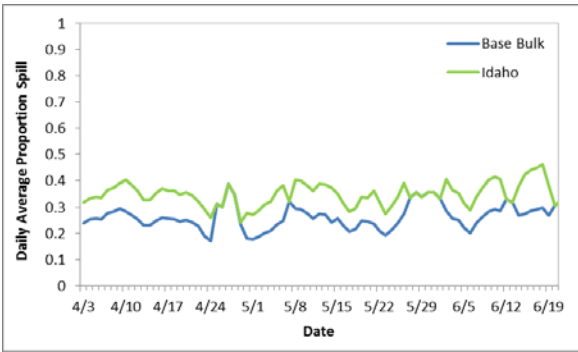
2007



2010

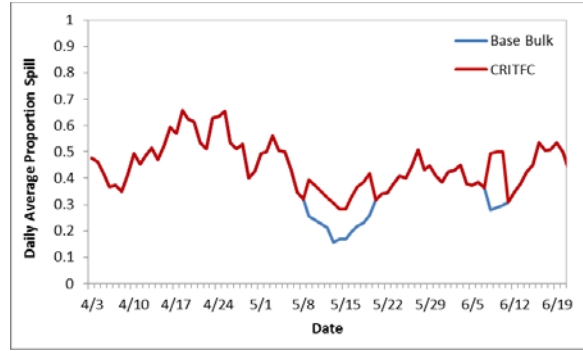


2011



2012

Figure 2 (Part 1). Modeled results of Idaho Change Form (left) and CRITFC Alternative Proposal (right) with uniform gas cap assumed to be 37 Kcfs.



2013

Figure 2 (Continued). Modeled results of Idaho Change Form (left) and CRITFC Alternative Proposal (right) with uniform gas cap assumed to be 37 Kcfs.