



FISH PASSAGE CENTER

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MEMORANDUM

TO: Erick Van Dyke

Michele DeHart

FROM: Michele DeHart

DATE: March 3, 2014

RE: Passage Timing at Lower Monumental Dam

In response to your request, the FPC staff examined whether it was possible to determine the origin of the PIT-tagged wild Chinook and wild steelhead presented in the FPC memo to FPAC dated February 14, 2014, <http://www.fpc.org/documents/memos/14-14.pdf>.

The February 14th memo presented the estimated wild Chinook and wild steelhead PIT-tag recoveries at Lower Monumental Dam for all fish, except those marked as part of the transportation studies at Lower Granite Dam. The estimated detection probabilities for yearling Chinook and steelhead at LMN under various flow conditions and spill proportions based on CSS modeling efforts for Experimental Spill Management were used to expand the raw PIT-tag recoveries. In this analysis the same PIT-tag data set was used, except fish marked at the Snake River Trap at Lewiston were excluded since the origin for these fish could not be specifically determined. The intent here is to provide information relative to which groups of fish would be most affected by the decrease in spill that would result from the implementation of the State of Idaho proposed spill operation at Lower Monumental Dam.

Results

For the present request the FPC staff developed passage timing graphs for wild chinook and steelhead from individual drainages for the PIT-tagged fish detected at Lower Monumental Dam. When reviewing these data keep in mind that the graphs were purposely terminated on June 20, the end of the Biological Opinion spring spill period. These PIT-tag data should not be used to determine the end of the migration period (see Fish Passage Center memo dated May 28, 2013, <http://www.fpc.org/documents/memos/69-13.pdf>).

As stated in the February 14, 2014, memo, the Idaho proposed operation has the most significant negative impacts in low to moderate flow years. In the five years that we analyzed (Figures 1-5), 2007, 2010, and 2013 represented the low to moderate flow years in the following graphs. Passage presence, rather than magnitude differences among drainages, is the intention of these graphs, as different drainages may have different overall numbers of PIT-tagged fish. In general, wild steelhead from the Clearwater River and wild Chinook from the Salmon River appear to be consistently present during these early time periods when spill is decreased under the Idaho proposal. In 2007 (Figure 1) wild steelhead from the Clearwater, Salmon, and Imnaha drainages, as well as wild Chinook from all drainages, comprise the fish present during the time period when spill is constrained. In 2010 and 2013, the time period when spill is reduced extends well into May and, consequently, wild steelhead and Chinook from all the drainages are present at LMN (Figure 2 and Figure 5, respectively).

In summary, our conclusion is the same as stated in the February 14th memo: “The Idaho proposal does not recognize the considerable impact on passage protection that may be incurred by these April migrants, and in some years May migrants.” From this exercise it is evident that the reduction of spill will have a greater impact on fish from a few drainages, while in other years fish from all drainages will be affected.

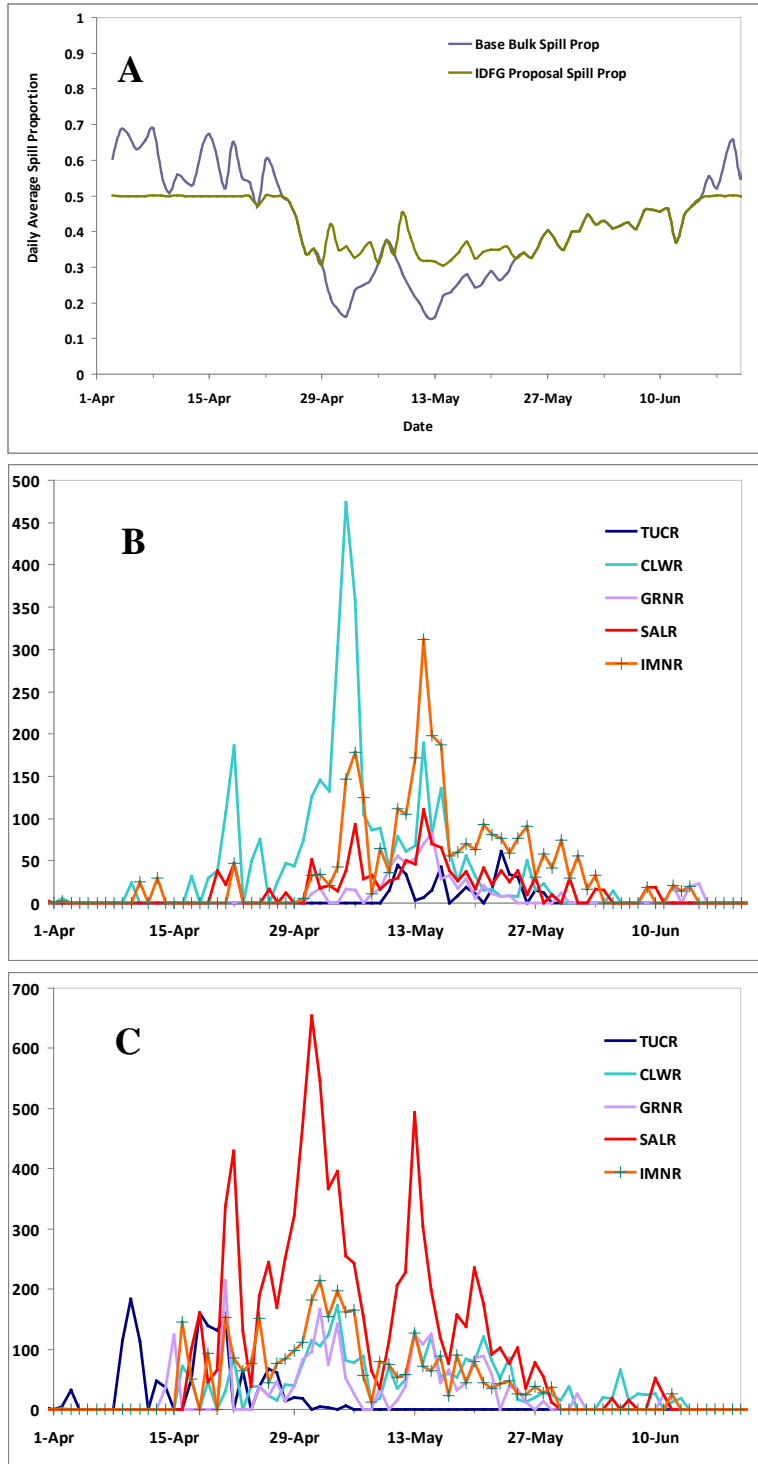


Figure 1. Comparison of IDFG Proposed Spill at LMN versus baseline spill under 2007 flow conditions (A). Plots of steelhead (B) and Chinook (C) PIT-tag expanded passage timing from various sub-basins above LGR dam. The sub-basins represented are: Tucannon River (TUCR), Clearwater River (CLWR), Asotin Creek (ASOT), Grande Ronde River (GRNR), Salmon River (SALR), and Imnaha River (IMNR).

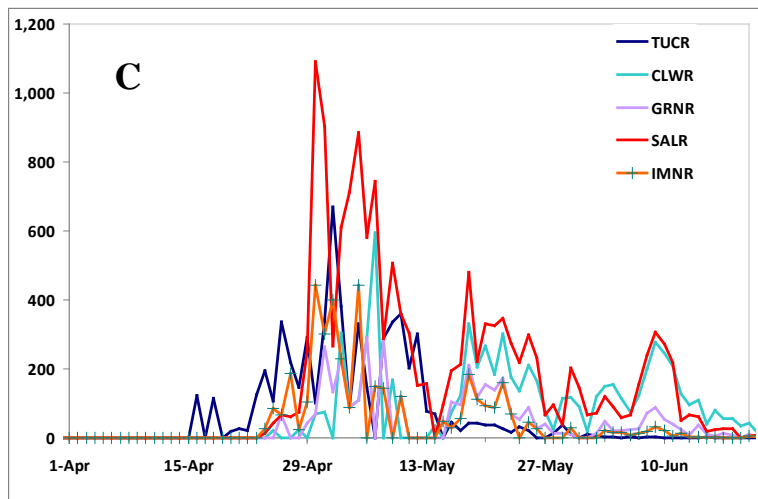
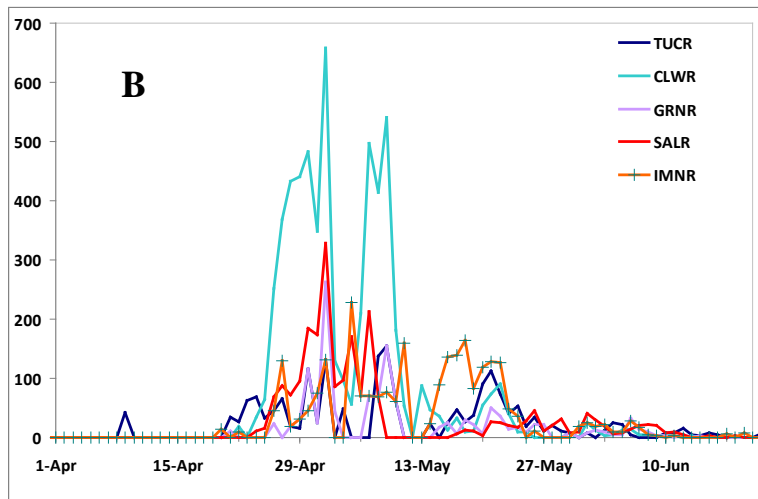
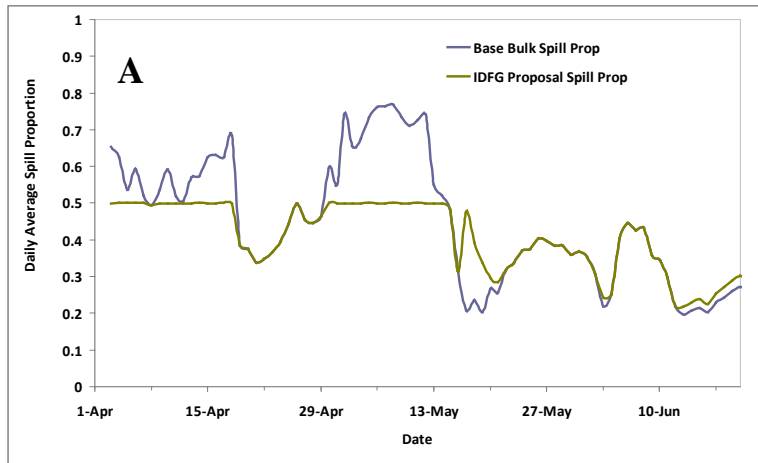


Figure 2. Comparison of IDFG Proposed Spill at LMN versus baseline spill under 2010 flow conditions (A). Plots of steelhead (B) and Chinook (C) PIT-tag expanded passage timing from various sub-basins above LGR dam. The sub-basins represented are: Tucannon River (TUCR), Clearwater River (CLWR), Asotin Creek (ASOT), Grande Ronde River (GRNR), Salmon River (SALR), and Imnaha River (IMNR).

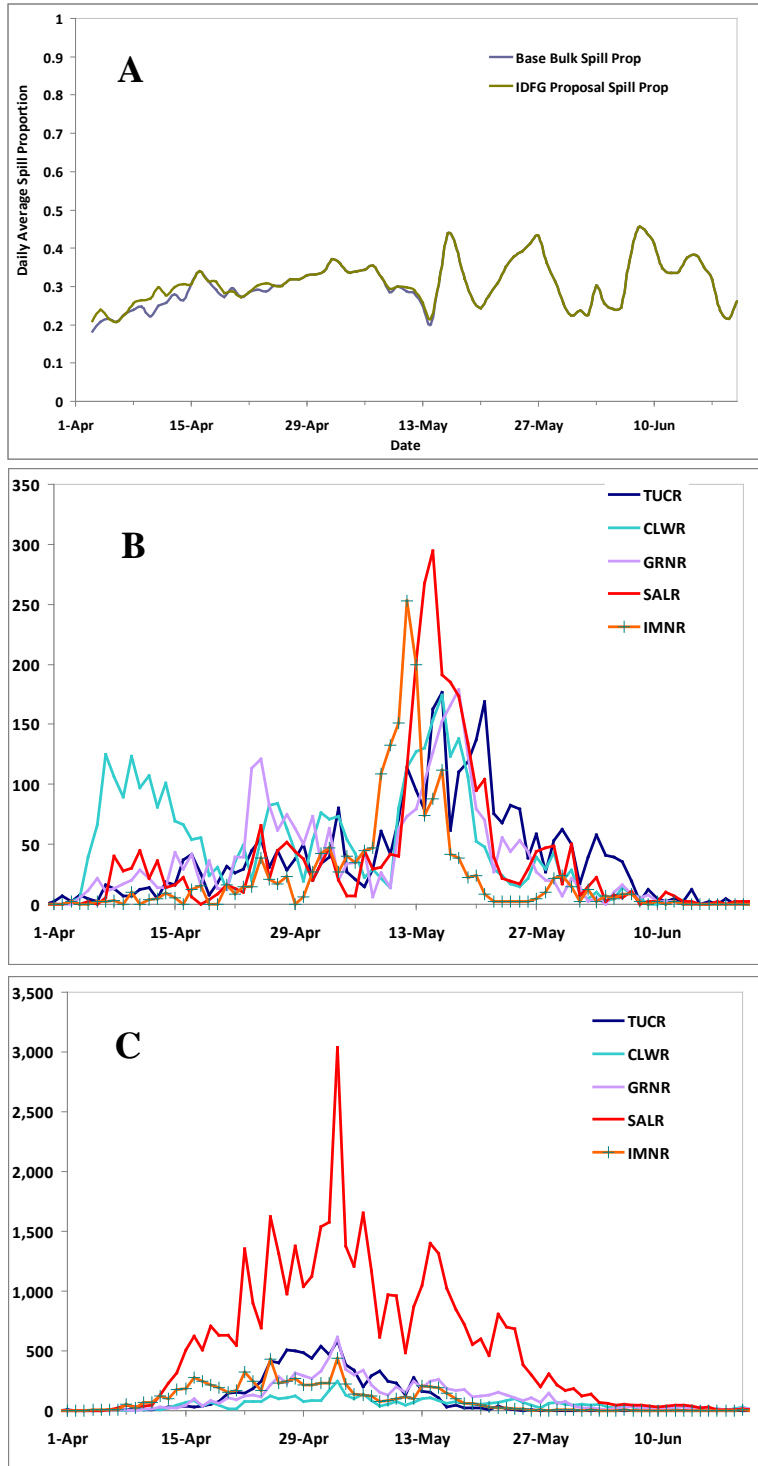


Figure 3. Comparison of IDFG Proposed Spill at LMN versus baseline spill under 2011 flow conditions (A). Plots of steelhead (B) and Chinook (C) PIT-tag expanded passage timing from various sub-basins above LGR dam. The sub-basins represented are: Tucannon River (TUCR), Clearwater River (CLWR), Asotin Creek (ASOT), Grande Ronde River (GRNR), Salmon River (SALR), and Imnaha River (IMNR).

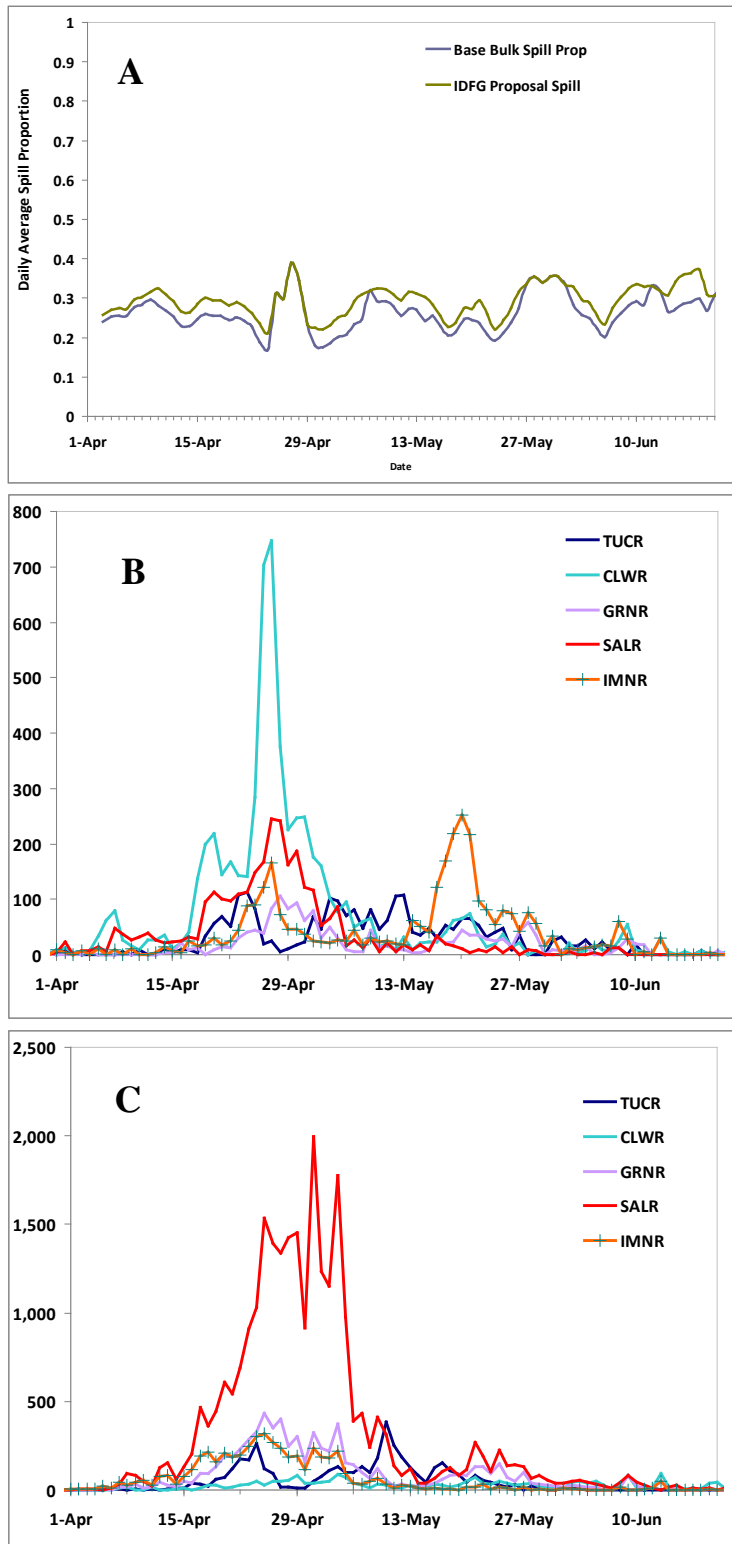


Figure 4. Comparison of IDFG Proposed Spill at LMN versus baseline spill under 2012 flow conditions (A). Plots of steelhead (B) and Chinook (C) PIT-tag expanded passage timing from various sub-basins above LGR dam. The sub-basins represented are: Tucannon River (TUCR), Clearwater River (CLWR), Asotin Creek (ASOT), Grande Ronde River (GRNR), Salmon River (SALR), and Imnaha River (IMNR).

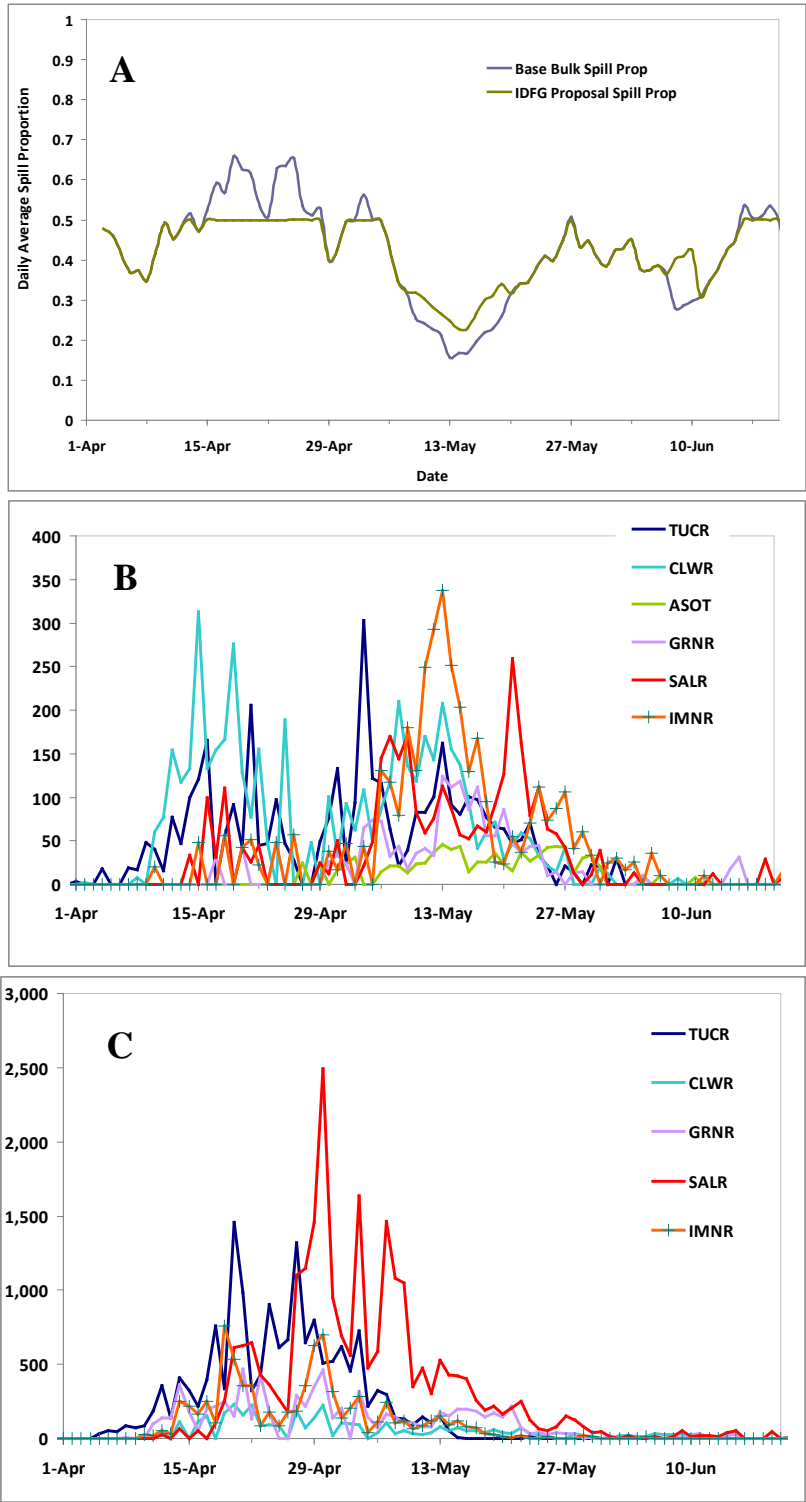


Figure 5. Comparison of IDFG Proposed Spill at LMN versus baseline spill under 2013 flow conditions (A). Plots of steelhead (B) and Chinook (C) PIT-tag expanded passage timing from various sub-basins above LGR dam. The sub-basins represented are: Tucannon River (TUCR), Clearwater River (CLWR), Asotin Creek (ASOT), Grande Ronde River (GRNR), Salmon River (SALR), and Imnaha River (IMNR).