



# FISH PASSAGE CENTER

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## MEMORANDUM

TO: Charlie Morrill, WDFW

FROM: Michele DeHart

DATE: July 18, 2016

SUBJECT: Review of Lower Granite Dam Phase 1A – Scheduling Options Path Forward

In response to your request, we reviewed the Lower Granite Dam Phase 1A – Scheduling Options Path Forward document that was circulated for the special FFDRWG conference call that is scheduled for Tuesday, July 19, 2016. For this review, we primarily focused on potential impacts to juvenile and adult fish passage. Based on our review, and the limited detail provided in the above mentioned document, we offer the following general comments regarding the three options. Once a decision has been made, and more details are known, we will offer further comments.

**All three options pose some risk of not being completed in time for the start of the juvenile migration period in 2017 and/or 2018.**

**Operations at Lower Granite Dam must be provided to reduce the proportion of fish that encounter the powerhouse.**

All three options require some period of time when screens at Lower Granite are pulled in order to allow for construction work. When screens are not in place, spill to the gas cap must be provided as a means of reducing powerhouse and turbine passage. This recommendation applies to two main periods: 1) a portion of the extended in-water work period (~August-November) when juveniles are still present and 2) the beginning of the juvenile out-migration period, if construction is not completed in time.

This recommendation is based on a broad range of studies and analyses that have documented the many effects that the transportation/collection/bypass systems at mainstem dams can have on salmonids, including: juvenile migration delay (Beeman and Maule 2001, Muir et al. 2001b, Tuomikoski et al. 2010), delayed mortality (Budy et al. 2002, Schaller and Petrosky

2007), reduced smolt-to-adult return rates (SARs) (Sandford and Smith 2002, Williams et al. 2005, Tuomikoski et al. 2010, Buchanan et al. 2011), and reduced adult success (FPC 2015, FPC 2016, Crozier et al. 2014, Tuomikoski et al. 2010).

**Court Ordered Spill, as prescribed by the Fish Operations Plan, must be provided at all projects.**

As indicated in the “Cons” section for Option 1, significant construction delays may lead to impacts to transport operations at LGR. This section goes on to state that significant construction delays “would require max transport from Little Goose”. We assume that “max transport from Little Goose” means that spill at Little Goose would be terminated in order to collect more juvenile salmonids for transportation at this project. It is unclear as to why an outage in the juvenile bypass system at Lower Granite would facilitate a need to maximize transportation, and thus terminate spill, at a downstream project. At no point should the court ordered spill operations be terminated at any project because of a construction project upstream.

**Technical details of the construction work are lacking and, therefore, it is difficult to determine what the impact may be on adults.**

All three options propose the same work which, presumably, will have the same impacts on adult salmonids in the ladder. As a general rule, the longer the project takes to complete, the more impacts there will be on adult salmonids in the ladders.

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