

ADDENDUM: 2010 Spring Fish Operations Plan

The 2010 water year is proving to be one of the lowest water years on record. Based on the most current water supply forecast, flows in the lower Snake River are expected to be very low - in the 50 kcfs range.¹ In the 2010 Spring Fish Operations Plan (2010 Spring FOP), submitted to the Court on March 31, 2010, the Corps stated if the April final water supply forecast indicates a seasonal regulated flow of ≤ 65 kcfs in the lower Snake River², the Corps and NOAA, in coordination with the regional sovereigns, will consider the best available science to make a final determination on spill and juvenile transportation operations.

The 2008 NOAA BiOp recommends that if the April final water supply forecast indicates a seasonal regulated flow of ≤ 65 kcfs in the lower Snake River (April 3- June 20), maximum transport be initiated at the three Snake River collector projects (Lower Granite, Little Goose, and Lower Monumental dams) on April 3, and continues through the spring outmigration. To accomplish this, spill is not provided at the three collector projects.

The Obama Administration review of the 2008 FCRPS BiOp culminated in the preparation of the Adaptive Management Implementation Plan (AMIP), which provides for annual coordination on spill and transport: "Data on fish survival will be reviewed with RIOG again in 2010, and each year thereafter, to determine the best operation for the fish, and there is no longer a presumptive operation for this time period as set forth in the RPA." (AMIP, p. 10)

For the 2010 migration season, recognizing the water supply forecasts predict a low flow year, NOAA reviewed the data from recent years (2006-2008), in particular data from 2007³ another low flow year. Considering the most recent data, NOAA scientists recommended that if the 2010 seasonal regulated flow conditions are ≤ 65 kcfs in the lower Snake River, maximum transportation operations should be implemented beginning no earlier than April 20 at Lower Granite, April 24 at Little Goose, and April 27 at Lower Monumental Dam; and beginning no later than May 1 at Lower Granite, May 5 at Little Goose, and May 8 at Lower Monumental Dam. NOAA advised that a maximum transportation operation would likely return substantially more Snake River steelhead and Chinook in a low flow year based on 2007 data.

NOAA presented this low flow (≤ 65 kcfs) transportation proposal and rationale to the Independent Science Advisory Board (ISAB) for their input. The ISAB reviewed the proposal

¹ The April 7 final water supply forecast indicated an April-July volume that is 56% of normal for Lower Granite Dam. The Corps' April 13 STP model run, which projects daily mean regulated flow at Lower Granite Dam, indicated an April 3 – June 20 mean daily flow of 48.3 kcfs.

² The seasonal average flow projections are based on the Corps' STP model and the April final forecast for Lower Granite Dam (available approximately by April 7, 2010).

³ April 3–June 21, 2007 seasonal regulated flow average was 61.2 kcfs at Lower Granite Dam.

and provided a report to NOAA on April 9. (ISAB Review of NOAA Fisheries' 2010 Low Flow Fish Transport Operations Proposal, ISAB 2010-2).

The ISAB acknowledged the benefits to listed fish associated with both spill and transport: "...there are survival benefits to be gained from increased spill. However, available science indicates that there are overall benefits of transportation for steelhead and spring/summer Chinook under most environmental conditions." The ISAB concludes that "a mixed strategy of spill and transport during the critical spring migration period allows learning from spill conditions and supports potential advances in knowledge to improve decision-making in the future." The ISAB's conclusions looked at broader ecosystem considerations than the NOAA proposal's focus on the protection of ESA-listed Snake River Chinook salmon and steelhead stocks during a low-flow year.

The ISAB noted that uncertainties exist in the available information as it relates to spill and transport, especially in low water years where data on a mixed strategy of using both spill and transport to facilitate the migration of juvenile steelhead and Chinook are limited. In addition, from a broader ecosystem perspective, uncertainties also exist about the operational effects of spill and transport on other species such as sockeye and non-listed lamprey. Due to the small numbers of juvenile sockeye, very little data exist on the effects of transport on this species. Even less is known about the effects of hydrosystem and transport operations on juvenile lamprey - methods to evaluate the survival of this species as they migrate through the hydrosystem do not exist at this time.

Recent juvenile fish passage configuration improvements have been made to significantly improve juvenile salmonid survival at both Snake and Columbia River dams since 2007. These improvements include spillway weirs at Lower Monumental and John Day dams installed in 2008 and at Little Goose Dam in 2009. A new spillwall at The Dalles Dam, designed to improve the survival of fish passing through the spillway, was completed in 2010. Other improvements have also been made at juvenile bypass facilities along with the development of new spill patterns at many projects; all of these features improve passage survival at the dams. While individual dam passage studies have been conducted to assess the effectiveness of these configuration improvements in increasing passage survival, the overall influence of these structures on in-river survival during low water conditions and the effects on adult returns has not been thoroughly evaluated.

After reviewing the ISAB report, the Corps, in coordination with NOAA, the Bureau of Reclamation, and the Bonneville Power Administration, met and discussed 2010 spring spill and transport operations with the regional sovereigns through the TMT, and the RIOG. Both the ISAB and NOAA scientists acknowledge that leaving juvenile fish in the river will result in higher mortality for some species; and for Snake River steelhead, could reduce adult returns from this year's outmigration by as much as half. While we have reservations about leaving

juvenile fish in-river during these low flow conditions, implementation of a mixed strategy of spill and transport for 2010 will allow us to gather additional information.

Having considered the best available information and the input from the regional sovereigns, including assessing the trade-offs presented concerning effects on listed fish survival in 2010 and the gains to be had with collecting better information under low flow conditions with the current system configuration, the Corps has made the determination to implement the 2010 Spring FOP with continuation of the 2009 spring spill operations, and with juvenile transport operations at the Snake River collector projects. This operation will continue the levels of spill specified in the 2010 Spring FOP during late April/May regardless of flow conditions in 2010.⁴ However, based on the recommendation of the RIOG, river flow and fish condition will be monitored, and if regional sovereigns recommend adjustments in spill and transport, the Corps will use the regional coordination process to make a determination on operational changes. This operation is for 2010 and with the additional information collected, we will be able to determine how best to protect the fish in future low-water years, using the best available science and adaptive management as called for in the AMIP.

The Corps, in coordination with NOAA and the regional sovereigns through the TMT, will determine the start dates for transport initiation at the three collector projects – anticipated to begin at Lower Granite Dam after April 21 but no later than May 1. Spill at the remaining non-collector projects will be implemented as identified in the 2010 Spring FOP.

⁴ This Addendum retains the spill provisions of the 2010 Spring FOP, including those contained in the “General Considerations for Fish Operations.”