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MEMORANDUM

TO: Tom Lorz, CRITFC

FROM: Michele DeHart

DATE: March 22, 2013

RE: 2012 Performance Testing at Lower Columbia Dams

In response to your request, the FPC staff has reviewed the draft PNNL reports prepared for the US Army Corps of Engineers on performance testing at Bonneville, The Dalles, John Day, and McNary Dams during the 2012 migration season. Like testing at Little Goose and Lower Monumental Dams in 2012 (see attached FPC Memo February 11, 2013), these studies raise several concerns about study conditions, experimental design, and the analyses.

This memo provides a brief summary of issues specific to 2012 testing in the Lower Columbia. The attached FPC memo from January 4, 2013, outlines a number of issues that have been previously raised by FPC and apply to 2012 performance testing as well. These issues include spill levels, survival inflation through usage of the Virtual-Paired Release design, rejection rates of tagged fish, mortality in control groups, smolt behavior potentially biasing results, and the failure of evaluation to take into account factors other than concrete survival, such as latent mortality. Specific concerns raised by the 2012 studies may further limit the applicability of these results. These concerns include:

- Rejection rates for study fish were 3.2% for subyearling Chinook, 3.7% for yearling Chinook, and 7% for Steelhead. Survival estimates for the run-at-large are likely to be considerably lower than that for study fish.

- At all four sites, spill levels were much higher than those required by the spill court-order. Survival estimates generated by smolts in these conditions should not be extrapolated to survival estimates for lower-flow years with completely different spill regimes.

    - At Bonneville, flows during the study period averaged 149.2 kcfs (41.9%), rather than the 95 kcfs day, 85/120 kcfs night flows that were planned.
    - At McNary dam, spill levels were planned at 40% for the spring and 50% for the summer. Actual spill levels ranged as high as 60% in the spring and close to 75% in the summer.
    - At John Day, spill was greater than 30% for both the spring and summer seasons, so the planned study blocks of 30%/40% spill were unachievable. Study results should not be used to estimate survivals at 30% spill.

- Single-release survival estimates at McNary dam were very low compared to BiOp survival standards. However, usage of the Virtual-Paired release inflated these estimates to far beyond BiOp standards due to high mortality in the control groups.

    After adjusting for the low survival of the control releases:

	Single Release Estimate	Adjusted With Control Groups
Yearling Chinook	91.7%	96.2%
Steelhead	91.4%	100.1%
Subyearling Chinook	91.5%	97.5%

    These results should be critically evaluated before survival standards are considered met.

- Survival estimates of greater than 100% were rounded down to 100% when calculating Virtual-Paired Release survival estimates at John Day (Steelhead, subyearling Chinook) and Bonneville (subyearling Chinook).