

**Retired US Army Corps of Engineers Consortium
Snake River Hydrosystem**

November 3, 2015

The Honorable Patty Murray
United States Senate
154 Russell Senate Office Building
Washington, D.C. 20510

Re: Recovering Federally Endangered Snake River Salmon and Steelhead

Dear Senator Murray:

We are writing to urge you to support President Obama in taking executive action to breach the four lower Snake River dams. It is becoming increasingly evident that if the threatened and endangered Snake River *wild* salmon and steelhead runs are to survive, cooler free flowing rivers are needed now. We realize that you have many matters to tackle, and for some, dam breaching is a hot political issue that will take courage to confront.

We cannot afford to waste more time if the Pacific Northwest is to retain its iconic salmon and the species that depend on them, including the critically endangered Southern Resident Killer Whales. Federal agencies had decided by 2002 that *dam breaching by itself would likely recover steelhead and fall Chinook*, and that *breaching presented the greatest biological potential for recovering the endangered and threatened wild runs*. Nonetheless the agencies decided to put dam breaching off for ten years to determine if expensive technical fixes to the dams would permit wild salmon to recover. To date wild salmon runs are not meeting survival goals, much less recovering. Technical fixes have not worked. Thirteen years have been wasted. Dam breaching must be accomplished now for wild salmon to survive.

Moreover, the Snake River dams are not needed. The hydropower produced by the dams is surplus and has been replaced three times over by greener solar and wind energy. Unlike hydropower, these energy sources do not destroy entire river ecosystems. The highly subsidized Snake River barge traffic is being replaced by rail transport at a lower overall cost and a similar carbon footprint. And with a free flowing Snake River, recreation benefits will skyrocket in many Washington counties. Recovering the wild salmon runs will strengthen the Pacific Northwest economy and save tax/rate payers money.

Wild Salmon Are Not Meeting Survival Goals, Much Less Recovering, despite Reports of “Record Returns”

It is critically important to note at the outset that recovery of the salmon stocks is dependent upon the status of the genetically wild individuals. Recovery is based upon a minimum number of spawning wild adults returning from the ocean to their native rivers and tributaries. Despite reports of “record returns” to the Columbia/Snake Basin, wild salmon are not recovering. This has been masked, especially recently, by the increasing number of returning hatchery-produced fish, estimated to be more than 80% of the returning runs. Not only were hatchery fish intended as a temporary mitigation measure for producing harvestable fish due to anticipated losses from the construction of the dams and reservoirs, they are simultaneously imparting a host of negative

impacts on the wild runs, *including an increasingly rapid dilution of the wild gene pool*. The wild salmon's genetic diversity is their strength, and gives them their resiliency and ability to adapt. While returning hatchery fish appear to have been, for the most part increasing, the native wild runs have been holding at best at dangerously low, if not declining, levels. Hatchery salmon cannot self-sustain, especially as ocean conditions degenerate and fresh water temperatures rise. Their inbred populations collapse after several generations, and require hundreds of millions of dollars to propagate. NOAA Fisheries' recently released *Proposed Recovery Plan for Snake River Fall Chinook Salmon* corroborates the dilution of the wild gene pool and its consequences. We cannot afford perpetual hatcheries, when dam breaching presents a cheaper, greener alternative that restores an entire ecosystem, and with it enormous job opportunities.

Background to Wild Salmon Endangered Species Listings and Recovery Attempts

In 1991, the National Marine Fisheries Service (NMFS) listed Snake River sockeye as endangered under the Endangered Species Act. In 1992, NMFS listed Snake River spring/summer chinook and Snake River fall chinook salmon as threatened. In 1997, NMFS listed lower Snake River steelhead as threatened. Snake River coho were already extinct prior to NMFS listing sockeye. While a coho run is being artificially sustained with hatchery fish downriver on the Columbia, the wild genetic stock no longer exists.

Due to the precipitous decline in wild salmon after construction of the Snake River dams, in 1995 the Army Corps of Engineers (Corps) and other federal agencies began to study the best way to recover the wild salmon populations. Seven years later, in 2002, the Corps of Engineers released the *Final Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement (FR/EIS or Feasibility Study)* to document the results of a comprehensive analysis of the four dams on the lower Snake River and their effects on the four ESA listed stocks. This Feasibility Study was in response to the 1995 NMFS Biological Opinion for the Reinitiation of Consultation on 1994-1998 Operation of the Federal Columbia River Power System (FCRPS) and Juvenile Transportation Program in 1995 and Future Years (1995 Biological Opinion). In 1998, NMFS issued a supplement to the 1995 Biological Opinion, and, in 2000, it issued an updated Biological Opinion on FCRPS operations. The Final FR/EIS responded to the reasonable and prudent alternatives in these documents. The Corps identified Alternative 3—Major System Improvements (Adaptive Migration) as the recommended plan (preferred alternative) for how they would proceed.

This alternative provided a focus on adaptive migration, reflecting the strategies in the 2000 NMFS Biological Opinion. It assumed that engineered juvenile fishway systems would be operated under an adaptive migration strategy that balanced the passage of fish between in-river (over spillways) and transport (via barge or truck) methods. The federal agencies justified Alternative 3 based on the assumption that more studies with more data and the best available science would guide the management decisions. It was thought that Major System Improvements would allow the flexibility for implementing operational changes within a migration season, if necessary. This alternative incorporated several previously developed and/or tested technological improvements to increase survival through the Lower Snake River Project, e.g., surface bypass collectors (SBC), behavioral guidance structures (BGS), removable spillway weirs (RSW), and technology for reducing total dissolved gas. This alternative, in a large degree selected because of its 'low' price tag of \$350 million over 10 years, was

underestimated by 200%, and will soon reach the \$800 million mark. This is more than twice the corrected cost of breaching.

The FR/EIS also included Alternative 4—Dam Breaching. Dam breaching would create a 140-mile stretch of river with near-natural flow by removing the earthen embankment section of each dam and eliminating the reservoirs at all four lower Snake River dams. The powerhouses, spillways, and navigation locks would not be removed, but would no longer function.

Most recently, NOAA Fisheries issued a supplemental biological opinion on 17 January, 2014, again addressing the effects of the operation and maintenance of the FCRPS on the listed species and their critical habitat. This was a supplement to NOAA's 2010 Supplemental FCRPS BiOp and 2008 FCRPS BiOp on Consultation on Remand for Operations of the FCRPS and ESA Permit for Juvenile Transportation Program. The 2008 BiOp Reasonable and Prudent Alternative (RPA) is a comprehensive suite of actions to mitigate for the adverse effects of the operations and maintenance of the hydrosystem, as well as numerous research, monitoring and evaluation actions to inform adaptive management decisions.

Following a review by the Administration in 2009, NOAA reexamined and reaffirmed the conclusions in the 2008 FCRPS BiOp and RPA. The 2010 Supplemental BiOp supposedly provided for more aggressive implementation of the RPA, and took a more precautionary approach through improved monitoring and contingency measures should fish abundance unexpectedly decline. NOAA subsequently developed the 2014 Supplemental BiOp to address a 2011 Court Remand Order requiring the agency to re-examine the 2008 and 2010 BiOps.

All Non-Breaching Options Have Been Tried, Salmon Are Not Recovering

Even given these attempts to recover salmon and the long, convoluted history with multiple legal interveners, the lower Snake River wild stocks continue to suffer. While it is the statutory responsibility of NOAA to assure these runs are recovered, they are not fulfilling that responsibility. Nor is the Corps, in spite of spending over \$700 million, not counting operations, maintenance and repair costs, on technical fixes with little to no improvement in juvenile passage or overall wild adult returns. NOAA's September 2015 juvenile passage report shows that for the four lower Snake River dams the survival rate for hatchery and wild Chinook salmon combined was 68%, but only about 51% for wild stocks, which is far below the oft stated passage survival by the Corps of 95-100% per dam. Nor do the metrics of Smolt to Adult Returns (SARs) show evidence of anything but failure, with SAR's averaging below 1% when the targets to prevent extinction and recover wild stocks are 2-6%, depending on the species.

Further evidence that juvenile outmigration mortality through the Snake River dams has not decreased over time is NOAA Fisheries' acknowledgment in 2013 that, "Chinook survival through the hydropower system has remained relatively stable since 1999 with the exception of lower estimates in 2001 and 2004." Snake River sockeye, the first run to be listed, also are not meeting survival goals. Past returns in a single year have been as low as one fish. This past spring, due to lethally high river temperatures, only 96 sockeye made it above Lower Granite (the uppermost dam on the lower Snake River).

Climate change will result in higher water temperatures and water heating sooner in the spring, both of which produce and emit additional methane, a potent greenhouse gas, further

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accelerating global warming. This will be yet one more in a long list of negative impacts salmon will have to try to overcome in their battle to sustain, let alone increase their populations.

Recommendation—Dam Breaching Is Needed Now

It has been obvious for a long time to outside, *impartial* third parties, including consortiums of respected scientists, that the Major System Improvements Alternative put forth by the Corps in their 2002 FR/EIS and subsequent implementation of RPAs is not contributing to the recovery of any of the four listed Lower Snake River runs. The dam breaching alternative was analyzed and shown to be perfectly feasible, and supported by multiple scientific evaluations as the most viable and beneficial path to population rebuilding and recovery. Yet the Corps discredited breaching based on inaccurate economic analyses that greatly overestimated the costs of breaching, while underestimating the benefits. Subsequent analyses by current and retired knowledgeable members of the federal family and outside experts, with updated estimates and corrections to old assumptions, show that the economic benefits to removal of the four Lower Snake River dams far exceed the costs. These include recalculated costs and benefits for hydropower, navigation and recreation.

To prevent the Snake River wild salmon and steelhead runs from going extinct, dam breaching is as necessary now as it was when considered in the 1998-2002 *Feasibility Report*. From a biological, socio-economical, environmental, social justice, and ethical basis, we recommend the physical process of dam breaching begin with the drawdown of lower Granite pool no later than 1, October 2016 via presidential executive action, and before any more of the wild salmon runs go extinct.

This letter and its enclosures were developed from information and with the assistance of over a dozen current and recently retired Corps employees, as well as several others from other federal agencies with statutory obligations to restore wild salmon runs and the ecosystem in which they thrive and support. We request the opportunity to meet with you soon to brief you and your staff in depth. In the meantime, we are enclosing background documents and new reports explaining the costly and harmful effects of the dams and the benefits of breaching .

Sincerely,

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Enclosures (5)

Snake River Endangered Salmon White Paper, November 2015

Appendix 1, SR Endangered Salmon White Paper—Fall Chinook Surrogates, Nov. 2015

Orca Science Letter, January 2015

Rocky Mountain Econometrics Lower Snake River Dam Alternative Power Costs, June 2015

Earth Economics Snake River Recreation Assessment, October 2015