

Southern Resident Killer Whale Chinook Salmon Initiative
Jim Waddell—Army Corps of Engineers/Retired
Center for Whale Research,
Orca Network

April 14, 2016

RESPONSE TO NOAA WEST COAST REGION'S POSITION PAPER ENTITLED
SOUTHERN RESIDENT KILLER WHALES AND SNAKE RIVER DAMS (MARCH 2016)

NOAA Fisheries Service West Coast Region (“NOAA”) recently chose to protect four salmon-killing dams on the lower Snake River, at the expense of ESA-listed salmon and critically endangered Southern Resident Killer Whales. NOAA ignored compelling evidence that the Snake River dams must be breached to recover threatened and endangered salmon and to help save the whales from extinction. NOAA’s decision to support dam retention is contrary to its legal duty under the Endangered Species Act to take affirmative steps to protect, conserve, and restore wild Snake River salmon and Southern Resident Killer Whales to the level that would permit them to be removed from the Endangered Species list. The science dictates that NOAA should take the exact opposite position and advocate for the one alternative left in the operative EIS, Alternative 4, dam breaching through channel bypass, to restore both wild salmon and wild orca populations.¹

In a March 2016 document entitled *Southern Resident Killer Whales and Snake River Dams (“NOAA Killer Whale Position Paper”)*,² NOAA argues that it is not necessary to breach the dams to recover either Snake River salmon or the salmon-dependent killer whales. NOAA takes this position despite admitting that:

- increased Chinook returns to the Snake River helps support the Southern Residents to the extent they improve overall salmon abundance;
- increased Chinook abundance is an important component of the recovery plan for the Southern Residents; and,
- the survival and reproductive success of the whales is positively correlated with Chinook salmon abundance. (*NOAA Killer Whale Position Paper*, pp. 2-3.)

NOAA claims that the dams do not harm killer whales, contending that Snake River hatchery fish more than offset any losses of wild salmon to the orcas’ prey base caused by the dams. (*Id.*, p. 1.) NOAA disingenuously argues that hatchery fish have replaced wild salmon, despite knowing that hatchery fish cannot replace wild fish on a sustained basis. The argument shows that NOAA has made a calculated bureaucratic response to defend policies that NOAA should know are contradicted by the best available science.

Historically the Columbia/Snake River Basin was the largest salmon producing watershed in the continental United States. The Snake River, the Columbia’s largest tributary, produced about half of the salmon originating in the combined river system. Wild salmon are the keystone species on which the Columbia/Snake Rivers ecosystem depends. For years federal agencies have been releasing more and more hatchery fish in an effort to recover wild Snake

River salmon runs that have been decimated by the dams. Yet the wild runs continue to decline. Hatchery salmon cannot replace wild salmon in the long term because hatchery fish are not self-sustaining. In contrast, wild salmon have the genetic diversity that provides the resilience necessary to survive adverse circumstances, such as poor ocean conditions, El Nino occurrences and climate change.

NOAA's argument that dam breaching is unnecessary to recover wild Snake River salmon and Puget Sound orcas ignores decades of research, much of it NOAA's own. The chronology preceding NOAA's current position is important, because it reveals the lack of scientific support for the notion that the Snake River dams need not be breached to recover wild Snake River salmon.

- In 1999 the National Marine Fisheries Services (NMFS), aka NOAA Fisheries, determined that to recover ***Snake River spring/summer Chinook***, the ***most risk averse action*** would include dam breaching, a harvest moratorium, and vigorous improvements in habitat and hatcheries. (*Emphasis in original.*)³
- In 1999 NMFS' results demonstrated that for ***Snake River fall Chinook and steelhead***, ***dam breaching by itself would likely lead to recovery.***⁴
- In 2001 the Plan for Analyzing and Testing Hypotheses (PATH) analyses suggested that ***breaching was more likely than any other change in the hydropower system to meet survival and recovery criteria for the listed species across the widest range of assumptions and scenarios.***⁵
- In its 2002 Record of Decision the Army Corps of Engineers ("Corps") Walla Walla District relied on NMFS' 2000 Biological Opinion that concluded that, despite the science showing that Alternative 4 in the EIS, dam breaching through channel bypass, was the best option for salmon recovery, ***breaching was not necessary at that time. NMFS reserved breaching as a contingency management alternative depending upon the findings in the 2005 and 2008 check-in.***⁶
- In making the decision not to breach in 2002, the Corps announced to the taxpaying public that the dams would not have to be breached, if \$350 million were spent on massive "system improvement" projects (Alternative 3 in the EIS) on the four Snake River dams to permit less hazardous juvenile fish passage. ***This would give the region time to determine if salmon survival and recovery could be effected through the non-breaching alternatives.***⁷ ***If these efforts did not succeed, the nine involved federal agencies, including NOAA, agreed that EIS Alternative 4, dam breaching, must be considered.***⁸ Ten years was the outside time period allowed for results.⁹
- In the intervening years the Corps has implemented EIS Alternative 2, juvenile fish transport, in addition to Alternative 3, major system improvements, to attempt to halt the decline of wild salmon populations.¹⁰ Still the wild stocks continue to decline.

Fifteen years have passed and \$850 million has been spent on "system improvements," while hundreds of millions of dollars more has been expended on fish transport around the dams. Yet wild salmon runs continue to decline. Rather than consider dam breaching when it became clear that wild salmon runs were not recovering as NOAA had agreed to do, NOAA now simply resorts to its 2008 Biological Opinion conclusions, which federal courts consistently have

rejected for failing to adequately protect salmon from the harm caused by the hydropower system.

In remanding NOAA's 2008/2010 Biological Opinion because it violated the ESA, the Court ruled, among other things that the speculative habitat restoration measures contained in the Biological Opinion were "***neither reasonable nor prudent.***" Further, the Court found that "***the lack of scientific support for [its salmon] survival predictions is troubling,***" and noted that ***even the government's own scientists "expressed skepticism about whether [salmon survival] benefits will be realized."*** As a result, the Court concluded that ***the government's approach to these issues "is neither cautious nor rational."*** In fact, NOAA has not been able to produce a biological opinion for Columbia/Snake River salmon that has passed court review for a decade, and has done so only once in the past 20 years.

NOAA's current position reneges on the agreement it made in 2000 that if wild salmon runs had not recovered after 10 years, it must consider dam breaching. The taxpaying public deserves better. It relies on NOAA for accurate information regarding fisheries and oceans. As a government agency NOAA has a mandate to provide the public with accurate information based on the best available science, rather than render conclusions based on political considerations.

The best available science establishes that Southern Resident Killer Whales are likely to become extinct in our lifetime, unless dam breaching begins immediately. NOAA listed Southern Resident Killer Whales as endangered in 2005. They remain so today. The primary issue is lack of food - Chinook salmon. The single greatest change in food availability for resident killer whales since the late 1800s may be the decline of salmon from the Columbia River Basin.¹¹ Due to their precarious status, in May, 2015 NOAA Fisheries designated the Southern Resident Killer Whales as one of eight endangered species most likely to go extinct in the immediate future, stating:

The best available information points to their extinction if action isn't taken. . . . [E]xtinction is almost certain in the immediate future because of a rapid population decline or habitat destruction . . . We know the threats facing these species and understand the management actions we can take that will have a high probability of success." NOAA Fisheries, *Species in the Spotlight, Survive to Thrive, Recovering Threatened and Endangered Species* (2015), p. 2.¹²

At the end of 2014 the situation for the Southern Resident orcas was dire. No new calves had survived between September 2012 and late December 2014. At least seven members of the population had died during that period. Only 76 whales remained. Then the population took a turn for the better. Since the last days of 2014, the Southern Residents have celebrated the birth and survival of eight calves. Not all the news is good though. This year the population has taken a turn for the worse. Since the beginning of 2016 J pod has had at least three calves that haven't survived. On April 1, 2016, L95, a young adult male that NOAA had satellite tagged on February 24, 2016 washed up dead off the western coast of Vancouver Island.

Even the survival of the eight calves has a downside because the population is prey limited. If all eight calves continue to survive, the population will need between 30,000 and 50,000 additional Chinook salmon to sustain the calves as juveniles, and many more Chinook will be needed as the calves grow to adulthood. Breaching the Snake River dams in the immediate

future likely would provide many of the additional fish the orcas need to recover.¹³ As the lower Snake River is restored, each year the runs should become larger and could support the growing needs of the orca population.

The large Chinook salmon runs returning to the Snake River in the past several years are the best evidence to show that Snake River salmon abundance is a necessity for the Southern Residents. The recent orca “baby boom” is not a mere coincidence, but the result of larger than average Snake River Chinook salmon runs inflated by specially produced lower Snake River hatchery fish. The gestation period for orcas is approximately 17 months. That means the eight births coincided with the larger Chinook runs that occurred in 2013 through 2015. Many of the calves were conceived in the year 2013 when the Southern Residents largely were absent from the Salish Sea inland waters, presumably feeding on coastal Chinook, a number of which likely were the larger specially bred Chinook. The lower Snake River hatchery research project last released fish in 2012, which means the larger fall Chinook runs of the last several years will not continue. The research fish were expensive to produce and the research project will not be resumed. Nonetheless, the inflated hatchery runs show that when there are plentiful Snake River Chinook, the Southern Resident orcas can conceive, reproduce, survive and recover.

The best available science establishes that lower Snake River salmon are likely to go extinct in the next decade, if the dams are not breached immediately. The construction of the four lower Snake River dams in the 1960’s and 1970’s decreased the already decimated lower Snake River wild salmon runs up to 75%,¹⁴ causing all four salmon and steelhead runs to be listed under the ESA by the 1990’s. By the year 2000 conservationists were predicting the extinction of wild Snake River salmon and steelhead to occur as early as 2017.¹⁵ The predictions seem to be on track, unless the dams are breached immediately.

Indeed, NOAA recognizes the harm to salmon caused by the dams. In its recent *Proposed ESA Recovery Plan for Snake River Fall Chinook Salmon* (October 2015) (“*Proposed Fall Chinook Recovery Plan*”), NOAA describes some of the problems created by the dams:

- “In addition to blocking access to or inundating historical fall Chinook salmon production areas, hydropower system development and operations also reduce mainstem habitat quality and affect both juvenile and adult migration.” *Proposed Fall Chinook Recovery Plan*, p. 38.
- Limiting factors for adult fall Chinook salmon in the migration corridor include reduced spawning area. *Id.*
- Naturally spawning hatchery fish contribute to density dependence. *NOAA Recovery Plan*, p. 202.
- Hatchery fish dilute wild fish genetics, which decreases the viability of the ESU. *NOAA Recovery Plan*, pp. 200-201. See also, *id.*, pp. 202-205, for a discussion and summary of other hatchery caused threats to Snake River wild fall Chinook salmon.

Today the statement that began the *Feasibility Report*, Appendix M in 2002, that “[d]espite considerable expense and management efforts, [wild] anadromous fish stocks in the Snake River Basin continue to decline,” is as true today as it was then.¹⁶ Yet to avoid breaching the dams, the federal agencies have spent billions of dollars on ineffective mitigation efforts, with \$700 million expended on “system improvements” alone for fish passage at the four dams.

System improvements have failed at recovering wild salmon. More importantly, they do nothing to improve the slack water reservoir conditions, which are as lethal to salmon and steelhead as dam passage. The only effective means of addressing reservoir mortality is to drain the reservoirs through dam breaching, and allow the natural flowing river regime to return.

As a final important point, 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.

By supporting keeping the Snake River dams, NOAA continues to renege on the agreement it made 15 years ago to consider dam breaching if non-breaching alternatives did not recover salmon. The *Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement* (2002) (“LSRFS/EIS”) is the operative, working document that is used today by the federal agencies to attempt to mitigate the harm to salmon caused by the four lower Snake River dams. All means other than breaching that are set forth in the LSRFS/EIS have been implemented over the last fourteen years have failed. The only alternative left in the LSRFS/EIS is dam breaching. To live up to its agreement to recover wild Snake River salmon by breaching, if other methods did not work, and to recover the fish eating Southern Resident orcas, NOAA now must support dam breaching.

Sharon Grace, Coordinator, Southern Resident Killer Whale Chinook Salmon Initiative, srkwcsi.org, sharon.grace@srkwcsi.org

Jim Waddell, P.E., Army Corps of Engineers, Retired, kairos42@earthlink.net

Kenneth C. Balcomb III, Executive Director, Deborah A. Giles, Ph.D, Research Director, Center for Whale Research, Friday Harbor, WA, 98250, whaleresearch.com, ken@whaleresearch.com, giles@whaleresearch.com

Susan Berta, Howard Garrett, Co-founders & Co-directors, Orca Network, Freeland, WA, 98249, orcaneetwork.org, susan@orcaneetwork.org, howard@orcaneetwork.org

¹ *Lower Snake River Juvenile Salmon Migration Feasibility Report* (2002), <http://www.nww.usace.army.mil/Library/2002LSRStudy.aspx>.

²

http://www.westcoast.fisheries.noaa.gov/publications/protected_species/marine_mammals/killer_whales/3.16.2016_srkw_factsheet.pdf

³ Budy, P., *Analytical Approaches to Assessing Recovery Options for Snake River Chinook Salmon* (2001), p. 4, UTCFWRU 2001(1): 1-86, <http://www.fws.gov/columbiariver/publications/recopt.pdf>; see also *Lower Snake River Juvenile Salmon Migration Feasibility Report* (2002), Appendix A, *Anadromous Fish Modeling*, pp. A ES 5-6, http://www.nww.usace.army.mil/portals/28/docs/environmental/lrstudy/Appendix_A.pdf.

⁴ *Id.*, p. A ES 6.

⁵ USACE, *Record of Decision, Lower Snake River Juvenile Salmon Migration Feasibility Study*, p. 15, http://www.nww.usace.army.mil/Portals/28/docs/environmental/lrstudy/lrs_rod.pdf.

⁶ *Id.*, p. 21.

⁷ *Conservation of Columbia Basin Fish, Final Basinwide Salmon Recovery Strategy*, Vol. 3, (2000), p. 20, http://permanent.access.gpo.gov/lps57088/d3/Final_Strategy_Vol_3.pdf.

⁸ *Id.*

⁹ *Lower Snake River Juvenile Salmon Migration Feasibility Report* (2002), *supra*, Appendix A, *Anadromous Fish Modeling*, p. A ES-8, "It will require anywhere from 2 to 10 years for these studies to provide information about the feasibility of achieving demographic improvements through different management actions." http://www.nww.usace.army.mil/portals/28/docs/environmental/lrstudy/Appendix_A.pdf.

¹⁰ Alternative 1 in the EIS is "no action."

¹¹ NOAA, *SRKW Recovery Plan Recovery Plan for Southern Resident Killer Whales*, (Orcinus orca), National Marine Fisheries Service, Northwest Region, Seattle, Washington (January 2008), p. II-82.

¹² http://www.nmfs.noaa.gov/stories/2015/05/docs/noaa_recoveringspecies_report_web.pdf.

¹³ Although NOAA argues that increases in salmon abundance, whether from breaching dams or otherwise, would result in only a marginal change in the total salmon available to the killer whales, this argument is specious. All things being equal, the larger the salmon pie, the larger the slice for the orcas. Doubling the Snake River runs, which breaching the dams could do, would significantly increase the orcas' pie slice. This may be the positive action the whales need to recover, and may also take pressure off other Pacific Chinook salmon populations so that they may recover.

¹⁴ See, *NOAA Killer Whale Position Paper*, p. 3, graph, *Abundance of wild and hatchery adult Snake River spring-summer Chinook salmon at Lower Granite Dam*.

¹⁵ Higgins, M., *Snake River Dams Defy Clean Water Act* (2002), <http://www.bluefish.org/damsdefy.htm>.

¹⁶ *Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement*, (2002), Appendix M, *supra*, M ES-1.