

March 22, 1999

**President Bill Clinton
The White House
1600 Pennsylvania Ave.
Washington, DC 20500**

Dear President Clinton:

We, the undersigned scientists, are gravely concerned that current measures to recover Columbia basin salmon and steelhead are falling far short of what is needed to avert widespread extinctions in the near future. We are especially concerned that the current management approach appears to be fixed on a path of technological solutions instead of a return to more normative river conditions. The former path is a dangerous one that is likely to send several depressed stocks into extinction over the next few decades.

The situation is particularly acute in the Snake River basin, where over the last thirty years wild salmon and steelhead runs have declined by nearly 90 percent following the construction of four federal dams on the Lower Snake River. Today, every native run of salmon and steelhead in the Snake River basin either is already extinct or listed for protection under the federal Endangered Species Act.

As you are aware, the National Marine Fisheries Service (NMFS) has committed to choose a long-term recovery plan for Snake River salmon and steelhead by the end of 1999. This commitment, known as the 1999 Decision, will be your Administration's legacy to Northwest salmon. The NMFS decision will stem from an environmental impact statement (EIS) that is currently being conducted by the US Army Corps of Engineers. This EIS, called the Lower Snake River Juvenile Salmon Migration Feasibility Study, will evaluate three major salmon recovery strategies.

Two of these strategies continue to rely heavily upon the practice of juvenile fish transportation. Barging and trucking of juvenile migrants began experimentally more than 20 years ago in an attempt to mitigate for the effects of a river system made lethal by the Federal Columbia River Power System. Since its inception, the transportation program has never sustained the minimum smolt-to-adult survival rate that is needed to begin rebuilding wild Snake River salmon and steelhead stocks. It has failed even to halt their decline.

Every independent scientific analysis on this subject since the landmark 1996 *Return to the River* report by the Independent Scientific Group (ISG) has concluded that juvenile fish transportation in the Columbia-Snake river system is a failed practice that should be phased out in lieu of a return to more normative river conditions. The most comprehensive PIT-tagging study to date now shows that even with technological advances, the transportation program has failed to produce the minimum survival rate that is required to begin rebuilding wild Snake River salmon and steelhead stocks.

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The most recent data indicates that a five to fifteen-fold increase in survival rates is needed in order to meet NMFS recovery goals.

There is building scientific consensus that the surest way to restore wild Snake River salmon and steelhead runs is to reclaim a 140-mile-long reach of their migration corridor by bypassing four dams on the Lower Snake River. This strategy, known as the natural river option, is the third recovery strategy being evaluated in the Corps' EIS.

According to the PATH (Plan for Analyzing and Testing Hypotheses) scientific group, the team of regional scientists that will provide most of the biological information for the 1999 Decision, the natural river option is the only recovery action that has a high likelihood of restoring wild Snake River salmon and steelhead runs to healthy levels. The Idaho Department of Fish and Game calls the natural river option "the best biological choice for recovering salmon and steelhead in Idaho," saying it is "logical, biologically sound, has the highest certainty of success and lowest risk of failure, and is consistent with the preponderance of scientific data." The natural river option is the only recovery strategy under consideration that is consistent with the normative river principles outlined in *Return to the River*.

Due to habitat loss resulting from the construction of impassable dams, the Snake River basin now contains 70 percent of the potential production for spring/summer chinook salmon and summer steelhead in the entire Columbia basin. Wild Snake River salmon and steelhead are an irreplaceable genetic resource that continue to play a vital ecological role even at their currently depressed levels. If these runs are allowed to vanish, the foundation of the Interior Northwest's ecosystems will be severely undermined.

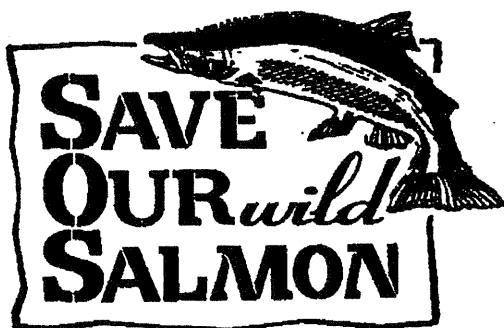
The weight of scientific evidence clearly shows that wild Snake River salmon and steelhead runs cannot be recovered under existing river conditions. Enough time remains to restore them, but only if the failed practices of the past are abandoned and we move quickly to restore the normative river conditions under which these fish evolved. We urge you to provide leadership on this issue in order to ensure that the 1999 Decision isn't delayed. Biologically, the choice of how to best recover these fish is clear, and the consequences of maintaining the status quo are all but certain.

Please do not hesitate to contact us if you have any questions on salmon recovery efforts in the Columbia basin. Thank you for taking the time to listen to our views on this critical issue.

Sincerely,

The following Concerned Scientists:

200+ Scientists
(not attached)



SALMON SCIENCE

Issue #4
May 18, 1999

An Update on Scientific Developments Affecting
Columbia and Snake River Salmon and Dams

Salmon Science covers the scientific developments leading to the Clinton Administration's "1999 decisions" on Columbia Basin salmon and dams. Although habitat, harvest, and hatchery issues must be addressed, the major question is whether to partially remove four federal dams on the Lower Snake River or

intensify barging and trucking young salmon past the dams. Previous issues of *Salmon Science* and other relevant information can be found on our website, www.removedams.org. Comments and questions are welcomed. Contact Chris Zimmer at chris@wildsalmon.org, or 206/622-2904, extension 14.

THE ANADROMOUS FISH APPENDIX:

Partial Dam Removal is Least Risky, has Highest Chance of Recovery

On April 14 the National Marine Fisheries Service (NMFS) issued the Anadromous Fish Appendix, a major report comparing the effectiveness of partially removing the four Lower Snake River dams with continued fish barging. The Appendix will provide much of the science for the Army Corps of Engineers' Environmental Impact Statement on the four Lower Snake dams, due out this fall. The Appendix is based on the PATH process and also incorporates PIT-tag data from the 1994 and 1995 migrations and other studies, including some data that has not been reviewed outside of NMFS.

The Appendix reaffirms that only partial dam removal is likely to recover Snake River salmon. It is the least risky strategy across the broadest range of conditions and assumptions, while continued fish barging is unlikely to lead to recovery and delay carries significant extinction risks. NMFS downplays these conclusions by emphasizing the uncertainties regarding partial dam removal, downplaying the uncertainties and risks regarding fish barging, focusing on delayed mortality of barged spring/summer chinook (only one dam-related cause of mortality for one species) and virtually ignoring the results for fall chinook.

NMFS Understates the Effectiveness of Partial Dam Removal by Ignoring Fall Chinook Results and by Focusing on Selected Uncertainties

NMFS and the media focused narrowly on the Appendix's conclusions for spring/summer chinook and the uncertainties regarding delayed mortality of barged spring/summer chinook. A more balanced review of the Appendix's spring/summer chinook and fall chinook results shows that partial dam removal is essential to recovering fall chinook and is the least risky strategy for spring/summer chinook and that delay means significant extinction risks. The uncertainties regarding delayed mortality of barged spring/summer chinook do *not* mean that the hydropower system is not the major threat to Snake River salmon or that the effectiveness of partial dam removal is seriously in doubt.

Partial Dam Removal Vital for Fall Chinook: No Evidence for Recovery Without It

The Appendix's fall chinook information, which NMFS barely mentions, shows that there is significant dam-caused mortality, which

cannot be remedied by more barging or better fish passage facilities at the dams. There is no evidence that fall chinook will recover with the four Lower Snake dams in place. Since fall chinook spawn in the main Snake River, partial dam removal is the only scientifically credible way to restore their habitat.

- Partial dam removal has an extremely high likelihood of recovery under all scenarios modeled. Fish barging fails the recovery standard under all scenarios (p. 75, 153).

- Partial dam removal would increase spawning and rearing habitat by up to 77 percent in the Lower Snake River, potentially supporting 5,000 additional spawners (p. 75-6).

- Juvenile mortality in Lower Snake reservoirs due to dam-related causes could be as high as 20 percent per reservoir (p. 69, 71). The survival of juveniles reared in the reservoirs appears to be approximately 50 percent less than fish reared in more natural conditions (p. 41).

- Up to 40 percent of adult fish in the Lower Snake "fall back" over the spillways or through the turbines after ascending fish ladders. These exhausted fish are less likely to spawn (p. 24).

- Up to half of adults are "lost" during passage through the eight

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federal dams on the Columbia and Lower Snake Rivers (p. 24).

- High water temperatures in the Lower Snake reservoirs can increase juvenile predation rates and susceptibility to disease and may hinder or delay migration of adults to spawning grounds and increase adult mortality (p. 25, 28).

- High dissolved gas levels from uncontrolled spill for spring runoff can delay adult migration (p. 25).

Spring Chinook

- Partial dam removal has an 11 to 35 percent higher relative probability of recovering spring/summer chinook than fish barging (p. 65-66).

The range results from three competing theories about the cause of delayed juvenile mortality: ocean conditions; stock viability (effects of hatcheries, predation, disease, etc.); and the dams and fish barging. Delayed mortality of barged spring/summer chinook is an important issue and there is strong evidence that the hydrosystem is its leading cause. However, it is not the only mortality issue and it should not be used to obscure the other conclusions in the Appendix and other studies. Several issues not mentioned in the Appendix include:

- ◊ Snake River salmon stocks, which must pass eight dams, are surviving at rates much lower than very similar downriver stocks that only have to pass four or fewer dams. Proponents of the stock viability and ocean condition theories cannot provide any evidence to explain what mechanism in either Snake fish or the ocean selects against these fish and not against downriver runs.
- ◊ PATH and its independent review panel concluded that passage

through the dams and reservoirs and the stress of fish collection and barging is the most likely cause of delayed mortality and declining adult returns.

- ◊ Even if barged juvenile spring/summer chinook do not suffer significantly higher delayed mortality, it does not mean that the hydrosystem is not the problem or that barging is the solution. Something is killing these fish, and it very well may be other hydrosystem-related mortality—such as shifts in run timing caused by the dams, injury from the bypass systems, and stress caused by long, hot reservoirs—rather than the ocean. If this mortality were caused by the hydrosystem (but not fish barging) and not the ocean or stock viability, then partial removal would still outperform barging by approximately 20 percent (p. 150).

- **Partial dam removal exceeds the recovery standard under virtually all scenarios; barging fails to meet the standard in the majority of scenarios, while the effectiveness of barging is much more uncertain than partial dam removal** (p. 65, 146-47). NMFS briefings and some media analysis emphasized that there were some scenarios where fish barging performed almost as well as partial dam removal. However, these were the most optimistic scenarios and “extremely hypothetical,” according to the U.S. Fish and Wildlife Service (USF&WS), which has expressed strong concerns about the analysis and conclusions in the Appendix.

- Delaying partial dam removal for another five to ten years to develop better mortality estimates increases the risk of extinction to weak spring/summer chinook populations by at least eight percent, and likely much

more for the most depressed stocks (p. 65, 105). NMFS refers to this estimate as “optimistic,” and also concludes that some uncertainties won’t be clarified for 20 years. The tradeoff between more study and more extinction is extremely risky.

The Other Three Hs are No Substitute for Partial Dam Removal

PATH concluded that although reforms to habitat, hatchery, and harvest practices are necessary, Snake River salmon are unlikely to recover without partial dam removal. The Appendix found that:

Habitat: Juvenile habitat does not seem to be a dominant factor in spring/summer chinook declines because declines since the dams were built are evident in tributaries with both good and bad habitat (p. 52) and habitat is generally good in the Snake Basin (p. 96). Recall that fall chinook utilize main river habitat, and that partial dam removal will restore 140 miles of habitat.

Harvest: Ocean harvest rates for fall chinook have been cut nearly in half since the early 1980s (p. 68). Current in-river fall chinook fishing is targeted at the Columbia’s healthy run of Hanford Reach fall chinook. Fishing for spring/summer chinook has been largely prohibited for over 20 years, although tribal ceremonial/subsistence fishers and incidental take from the Hanford Reach fishing harvests three to eight percent of adults. Harvest has been heavily restricted, with no subsequent increase in runs, and further restrictions will do little on their own.

Hatcheries: Research into the effects of hatcheries on wild salmon would clearly be beneficial, but results will not likely be available for at least a decade (p. 102).

REFERENCES

- Anadromous Fish Appendix: www.nwr.noaa.gov
- PATH reports: www.bpa.gov/Environment/PATH
- Save Our Wild Salmon: www.removedams.org

—USF&W comments and additional information on delayed mortality available from Save Our Wild Salmon

Save Our Wild Salmon is a coalition of 50 commercial and sport fishing groups, fishing businesses and conservation groups working to protect and restore sustainable, harvestable runs of wild salmon and steelhead in the Pacific Northwest.

Alliance Alert

News from the Columbia River Alliance

Issue 280 April 16, 1999

Using the new PIT-Tag data and changing only one assumption:

NMFS says - dam removal has only 11% higher chance for recovery than smolt barging program

Scientific uncertainties still create difficulty in determining dam removal benefits

The National Marine Fisheries Service presented its biological justification for dam removal of the lower Snake River Dams. Although dam removal advocates will point to one specific sentence supporting their cause, the report is actually a refinement and even a departure from the PATH report which supported dam breaching. The fisheries service admits their report does not recommend any particular action, however, it sure does not make a case for dam breaching either.

Uncertainty is the major operative word in the 150-page report. NMFS stated they have gathered better scientific data since 1995, however, there still exists a great deal of scientific uncertainty regarding salmon survival.

NMFS presents skeptical view of dam removal

NMFS points toward several key assumptions made in the PATH analysis that can have a major impact on the estimated salmon survival benefits of either dam breaching or smolt transportation. Four critical assumptions are discussed in the report:

- 1) differential delayed transportation mortality, "d-value"
- 2) climatic conditions in the estuary and ocean
- 3) extra or unexplained mortality

4) the impact of hatchery fish on wild salmon runs

Recent measurements change "d-value" and reduce dam removal benefits

| | |
|-------------------------|-----------|
| PATH analysis | |
| d - value | .3 to .66 |
| Probability of recovery | |
| Breaching | 81% |
| Transportation | 51% |
| NMFs Analysis | |
| d - value | .81 |
| Probability of recovery | |
| Breaching | 64% |
| Transportation | 53% |

Comments from the report

"Critically, using the equally weighted assumptions passed through the PATH process, breaching increases the average probability of meeting recovery thresholds by 30% for spring/summer chinook salmon. However, if the PATH prospective models are run assuming only higher D-values (minimal differential delayed mortality due to transportation), this difference and the advantages to breaching are substantially reduced and may even disappear under certain assumptions about extra mortality". Page 105

"The bottom line then is a conclusions with caveats: although science cannot say that breaching will certainly yield salmon recovery, science does make it clear that breaching is the most risk-averse management option." Page 105

Other Comments

"But if there is anything definitive in the (NIMFS) analysis released today, it is a lack of certainty about what to do with the dam." **Seattle Times**

"The uncertain and modest increases projected in Snake River salmon runs don't justify the economic costs and social dislocation of breaching dams" **Senator Slade Gorton**

"Barring conclusive evidence that such dramatic action is the only way to bring salmon back, politicians will be reluctant to dismantle a portion of the Columbia Basin's hydropower system" **George Behan, aid to Rep Norm Dicks.**

"It is unreasonable for anyone to demand black and white answers when it comes to salmon. People need to weigh the probabilities of success with fish the same way they do when investing in the stock market" **Rick Williams, Chairman of the Council's Independent Science Advisory Board**

"If you ever want to see fishable runs of salmon on the Snake River again, these dams must go" **Ted Koch, head of the Idaho Chapter of American Fisheries Society**

"It remains for the region, the administration and the Congress to consider this and many other factors before any policy determination is made on this issue" **Terry Garcia, Asst Secretary, Department of Commerce**

"We've had 20 years of bargaining and it is time to stop throwing money down the sewer" **Chris Zimmer, Save Our Wild Salmon.**

"This is another in a long line of studies that point at the dams. How long will politicians ignore the science" **Glen Spain, Commercial Fisherman Assoc.**

Comments from the CRA

"From my reading of this scientific report, advocates of dam removal haven't made their case. After spending \$22 million and five years on the Corps study, its time to move on and consider other options for restoring the runs" **Bruce Lovell, CRA**