



September 26, 2018

Sent via email and regular mail
Elliot Mainzer
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RE: Comments on the Draft BPA-Idaho Accord Extension Agreement

Dear Mr. Mainzer,

I am writing on behalf of a coalition of Idaho conservation groups that are deeply concerned about BPA's ongoing Columbia Basin Fish Accords (Accords) renegotiation process as well as the substance of the draft Accord extension agreement between BPA and the State of Idaho. These groups include Idaho Conservation League, Idaho Rivers United, Idaho Wildlife Federation, and the Idaho Chapter of the Sierra Club.

Jointly, these organizations represent tens of thousands of Idahoans who have an interest in recovering and restoring Idaho's native fisheries, specifically, Idaho's wild salmon and steelhead populations, which are now listed under the federal Endangered Species Act.

On August 15, 2018, I on behalf of the organizations above (hereinafter, "we") sent you a letter expressing concern over the lack of public notice and opportunity to comment on the Accord BPA is renegotiating. We also expressed concern that BPA has failed to conduct any National Environmental Policy Act (NEPA) analysis for its decision to enter into new Accord extension agreements. In response, BPA released draft agreements for a 30-day public comment period, yet it offered no indication that it would be conducting a NEPA analysis over this major federal action, nor did it offer any explanation as to why it believes a NEPA analysis is not warranted.

Among other concerns, we are disappointed in the draft Accord extension's focus on the successes of the last ten years while ignoring its failures. We object to the lack of focus on immediately implementing expanded seasonal Snake/Columbia spill, as a documented benefit for salmon; and we are deeply concerned that the draft Accord extension would require Idaho to promise fealty to an unknown federal salmon plan, regardless of Idaho's public interest, at the risk of losing recovery funding for other worthwhile salmon programs.

We request that BPA and the State of Idaho not sign an Accord extension that:

- (a) Supports BPA's proposed block spill operation, since it will harm endangered fish that need additional help now; or
- (b) Constrains the State of Idaho to endorse and support federal positions rather than reach its own independent judgments; or
- (c) Is unsupported by a proper, required NEPA analysis.

Need for Transparency Regarding Failures as Opposed to Only Touting Successes

The draft Accord extension extols the successes of the 2008 Accords while, as of this writing, only 13¹ wild/natural adult sockeye salmon have returned to their Sawtooth Valley spawning grounds this year. The draft Accord falsely characterizes the Springfield Hatchery as a major success, when the record shows that after three years of smolt production, not a single adult sockeye from Springfield has survived to adulthood. In fact, the vast majority of smolts produced there died before reaching the Pacific. Springfield has been an expensive failure as of this writing. Additionally, the Idaho Department of Fish & Game recently warned that Idaho is facing the worst wild steelhead return in 75 years.² Since 2015, returns of ESA-listed Snake River spring/summer chinook, Snake River steelhead, and Snake River sockeye have steeply declined. So far, 2018 returns are on the same trend, prompting Oregon and Washington to completely close fishing for salmon and steelhead on the lower 300 miles of the Columbia River. Unfortunately, early indicators for 2019 suggest it will be even worse.

Touting supposed successes of specific Accord-funded projects while ignoring the desperate plight of numerous Idaho stocks of protected fish is misguided and misleading. We request that BPA and the State of Idaho acknowledge this desperate situation, and take active steps in this Accord extension to reverse it, rather than simply extending federal operations that currently fail to address it adequately.

Focus on a Known Salmon Benefit: Expanded Spill

Myriad fish biologists and salmon research efforts throughout the Northwest have determined that—especially in the short term—expanded seasonal spill through lower Snake/lower Columbia River projects is one of the most effective ways to increase downstream juvenile survival, fitness, and adult returns. We are concerned that the draft Accord extension instead supports a questionable additional spill study, when federal, state, and tribal agencies have already affirmed and confirmed spill benefits for salmon (see the August 2017 Scientists Letter, attached, and the 2017 Comparative Survival Studies final report). This is especially troubling at a time when Idaho salmon are severely depressed, and need more help immediately. Rather than advancing the block

¹ This number from communication with IDFG on 9/20/2018.

² IDFG blog post, available <https://idfg.idaho.gov/blog/2018/09/steelhead-update-joe-dupont-82818> and attached.

spill experiment as proposed by BPA, Idaho's Accord extension should simply implement the maximum seasonal spill recommended in existing peer-reviewed studies.³

Moreover, additional study of spill variations, when scientific experts already agree on what is needed, is contradictory to draft Accord extension section III.D.1.b, which states that the focus of Accord funding should promote "mitigation that directly protects and mitigates fish and wildlife and deemphasiz[es] redundant or unnecessary research, monitoring and evaluation as appropriate." Any Accord extension should not include support for the BPA block spill proposal.

Requiring Idaho's Fealty in the Face of Unknown Future Federal Plans is Wrong

Idaho is required to "affirmatively support in all appropriate forums (including legal, policy, and technical)" the Action Agencies responses to NEPA, the Northwest Power Act, and the ESA.⁴

Additionally, the draft Accord extension would require Idaho to support "the Action Agencies' approach to complying with the Court's orders regarding NEPA,"⁵ despite the fact that the Action Agencies' approach is currently unknown and will remain so until the Columbia River System Operations Environmental Impact Statement (CRSO EIS) is completed in 2021. Under this inappropriate provision, if Idaho finds it necessary to assert its independent voice on the Action Agencies' approach, then some beneficial projects and salmon programs would lose money promised by the Accord. This is not in the public interest for BPA, for salmon recovery, or for Idaho.

Requiring Idaho's fealty in this way is heavy-handed and inappropriate. If Idaho determines the federal Action Agencies' approach in any of these forums is not in Idaho's best interests, Idaho should be able to say so without the threat of losing funding. We would further assert that the Action Agencies' mis-management of the Columbia and Snake Rivers, especially the federal hydrosystem, is the primary cause of the continued high risk of extinction faced by Idaho's fish.

Moreover, BPA is already required by statute and court order to fund fish and wildlife mitigation projects in Idaho. Yet, BPA has not explained what portion of the funding outlined in its draft renewed Accord with Idaho it is already obligated to provide. At a minimum, BPA should clearly identify what funding it is already required to provide under court orders and statutory mandates versus what, if any, additional funding is contained its draft Accord extension with Idaho. Otherwise, the draft Accord with Idaho is an illusory bargain.

We suggest that BPA develop an agreement with Idaho similar to that in place now with Washington State. That agreement provides funds for worthy restoration projects, does not bind Washington to support unknown federal positions, does not support unnecessary additional studies

³ 2017 CSS report, Fish Passage Center, available at http://www.fpc.org/documents/CSS/CSS_2017_Final_ver1-1.pdf (attached separately due to size); 2017 and 2018 Scientists' Spill Letters with multiple references, attached.

⁴ Draft Accord IV.B.1.

⁵ Draft Accord IV.B.3.

on spill, and provides procedures for consultation with BPA when Washington's sovereign positions differ from those of the federal agencies.

BPA Must Do a Proper NEPA Analysis Before Signing Accord Extension Agreements

In 2008, the State of Idaho signed its initial Accord with BPA under which BPA agreed to provide millions of dollars in funding for salmon spawning habitat restoration projects and hatchery programs in exchange for Idaho's agreement not to challenge the Federal Columbia River Power System (FCRPS) Biological Opinion (BiOp), and to maintain that restoring the lower Snake River is not necessary to satisfy the Endangered Species Act (ESA), Northwest Power Act (NPA), or Clean Water Act (CWA).

In its Record of Decision to sign the 2008 Accords, BPA supported its decision by issuing an Environmental Analysis (EA) under the National Environmental Policy Act (NEPA) that tiered to its 2003 Fish and Wildlife Implementation Plan (FWIP) Environmental Impact Statement (EIS). The FWIP EIS helped BPA establish a comprehensive and consistent policy to guide the implementation and funding of the agency's fish and wildlife mitigation and recovery efforts in the region. As part of developing the FWIP EIS, BPA conducted extensive public outreach.

After public release of the Draft FWIP EIS in June 2001, BPA held six public meetings and workshops across the region to receive comments. During the comment period, BPA received approximately 400 individual comments. BPA arranged for opportunities to interact directly with interested members of the public and share ideas on specific aspects of the Draft EIS. BPA responded to these comments in the final FWIP EIS, and the Administrator considered them in the decision to implement the preferred alternative. To the best of our knowledge, BPA has not conducted any subsequent NEPA analysis to support the next proposed Accord with Idaho it is currently negotiating. It is vitally important that BPA conduct a thorough analysis that does not rely on or tier to its stale FWIP EIS from 15 years ago.

A lot has changed since BPA entered into its 2008 Accord with Idaho, let alone since it issued its FWIP EIS in 2003. Returns of Idaho's imperiled salmon and steelhead have declined alarmingly in recent years. The Snake River Basin was historically the most productive region in the Columbia River Basin, producing 40% of the Columbia Basin's spring/summer chinook and 55% of its steelhead. However, in both 2015 and 2017, only 11 wild Snake River sockeye made it all the way to the Stanley Basin in Idaho's Sawtooth Mountains. Last year, only 4,100 wild spring/summer chinook were counted at Lower Granite Dam, and just a few hundred wild B-run steelhead were counted for the 2017-2018 run, about 1% of the wild B-run return recorded in 1962, before the lower Snake River dams were constructed. In the protected Middle Fork of the Salmon River's 600 miles of superb spawning habitat, only 500 spring/summer chinook returned in 2017.

The decline of Idaho's salmon and steelhead is just one reason why BPA must conduct a new or supplemental NEPA analysis for its next proposed Accord with Idaho.

Thank you for carefully considering these comments.

Very truly yours,



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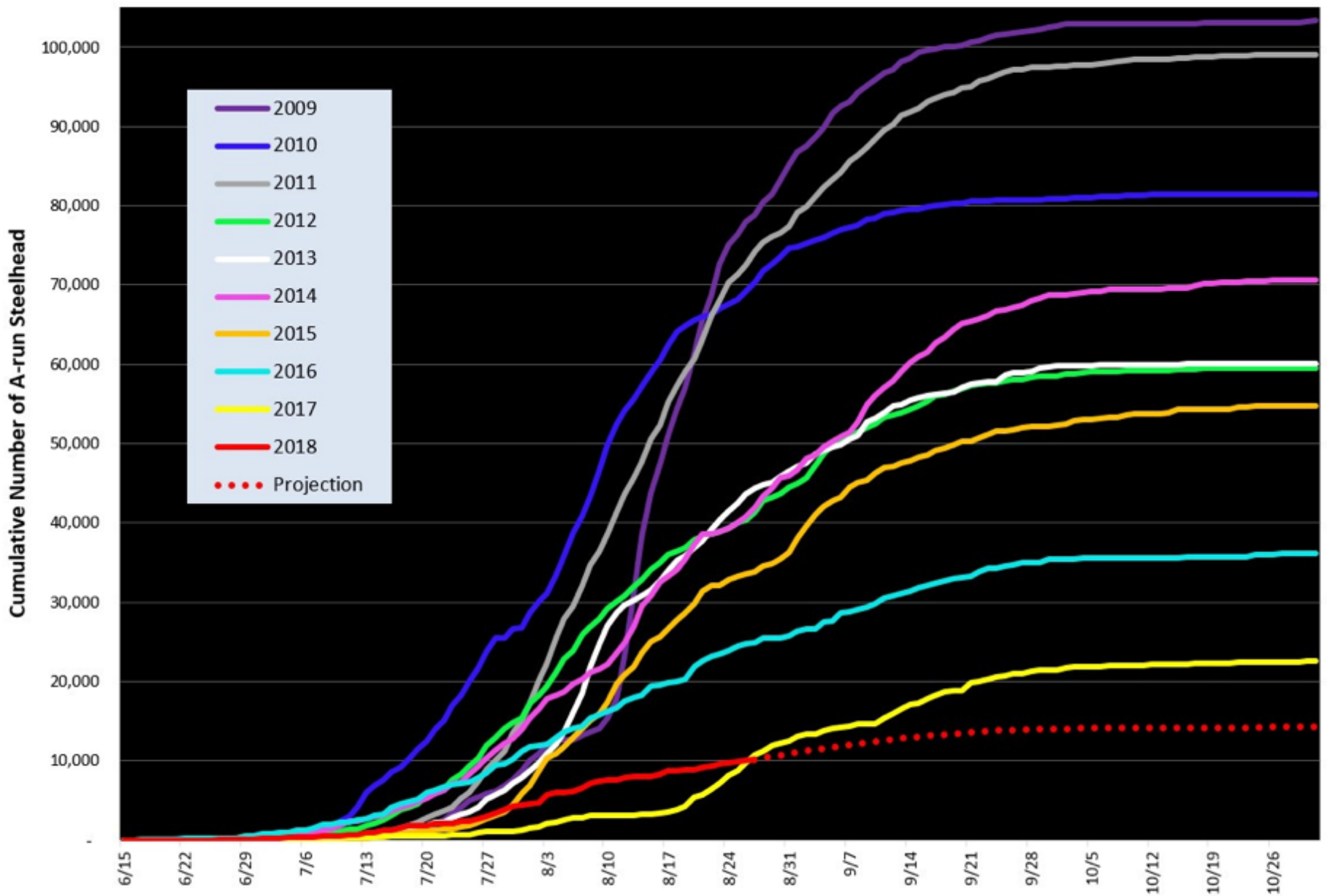
A steelhead update from Joe DuPont (8/28/18)

By Joe DuPont, Fisheries Regional Manager

Tuesday, September 4, 2018 - 11:49 AM MDT

Hi everybody, it is late enough in the year that we now have a good feel for what the hatchery steelhead A-run to Idaho is going to be like. These are the hatchery fish destined for the Salmon and Snake rivers. At this point in time (8/28/18), typically over 70% of these hatchery stocks of steelhead should have passed over Bonneville Dam. Unfortunately, the information I have for you is not good. If you look at all the steelhead count data at Bonneville Dam, you would have to go back to 1944 to find a year with a lower window count (54,704) than we have for this time of year (June 1 through August 27). When I pulled out the PIT-tag data that shows what the hatchery return to Idaho looks like, the results weren't any better. We have been hoping for a super late run like last year, but it doesn't look like it is going to happen. If you look at the graph below, you can see that we are projecting this year's runs of hatchery steelhead to the Salmon and Snake rivers to reach about 14,000 fish (shown in red), which is less than last year's run of 22,500 fish.

Idaho Hatchery A-run Steelhead over Bonneville



 Joe DuPont

The obvious question is, with this low of a return, do we need to change our rules to insure we meet our brood stock needs for these hatchery programs. We can get a feel for this by looking at what percent of fish that pass over Bonneville Dam ultimately made it to our hatchery racks in Idaho in previous years. What our analysis tells us is that these returns are still large enough to meet brood needs, but if we don't reduce harvest some, we could find ourselves short. For this reason, we have elected to change the steelhead rules in all waters open to harvest in Idaho to 1 fish per day. This rule starts on Monday September 3 and will continue through October 14. At that point, we will need to decide what rules are appropriate; otherwise, our general rules will take over. Likely, we will make a decision during the week of Oct 7 on how to proceed. This will also give us time to evaluate the return of hatchery fish to the Clearwater River, which tends to come in about a month later than fish destined for the Snake and Salmon rivers.

Many of you have also been asking me about our wild steelhead. I can tell you the wild run is also very depressed; however, we believe our fishing rules are effective at protecting wild fish. Our analysis shows that impacts on wild fish from our sport fisheries (through catch and release) has averaged around 3%, and NOAA Fisheries has told us that this type of impact rate is acceptable for

their recovery. As I'm sure you all recall, last year we implemented restrictive rules due to the down return, and fishing effort dropped considerably. We suspect this will also occur this year, which will only reduce the impacts our sport fisheries have on wild fish.

I know this is not the news you wanted to hear. I certainly don't like giving it. If there is a bright side, we have seen down years in the past rebound with good returns. Let's hope that our wait isn't too far away.

I hope you all have had a great summer. Fall is almost here.

Joe DuPont

steelhead fishing clearwater region steelhead trout (oncorhynchus mykiss gairdneri)

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A customized version of the below letter was sent to Northwest policymakers on August 16, 2017. It is signed by 47 regional scientists and communicates the benefits of – and the scientists’ support for – increased spring and summer spill (water releases over federal dams on the lower Columbia and lower Snake Rivers) to improve survival of out-migrating endangered juvenile salmon and steelhead populations. Spill represents a critical immediate, interim salmon restoration tool available to policymakers and state/federal/tribal managers while the people of the Northwest develop a legally valid, scientifically credible Columbia Snake River Basin Salmon Plan or Biological Opinion over the next several years, as ordered by the U.S. District Court in Portland in 2016.

August 16, 2017

Dear Northwest Policymaker,

In this letter, the undersigned scientists and fishery managers reaffirm the benefits of spill for salmon and steelhead of the Snake/Columbia River Basin, as an essential interim measure awaiting a legally valid, scientifically credible long-term plan. Specifically, we support an immediate increase in spill levels to benefit Snake/Columbia fish, for reasons described more fully below. Increased spill allows more juvenile salmon to pass dams safely via spillways, rather than passing through powerhouses or bypass plumbing. With existing dams in place, spill offers the best potential to improve life cycle survival. This is an essential near-term step for at-risk salmon runs pending the conclusion of the ongoing court-ordered review and development of a new plan, now underway. We support an immediate increase in spill to the highest biologically safe Total Dissolved Gas levels allowed by current environmental regulations; additionally, we also support an adaptive management experiment that expands spring spill levels to 125% of total dissolved gas (TDG), with testable hypotheses and appropriate monitoring of salmon and steelhead responses. Both are fully justified today, from a scientific perspective.

Since a U.S. District Court in Portland ruled earlier this year in favor of expanded spill beginning in 2018, some in the region have questioned the value of spill in reducing the risk to threatened and endangered fish associated with passage through the federal hydro-system. This letter summarizes existing science on the topic and unequivocally supports expanded spill as an effective near-term measure to better protect ESA-listed populations.

Development of the Federal Columbia River Power System (FCRPS) transformed a free-flowing river system into a series of reservoirs and dams, dramatically impacting native salmon and steelhead. The Columbia River salmonid ecosystem, prior to development, was a network of complex interconnected habitats that had been created, periodically altered, and maintained by natural physical processes (ISG 1999; Williams 2006) and passage to and from natal habitats for anadromous fish was unimpeded. Now, the developed Columbia

River ecosystem bears little resemblance to a natural river, and juvenile salmon and steelhead face obstacles of reduced water velocity, dangerously warm water in reservoirs, increased predation, migration delays, mortality, injury and stresses during dam passage. In many cases, additional stresses are introduced by handling and collection of juveniles for transportation. These factors directly and indirectly reduce survival rates during seaward migration and in delayed mortality that occurs in the ocean environment e.g., (Budy et al. 2002, Scheuerell et al. 2009, Van Gaest et al. 2011).

Since FCRPS completion in the 1970s, the abundance and productivity of Snake River salmon – historically almost half of the Columbia basin’s entire spring/summer chinook and steelhead run – has declined dramatically. All native anadromous salmonids in the Snake River were listed under the Endangered Species Act (ESA) during the 1990s. The ESA listings were necessary despite a number of “technological fixes” undertaken in prior years to mitigate hydrosystem impacts, including screening of turbine entrances and collecting and transporting juvenile salmon (primarily barging) around dams and through slackwater reservoirs.

The Northwest Power and Conservation Council, in its Fish and Wildlife Program (NPCC 2014) has established a goal of achieving smolt-to-adult survival rates (SARs) of 2% - 6% (4% average) for listed Snake and Columbia River salmon and steelhead. Since the late 1990s SARs have averaged only 0.9% for Snake River wild spring/summer Chinook and 1.6% for Snake River wild steelhead, well short of even the minimum regional goal (McCann et al. 2016). Collecting and transporting (barging) juvenile salmon and steelhead around dams has also failed to compensate for the impacts of the FCRPS (McCann et al. 2016), despite implementing this strategy for decades.

Peer-reviewed literature indicates that life-cycle survival of Snake River spring/summer Chinook salmon and steelhead is related to both freshwater juvenile passage conditions and ocean conditions (Schaller and Petrosky 2007, Petrosky and Schaller 2010, Haeseker et al. 2012, Schaller et al. 2014). These analyses support the NPCC (2014) direction to explore the potential to improve life-cycle survival through new strategies for hydrosystem management and operations, while considering variation in marine conditions (ISAB 2013-1). Independent analyses of long-term (50 year) run-reconstruction and recent (1998-2015) PIT-tag data sets identified similar fresh water passage variables and ocean variables that characterize variation in life-cycle survival. Freshwater passage variables that positively influence survival include high water velocity (low water transit time) and higher spill, which helps smolts avoid dam powerhouses. With existing dams in place, spill offers the best potential to improve life-cycle survival. Only dam removals offer more benefits for salmon.

Fishery biologists widely accept that providing more natural habitat conditions (e.g., a “normative river”; ISG 1999; Williams 2006) is essential to restoring salmon and steelhead in the Snake and Columbia rivers. Factors in restoring more “normative” passage conditions would include reducing the time required

for juveniles to reach saltwater, passing more juveniles over dam spillways, speeding passage through reservoirs, and reducing juvenile collection and transportation (barging).

Last year, federal Judge Michael Simon of the U.S. District Court in Portland ruled that current operation of the FCRPS causes continued irreparable harm to imperiled salmon and steelhead and ordered the federal agencies responsible for managing fish, water, and power in the Columbia Basin to prepare a new analysis that complies with the law and moves wild salmon and steelhead populations toward recovery. The court has given the agencies until 2021 to complete this process. During this interim period, increasing spill at FCRPS dams is critical to the near-term protection and survival of Snake River salmon and steelhead, and other Columbia Basin species.

The groundwork has been laid for increasing spill above the levels allowed by current state water quality standards, and certainly at least to those levels, in recent work by the interagency Comparative Survival Study (CSS) coordinated by the Fish Passage Center. The CSS (2017) took advantage of retrospective analyses of independent data sets relating salmon and steelhead survival rates to freshwater passage conditions and ocean conditions (Petrosky and Schaller 2010, Haesecker et al. 2012, Schaller et al. 2014) and modeled likely responses to alternative future spill scenarios. Key findings include:

- Modeling the effects of increased spill levels (up to 125% Total Dissolved Gas (TDG) predicted the potential for significant improvement in juvenile fish travel times, in-river survival, ocean/marine survival, SARs and life-cycle survival of Snake River spring/summer Chinook and steelhead (CSS 2017).
- Increasing spill for fish passage up to safe limits of 125% TDG has a high probability of increasing SARs and may be capable of meeting regional 2-6% SAR goals. Increased spill is also predicted to lower the probability of extremely low SARs, thus reducing the extinction risk for ESA-listed populations (CSS 2017).
- Historical migration monitoring data indicate that spill for fish passage up to the 125% TDG level does not result in adverse conditions for downstream migration of juvenile salmon and steelhead. Currently, the State of Oregon allows spill to 120% TDG in tailrace monitors, and the State of Washington allows spill to 115% TDG in forebay/120% tailrace monitors (CSS 2017). Efforts are underway to align these standards in time for the 2018 outmigration, with a uniform 120% TDG limit.
- The modeling supports immediate implementation of spill for juvenile passage at the levels currently allowed and indicates that a large-scale adaptive management spring spill experiment across the FCRPS of up to 125% TDG is scientifically warranted. The monitoring structure to support this effort is already in place: current fish marking/tagging levels appear sufficient to monitor the effects of experimental spill management on Snake River spring/summer Chinook and steelhead (CSS 2017).

Regardless of future decisions about dam management, including consideration of dam removal, increased spill holds immediate potential to provide substantial survival benefits for Snake and Columbia River salmon, and to provide important information for future policy and action. Increased spill would benefit all Interior Columbia Basin salmon and steelhead populations, including those in Oregon and Washington State that enter the Columbia mainstem below the Snake River confluence.

The undersigned members of the scientific community support an immediate increase in spill levels as discussed above as a well-documented benefit for the salmon and steelhead of the Snake/Columbia Basin. It is an essential benefit for at-risk salmon runs pending the conclusion of the ongoing court-ordered review and development of a new plan. Therefore, we support immediate increases in spill to the highest biologically safe TDG levels allowed by current environmental regulations, and in an adaptive management experiment, we support expanding spring spill to 125% TDG, with testable hypotheses and appropriate monitoring of salmon and steelhead responses.

Sincerely,

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Via e-mail and regular mail

August 27, 2018

Governor Jay Inslee
Office of the Governor
P.O. Box 40002
Olympia, WA 98504

Ms. Stephanie Solien, Co-Chair
Mr. Thomas (Les) Purce, Co-Chair
Southern Resident Killer Whale Task Force
c/o Puget Sound Partnership
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Dear Governor Inslee, Co-Chairs Solien and Purce, and Members of the Southern Resident Orca Task Force:

We are writing as salmon scientists with decades of experience and considerable familiarity with the science concerning the protection and restoration of healthy, self-sustaining wild salmon populations in the Columbia and Snake River Basins. We are not marine mammal scientists but we understand that one of the issues before your Task Force is identifying and considering the most effective steps to increase the abundance of Chinook salmon in the ecosystems that support the remaining endangered Southern Resident Killer Whales or Orcas.

We also understand that, in that context, increasing the number of adult Chinook salmon from the Columbia and Snake Rivers is important to the short and long-term future of our remaining orcas. We believe we have the appropriate experience and scientific expertise to recommend two key measures to increase Chinook abundance from the Columbia/Snake system.

Recommendation for an Immediate Measure to Increase Columbia/Snake River Chinook Abundance

First, as many of us have written before, in the short-term, increasing the amount of water voluntarily spilled at the lower Snake and lower Columbia River dams will increase downstream juvenile survival and fitness, and consequently improve adult returns. More specifically, we believe the States of Washington and Oregon should modify their water quality standard waivers at these eight dams to allow total dissolved gas (TDG) levels up to 125% of saturation in the tailrace of each dam (without a forebay TDG limit). The evidence is compelling that the increase in spill that could occur with this level of dissolved gas will benefit salmon survival without any significant adverse impacts either to salmonids or other aquatic biota. Of course, spill at this level would need to be carefully implemented by the relevant fish and dam managers to avoid unintended adverse consequences.

Let us explain the scientific basis for this recommendation, much of which is also described in a letter many scientists sent to Northwest Policy Makers in 2017. A copy of that letter is attached for your reference. Briefly, development of the Federal Columbia River Power System (FCRPS) transformed a free-flowing river into a series of reservoirs and dams, dramatically impacting native salmon and steelhead. (ISG 1999; Williams 2006). The developed Columbia River ecosystem bears little resemblance to a natural river, and juvenile salmon and steelhead face obstacles of reduced water velocity, dangerously warm water in reservoirs, increased predation, migration delays, mortality, injury and stresses during dam passage. In many cases, additional stresses are introduced by handling and collection of juveniles for transportation. These factors directly and indirectly reduce survival rates during seaward migration and increase mortality in later life-cycle phases. (e.g., Budy et al. 2002, Scheuerell et al. 2009, Van Gaest et al. 2011).

The Northwest Power and Conservation Council, in its Fish and Wildlife Program (NPCC 2014) has established a goal of achieving consistent smolt-to-adult return rates (SARs) of 2% to 6% (2% to 4% for survival and above 4% for recovery) to rebuild listed Snake and Columbia River salmon and steelhead. In other words, 2 to 6 of every 100 juvenile salmon that outmigrate past the dams must return as adults. Since the late 1990s SARs have averaged less than 1% for Snake River wild spring/summer Chinook and only 1.6% for Snake River wild steelhead trout. (McCann et al. 2016). Collecting and transporting (barging) juvenile salmon and steelhead around dams has also failed to compensate for the impacts of the FCRPS (McCann et al. 2016), despite implementing this strategy for decades.

Peer-reviewed literature indicates that life-cycle survival of Snake River spring/summer Chinook salmon and steelhead trout is related to both freshwater juvenile passage conditions and ocean conditions (Schaller and Petrosky 2007, Petrosky and Schaller 2010, Haeseker et al. 2012, Schaller et al. 2014). Freshwater passage variables that positively influence survival include high water velocity (low water transit time) and higher spill, which helps smolts avoid dam powerhouses and bypass systems. With all eight existing federal dams in place, spill offers the best potential to improve life-cycle survival. Only removal of the Lower Snake River dams offers greater benefits for salmon. Fishery biologists widely accept that providing more natural habitat conditions (e.g., a “normative river,” ISG 1999; Williams 2006) is essential to restoring salmon and steelhead in the Snake and Columbia rivers. Factors in restoring more “normative” passage conditions would include reducing the time required for juveniles to reach saltwater, passing more juveniles over dam spillways, speeding passage through reservoirs, and reducing juvenile collection and transportation (barging). Spill significantly contributes to a “normative river” by reducing the amount of time it takes fish to pass each dam and by reducing the handling and other stresses from dam bypass systems and barging.

The scientific basis for increasing spill above levels allowed by current state water quality standards has been established in recent work by the interagency Comparative Survival Study (CSS) coordinated by the Fish Passage Center. The CSS (2017) took advantage of retrospective analyses of independent data sets which account for both salmon and

steelhead survival rates through freshwater passage conditions and ocean conditions (Petrosky and Schaller 2010, Haeseker et al. 2012, Schaller et al. 2014) and modeled likely responses to alternative future spill scenarios. Key findings include:

- Modeling the effects of increased spill levels (up to 125% TDG on a 24-hour basis) predicts the potential for significant improvement in juvenile fish travel times, in-river survival, ocean/marine survival, SARs and life-cycle survival of Snake River spring/summer Chinook and steelhead trout (CSS 2017).
- Increasing spill for fish passage up to safe limits of 125% TDG has a high probability of increasing SARs to above 2%, and even significantly higher for some runs (within the range of the regional goal of 2-6%). Increased spill is also predicted to lower the probability of extremely low SARs, thus reducing the extinction risk for ESA-listed Chinook populations (CSS 2017) and orcas.
- Historical migration monitoring data demonstrate that spill for fish passage up to the 125% TDG level does not result in adverse conditions for downstream migration of juvenile salmon and steelhead.

The CSS modeling supports immediate implementation of spill for juvenile passage through a large-scale adaptive management spill operation at the eight dams on the lower Snake and lower Columbia Rivers of up to 125% TDG, beginning as soon as possible. The monitoring structure to support this effort is already in place: current fish marking/tagging levels appear sufficient to monitor the effects of experimental spill management on Snake River spring/summer Chinook and steelhead trout (CSS 2017). Regardless of future decisions about dam management, including dam removal, increased spill offers immediate potential to provide substantial survival benefits for Snake and Columbia River Chinook salmon. Spill is, in short, a critical and immediately available measure to increase salmon abundance. We urge the task force to recommend spill to 125% TDG beginning in spring 2019 in its final recommendations to the Governor.

Recommendation for a Permanent Measure to Increase Columbia/Snake River Chinook Abundance

Our second recommendation to you is the most effective measure we know of to permanently increase the sustained abundance of Chinook salmon from the Snake and Columbia Rivers: removing the four federal dams on the lower Snake River and restoring the ecological health of that river corridor. The Snake River Basin now supports 70% of the habitat available for recovery of spring/summer Chinook and steelhead trout in the entire Columbia River watershed. Removing these dams will take some time and careful planning, but a decision to undertake this restoration must be made as soon as possible for dam removal to occur in a timeframe that will make a difference for orcas. The efficacy of dam removal is supported by both considerable scientific analysis and, at least anecdotally, by experience with the removal of large and small dams on other salmon streams.

As with spill, compelling currently available scientific information regarding the benefits of removing the four lower Snake River dams is described in the CSS 2017 analysis and report. This report summarizes historical smolt-to-adult return rates for wild spring/summer Chinook and steelhead trout (above 8 dams) which have averaged only 0.8% and 1.6%, respectively, since the mid-1990s. This is far below the Power Council's goal of 4% average SAR with a range of 2%-6%. For comparison purposes, SARs of wild spring Chinook from the John Day River (now above 3 dams) and Yakima River (above 4 dams) have averaged 4.0% and 2.4%, respectively, since 2000. SARs of wild steelhead trout from the Deschutes River (above 2 dams), John Day River (above 3 dams) and Yakima River (above 4 dams) have averaged 7.5%, 5.3% and 4.6%, respectively, since 2000. Life-cycle survival (from spawner to adult return to the Columbia River) of Snake River spring/summer Chinook has declined to only about 13% of the life-cycle survival prior to FCRPS completion. This decline was much more severe than for John Day spring Chinook (above 3 dams), which declined to 46% of life-cycle survival prior to FCRPS completion.

The CSS's integrated, empirical, life-cycle model for spring/summer Chinook salmon populations from the Snake basin, developed by Dr. Robert Lessard, builds upon and incorporates results from several empirical statistical models, integrating decades of data on tributary adult spawners, tributary smolts, in-river survival estimates, ocean survival estimates, smolt-to-adult return estimates, and harvest estimates in order to predict the relative survival and recovery benefits of different management actions in the tributaries and in the FCRPS. The modeled scenarios include increased voluntary spill as discussed above, and also examine lower Snake River dam removal combined with various levels of voluntary spill at lower Columbia River dams. The results of this modelling show:

- Up to four times as many salmon would return if the four lower Snake River dams were breached and spill at the four lower Columbia River dams was increased to 125% TDG. Figure 2.10 in the 2017 CSS Annual Report projects SARs for Snake River Spring/Summer Chinook under Lower Snake River dam removal and 125% TDG spill at the lower Columbia River dams could be as high as 6% or more (a 148% increase).
- Dam removal with lower levels of spill at the remaining projects would result in lower, but still significant, increases in salmon abundance while allowing increased flexibility for power generation at the remaining dams. For example, breaching the four Lower Snake River dams and holding spill at the much lower levels allowed by the 2014 BiOp could produce up to two and a half times as many salmon which, while lower than dam removal with spill at 125% TDG, would still be a very significant survival increase.
- In this modeling exercise, harvest rates increase according to the *U.S. v. Oregon* harvest management framework as return abundance increases. There also are a number of potential benefits from dam removal that this model does not incorporate, including reduced water temperatures in a free-flowing lower Snake River and decreased predation rates (as compared to reservoir predation) in a free-flowing river.

To be clear, the CSS 2017 Annual Report is not the only analysis to identify the benefits for salmon survival of removing the four lower Snake River dams. As long ago as 1996, many salmon scientists, including a number of those on this letter, produced a report, *Return to the River*, that recommended a goal of restoring more normative river conditions in the Snake and Columbia as the most effective way to ensure the survival and recovery of salmon and steelhead populations in these rivers and their tributaries. Among the recommendations in this report was that removal of the four lower Snake River dams would be the most significant step available to improve the circumstances of these species.

Similarly, NOAA Fisheries in its 2000 Biological Opinion for FCRPS operations recognized that removal of the four lower Snake River dams had the greatest potential to improve survival of Snake River salmon, including spring/summer and fall Chinook. As NOAA stated then: “breaching the four lower Snake River dams would provide more certainty of long-term survival and recovery than would other measures.” 2000 BiOp at 9-5. The U.S. Fish and Wildlife Service reached the same conclusion in a report to the U.S. Army Corps of Engineers in 2002, stating that: “the USFWS concludes that the benefits to fish and wildlife from the Dam Breaching alternative exceed the benefits provided by the other alternatives,” 2002 Corps EIS, App. M at M11-1 (“all available science (synthesized in Budy, 2001) appears to suggest that dam breaching has the greatest biological potential for recovering Snake River salmon and steelhead” *Id.*, App. M, at M10-1).

Nonetheless, at that time (and since) the federal agencies involved in operating these dams have chosen to take other approaches to restoring Columbia and Snake River salmon, approaches that consistently have been rejected by the courts as legally inadequate. We too believe these past efforts demonstrate that the focus on nursery habitat restoration and other measures short of dam removal cannot deliver sufficient survival benefits for salmon and steelhead, and that Lower Snake dam removal remains the most effective and available action to increase Snake River salmon abundance in the long-term. It is not a stand-alone action for salmon recovery, but it is the single largest step we can take to increase salmon abundance for orcas at critical times of the year. For that reason, we recommend that your Task Force include this measure in its recommendations to the Governor.

We hope you find these two recommendations useful in the important work you and the Task Force are doing to address threats facing Southern Resident Killer Whales. **If you have questions regarding these recommendations or require additional information, please feel free to contact David Montgomery 206-618-9220, or Dave Cannamela 208-890-1319.**

Sincerely,

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