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STATEMENT OF GLEN H. SPAIN ON BEHALF OF THE PACIFIC COAST FEDERATION OF FISHERMEN'S ASSOCIATIONS (PCFFA) TO THE U.S. HOUSE NATURAL RESOURCES COMMITTEE

Oversight Field Hearing on "The Federal Columbia River Power System: The Economic Lifeblood & Way of Life for the Pacific Northwest"

Pasco, WA
September 10, 2018

Thank you for the opportunity to testify. I am the Northwest Regional Director for the Pacific Coast Federation of Fishermen's Associations (PCFFA), which is the largest trade organization of commercial fishing families in the western U.S. PCFFA represents thousands of working men and women in the U.S. Pacific commercial fishing industry, and has member fishermen's associations and/or individual members in every U.S. west coast seaport from San Diego to Alaska.

Part 1 -- The Importance of Columbia River Salmon to the Whole Regional Economy

Commercial salmon fishing is indeed the life-blood of a major U.S. industry, generating many *billions* of dollars annually to this region's economy, and supporting *hundreds of thousands* of family-wage jobs in this region as well as providing high quality seafood for America's tables and for export.

In Washington State alone, our seafood industry supports more than 58,000 family-wage jobs. Salmon fishing is one of the most important components of our commercial fishing industry west coast-wide, in 2014 generating more than $688 million in direct landings sales at the docks, and in 2015 more than $509 million, which in turn each year supports more than $1.25 billion/year in related economic impacts to this region's economy (see *Fisheries Economics of the United States, 2015).*[1]

The valuable Pacific salmon fishery – *and tens of thousands of jobs in our industry that salmon support* – is also greatly influenced by the health of the remaining salmon stocks in the Columbia River, which even in its greatly diminished state from its historic productivity (originally with runs estimated by the Northwest Power and Conservation Council of between 10 to 16 million salmonids/year) still remains the single most productive salmon-producing river in the lower 48 states. Even so, current salmon numbers today are only *at best about 10 percent* of what a restored Columbia River could potentially generate, even including hatchery production which is now the vast majority of fish in the river.[2]

Columbia River salmon abundances influence harvest allocations all the way from central California to well into Alaska (see Figure 1). In fact, **approximately 58 percent of all salmon harvested commercially in Southeast Alaska come originally from the Columbia**. Thus, the declines of salmon in the Columbia have impacted coastal economies all the way from central-California to Southeast Alaska, including in British Columbia. Maintaining and recovering Columbia River salmon runs is also a key obligation of the United States under international law as embodied in the *U.S. – Canada Pacific Salmon Treaty.*

The major alternation of the Columbia River system by dams is relatively recent, but has had devastating effects on the run size and species makeup of salmon resources throughout the basin. With more than 400 dams[3] in the Columbia River Basin, more than half of them dedicated (fully or partly) to generating hydropower, fish passage at dams has long been a major concern. Of these, only 31 federal hydropower dams comprise the Federal Columbia River Power System (FCRPS), but these are the larger dams and 8 of these large dams are "mainstem dams" which affect all salmon runs above their locations starting from the Bonneville Dam (near Portland). The FCRPS

[1] Available at: https://www.fisheries.noaa.gov/feature-story/fisheries-economics-united-states-2015.
[2] 13 major wild salmon and steelhead stocks native to the Columbia Basin are faced with potential extinction and protected under the federal ESA. None have yet to meet basic recovery goals.
[3] This is an estimate from the NW Power and Conservation Council, based on the US Army Corps of Engineers inventory of "significant dams." However, no universally agreed upon census of dams in the Columbia Basin seems to exist.

dams' operations are also coordinated with three major power dams on the Canadian side of the border through the U.S.-Canada *Columbia River Treaty*.

Additionally, there are thousands of smaller water storage dams, including at least 2,972 dams in the Interior Columbia Basin, with 1,239 of those involving over 50 acre-feet of water. Only 4% of these smaller storage dams are also used for power generation.[4] However, even small dams can block important fish passage routes and prevent spawning.

Severe salmon run declines in the Columbia over the past several decades have had devastating impacts on the economies of many western states. In an economic study by the Institute for Fisheries Resources (*The Cost of Doing Nothing: The Economic Burden of Salmon Declines in the Columbia River Basin* (Oct. 1996)), that study concluded that up to $500 million/year in regional economic benefits are being lost each year from salmon declines in the Columbia Basin, together with approximately 25,000 lost family-wage jobs.[5] The economic cost of the current highly depleted salmon *status quo* on the Columbia is, in fact, huge.

Our sister industry, the recreational fishing industry, itself is also a multi-billion industry supporting tens of thousands of additional jobs in the Pacific Northwest, according to the American Sportfishing Association.[6] That industry too, like the commercial salmon fishing industry and the jobs they both support, is almost entirely dependent on healthy rivers for its existence, including salmon and steelhead production from the Columbia Basin.

Today, the current salmonid runs of the Columbia number only about 2.5 million (20 year annual average), which is less than 20% of historic numbers, and these are almost entirely hatchery fish in origin (95% coho, 60% fall Chinook and 80% spring Chinook are hatchery stock). There are an estimated 178 hatcheries active in the Columbia Basin with their production intended to mitigate for past wild salmon losses due to the dams, or for supplementation to replace otherwise lost salmon production.[7] Unfortunately, this basin-wide hatchery mitigation program has only been partially successful, and wild salmon production losses still greatly exceed successful hatchery production.

There is a persistent myth that efforts to restore salmon runs in the Columbia are seeing "record returns," supposedly to justify those efforts as successful. Unfortunately, this is a fabrication based on a "statistical trick" of comparing very recent modest successes in some rebuilding efforts with near-extinction levels in the recent past. The truth is that we are not doing more than buying some time by postponing extinction, but still need to figure out how to meet even minimum recovery goals, which for nearly every ESA-listed stock have never yet been met.[8]

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[4] Dam inventory data from Oregon and Washington state inventories. Because federal inventory and inspection is only required for the larger dams and those with downstream hazard potential, and because state inventories are fragmentary, the total number of smaller water storage dams is likely larger

[5] Available at: http://www.pcffa.org/CDNReport-Columbia.pdf.

[6] See: http://asafishing.org/facts-figures/sales-and-economics.

[7] See *Report to Congress on Columbia River Basin Hatchery Reform*, Hatchery Scientific Review Group (Feb. 2009), available at: http://hatcheryreform.us/wp-content/uploads/2016/05/HSRG-2009-Report-to-Congress.pdf.

[8] See for instance these charts of Snake River Salmon and Steelhead Returns – 1950s – 2017: https://tinyurl.com/ycvm8j69.

Salmon throughout the Columbia are in deep trouble, and so are the fishing families who depend upon them. When fewer salmon return from the ocean to Washington's rivers, this translates directly to lower catch limits, shorter seasons, and a reduced ability for commercial fishing families to earn a living. Salmon harvests fluctuate from year to year, but the overall trend, especially in the Columbia, has been one of sharp decline. Chinook (king) salmon and coho salmon are the most commercially valuable of western Washington's salmon species,[9] and these are the species that have seen some of the steepest declines.[10] From 1950 to 1955 in Washington, commercial landings of Chinook salmon averaged 10,248,683 pounds and coho averaged 11,779,067 pounds, but from 2011 to 2016, chinook landings averaged only 5,866,870 pounds, a reduction of about 43%, and coho landings averaged only 3,102,894 pounds, a reduction of about 74%.[11]

Washington's salmon sport fisheries have also been declining for decades. From 1971 to 1974, the annual sport salmon catch in Washington averaged 1,224,881 salmon, but from 2010 to 2015, it dropped to an average of only 783,185 salmon, a reduction of about 36%. As with the commercial fisheries, the more valuable fisheries have seen the steepest declines. Excluding pink salmon (a numerous but less valuable species[12]), the sport catch in Washington dropped during 2010 to 2015 to an average of only 539,584 salmon, a decline of 56% from the 1971 to 1974 average.[13]

Make no mistake, decades of gradually lost western states' salmon-river productivity has meant tens of thousands of lost jobs for our industry, nearly bankrupted many coastal communities, and caused widespread economic and social disruption in many rural communities and towns. On the flip side, however, more recent river restoration efforts – including the removal of salmon-killing dams when those dams no longer are cost-effective to keep, or where they were foolishly located – are helping to restore many thousands of local fishing and river-related jobs, providing economic lifeblood to once-dying coastal fishing-dependent communities, and restoring *many billions* of dollars to the U.S. economy. In short, more salmon means more jobs and stronger economies throughout the coastal western states.

And while PCFFA does not represent, and cannot speak for, the many salmon-dependent west coast Tribes who also depend upon Columbia River salmon for their livelihoods, sustenance

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[9] Gordon Gislason & Gunnar Knapp, *Economic Impacts of Pacific Salmon Fisheries*, Pacific Salmon Comm'n (2017), available for download at http://www.psc.org/download/333/specialreports/9337/economic-impacts-of-pacific-salmonfisheries.pdf.

[10] *See* Wash. State Recreation and Conservation Office, Governor's Salmon Recovery Office, *State of Salmon in Watershed 2016* at 2 (showing declining trend in non-tribal chinook and coho harvests from the 1970s through 2015), https://stateofsalmon.wa. gov/governors-report-2016/.

[11] Nat'l Marine Fisheries Serv., Annual Commercial Landing Statistics (searchable by state, species, and year), https://www. st.nmfs.noaa.gov/commercial-fisheries/commercial-landings/annual- landings/index.

[12] *See* Wash. Dep't of Fish and Wildlife, Species Info, https://wdfw.wa.gov/fishing/washington/Species/9009/ (pink salmon runs only occur in Washington in odd-numbered years); Kraig & Scalini, *supra* n.31, at 3 (nearly 40% of the total recreational salmon catch in Washington in 2015 were pink salmon); Gislason & Knapp, *supra* n.6, at 12 Exh. 2 (compare weight landed with exvessel value).

[13] *See* Kraig & Scalini, *supra* n.31, at 14 tbl. 4 (average of total sport catch in even numbered years – 2010, 2012, and 2014 – is 539,584).

fisheries and cultures, it should be kept in mind that the continuing decline of salmon runs in the Columbia have also greatly impacted those Tribes and their salmon-based economies as well.

Part 2 -- Columbia River Salmon Also Support the Entire Regional Ecosystem

The once-great salmon runs of the Northwest never existed in an ecological vacuum, but were instead an integral part of an entire food-web that still supports many other species. Salmon are a major or important food source not just for humans, but for at least 138 species of birds, mammals, amphibians and reptiles native to the Pacific Northwest that have been identified by scientists as predators or scavengers of salmon at one or more stages of the salmon lifecycle. Of this group of 138 species, 9 species have a *strong-consistent* relationship with salmon, and another 58 have a *recurrent* relationship with salmon. Yet another 25 species have *indirect* relationships that depend upon healthy salmon runs to support their direct prey base.[14]

The Plight of Southern Resident Orcas: As just one current example of the intimate food-web dependency of many species on healthy Northwest salmon runs, consider the plight of endangered Southern Resident killer whales (*Orcinus orca*), or orcas. In 2005, due to their small population size and significant threats to survival, NOAA Fisheries issued a final rule designating Southern Resident orcas as endangered under the U.S. Endangered Species Act.[15] Scientific studies have since shown that this whale population is food-limited, with their main food source Chinook salmon which are becoming increasingly scarce.

The 2008 NOAA Fisheries Southern Resident Killer Whale Recovery Plan states, "Perhaps the single greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon in the Columbia River basin."[16] Salmon restoration efforts on a region-wide basis are necessary to help achieve Southern Resident Orca recovery goals. Yet given the potential for substantial salmon recovery in the Columbia River basin, conservation efforts made there can contribute significantly to adequate and abundant prey for Southern Resident Orcas.

Part 3 -- Thinking About Dam Removal -- Aging Dams as a National Infrastructure Disaster

First off, to see why in many cases dam removal makes good sense, we should consider the current state of the nation's aging dams. There are, according to the U.S. Army Corps of Engineers' National Inventory of Dams, approximately 84,000 dams in the nation providing a range of benefits and built for a wide array of purposes. This is a staggering number – *almost one dam built in the U.S. for every day since the signing of the Declaration of Independence in 1776.*

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[14] Species numbers and quote from introductory Abstract in Cederholm, C. J., D. H. Johnson, R. E. Bilby, L. G. Dominguez, A. M. Garrett, W. H. Graeber, E. L. Greda, M. D. Kunze, B. G. Marcot, J. F. Palmisano, R. W. Plotnikoff, W. G. Pearcy, C. A. Simenstad, and P. C. Trotter. 2000. *Pacific Salmon and Wildlife – Ecological Contexts, Relationship, and Implications for Management. Special Edition Technical Report*, Prepared for D. H. Johnson and T. A. O'Neil (Managing directors), Wildlife-Habitat Relationships in Oregon and Washington. WA Dept. of Fish & Wildlife, Olympia, WA.

[15] 70 *Fed. Reg.* 69,903 (November 18, 2005).

[16] National Marine Fisheries Service (2008) Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, Washington. At: II-82.

Yet no dam can exist forever. All have engineered lifespans, after which their reservoirs silt up, their concrete structures crack and deteriorate, and they can catastrophically fail – endangering the lives, property and natural resources (including drinking water supplies) of those who live far below and around them.

An increasing number of the nation's 84,000 dams are now economically obsolete, many are near or past their engineered lifespan, and quite a few no longer function to provide the benefits they were intended to produce. According to a January 2009 report by the Task Committee of the Association of State Dam Safety Officials, *The Cost of Rehabilitating Our Nation's Dams*, over 4,400 (at that time) of these 84,000 dams are now considered to be physically unsafe by state dam safety inspectors. From 2005 to 2008, their report notes, the states reported 566 dam incidents, including 132 dam failures – and that number is likely under-reported.[17] The nation's dam failure rate is also expected to accelerate. That report also noted that:

> "Without proper maintenance, repairs, and rehabilitation, a dam may become unable to serve its intended purpose and could be at risk for failure. State and federal dam inspection programs can identify deficiencies in dams, but inspections alone will not address safety concern posed by inadequately maintained or outdated dams. For most dam owners, finding the funds to finance needed repairs or upgrades is nearly impossible. The lack of reliable funding to resolve dam safety issue poses a threat to public safety nationwide."

That important 2009 study also concluded that the cost of rehabilitation up to current safety standards of just the nation's non-federally owned dams would be $51.46 billion (even more in today's 2018 dollars). To address just the most critical of these dams over the next 12 years, the cost was estimated to be at least $16 billion.

Congressional efforts to help provide those funds, the study noted, have been few and paltry compared to the urgent need. The report also notes that, at least at the time written, there was only one federal program available for rehabilitation of non-federally owned dams (the *Watershed Rehabilitation Act of 2000* (P.L. 106-472, Sec. 313)), and its funding was orders of magnitude smaller than what is actually going to be required.

According to the U.S. Army Corps of Engineers, the average life expectancy of a dam is 50 years, with 25% of the dams in the Army Corps of Engineers National Inventory of Dams now more than 50 years old. This number is projected to increase to 85% by the year 2020.[18] A number of these aging dams are in the Columbia Basin. New energy technologies are also making many of these dams increasingly obsolete.

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[17] That report is available at: www.damsafety.org/media/Documents/DownloadableDocuments/RehabilitationCosts2009.pdf.

[18] Maclin E., Sicchio M. (1999, 16). Dam removal success stories: Restoring rivers through selective removal of dams that don't make sense. American Rivers, Friends of the Earth, & Trout Unlimited, December 1999. http://www.michigan.gov/documents/dnr/damsuccess_513764_7.pdf. See also Army Corps of Engineers National Inventory of Dams (NID) http://nid.usace.army.mil/cm_apex/f?p=838:1:0::NO::APP_ORGANIZATION_TYPE,P12_ORGANIZATION:2

In short, an increasing number of the nation's dams are aging, increasingly obsolete, and becoming an infrastructure nightmare with serious repercussions for the nation's public health and safety. This is just as true for the Columbia Basin dams as it is elsewhere in the nation. *Over the next 100 years, virtually all the dams in the Columbia Basin will have to be either retrofitted at substantial cost, or removed and/or replaced.*

Each Dam Removal Proposal Must Be Judged on its Own Merits

It is just as illogical to say "all dams are good" and should be kept as they are, as to say "all dams are bad" and should be removed. The fact is, each dam was originally designed and constructed to provide certain public benefits and engineered only to last for a specific life span. *No dam can last forever – eventually it will either come down by human design or by catastrophic failure.*

Dams also can have a serious economic downside: they can block valuable rivers, destroying other valuable natural resource industries (including commercial or recreational fisheries), which in turn destroys jobs, and can have devastating impacts on water quality and disrupt natural hydrological flows that cause other societal problems such as greatly increasing the costs of providing clean drinking water to communities downstream.

Any rational analysis must therefore conclude that dams that no longer provide sufficient public benefits to justify their existence, or which are reaching the end of their engineered life-span and becoming safety hazards, or which are creating other problems for society (such as destroying valuable fisheries) which push their economic value to society into the negative, are potential candidates for removal. Thus each dam removal project must be evaluated and judged on its own merits, always on a case-by-case basis.

Dam removals are, in fact, nothing new -- and by necessity, as many dams exceed their engineered lifespan, are accelerating in number. Information on 1,403 dams that were removed from rivers in the United States over the past century is now available to the public, compiled by American Rivers.[19]

As more Columbia Basin dams age, many more are becoming candidates for removal. Other dams can still be upgraded, their hydropower output improved with new technologies, and can remain in place longer – *but always at an economic cost.* If that cost to upgrade or retrofit a dam to modern relicensing and safety standards surpasses or outweighs the economic value of any benefits that dam can provide, then that dam becomes economically obsolete, and it should be considered for removal. *But again, this is a case-by-case judgment that must be made for each dam.*

Recent hydropower dam removals in the Pacific Northwest that made good economic sense, and which also greatly benefited blocked salmon runs, include the removal of the Condit Dam and

[19]See: https://www.americanrivers.org/conservation-resource/american-rivers-dam-removal-database-now-available-public/

the Elwha/Glines Dam removal projects. In both cases, the salmon runs that those dams previously blocked are now returning in abundance.

Summary of Part 3: Some hydropower dams still make economic sense, but in a growing number of instances it is *dam removal* that makes the *most* economic sense, and is increasingly the common sense as well as least-cost option.

Not all dams are created equal. Many of the nation's dams today, including a growing number of the 3,036 major hydropower-producing dams FERC currently regulates, simply no longer make economic sense. Many of these aging dams use old technologies and are thus functionally obsolete; some are orphaned or now abandoned; and others would be cost-prohibitive to retrofit or rehabilitate, and so are economically obsolete. *But if left in place they will ultimately fail catastrophically.* The same analysis also applies to a growing number of federally owned dams.

The only sensible option in such cases is simply to remove those obsolete dams entirely and replace their renewable power through more cost-effective (i.e., cheaper) sources, which can be done now from nearly anywhere else in the nation's vast power grid. Recent dramatic increases in solar, wind, geo-thermal and other non-dam renewable energy sources increasingly make it possible to cost-effectively replace hydropower when necessary to do so.

Part 4 -- Major Problems with H.R. 3144

One of many bad ideas on the current Congressional table that would damage salmon runs in the Columbia and throughout the U.S. west coast (as well as jeopardize the international *U.S.-Canada Pacific Salmon Treaty*) is Rep. McMorris-Rodgers' bill, H.R. 3144 ("To provide for operations of the Federal Columbia River Power System pursuant to a certain operation plan for a specified period of time, and for other purposes.").

This badly-conceived bill passed in the House on April 25, 2018, and is now pending in the Senate. However, portions of this bill also are now appearing in the form of a "partial rider" to other bills, including the draft Conference Energy & Water Appropriations bill (H.R. 5895) currently at Division A, Title V (General Provisions), Sec. 506, but which may now be wrapped into a proposed appropriations "minibus" package currently under Conference discussion in the Senate.

Passing any part of H.R. 3144 into law (whether by regular bill or by partial "rider" on the "minibus" or other appropriations vehicles) would be disastrous for the entire west coast salmon-dependent economy, destroying fishing jobs from southern California to southeast Alaska! It would also abrogate U.S. responsibilities under the *U.S.-Canada Pacific Salmon Treaty* to recover damaged Columbia River salmon stocks, potentially triggering another "fish war" with Canada such as we saw prior to the current *Pacific Salmon Treaty*.

PCFFA and many other fishing industry and recreational fishing industry businesses, fishermen, conservationists, scientists, and citizens oppose H.R. 3144 because it would significantly weaken Columbia Basin salmon restoration efforts, just at the time when they need to be substantially strengthened, by:

- Congressionally overturning and invalidating a May, 2016, U.S. Federal Court decision finding that the old 2014 Federal Columbia River Power System (FCRPS) salmon Biological Opinion was arbitrary and capricious and not in accordance with the best available science, and instead legislatively requiring all federal agencies to return to that obsolete and illegal 2014 plan – in other words, legislatively mandating that the agencies must operate on the basis only of pre-2014 obsolete and discredited science. **This is fundamentally anti-science.**

- Blocking a related April, 2017, Court decision that provides much-needed protective measures like "spill" for guiding fragile juvenile salmon and steelhead migrating past the turbines of the federal dams on the lower Snake River and lower Columbia River – a mitigation measure that actually, provably works. Current Sec. 506 of H.R. 5895 (or its equivalent if in the "minibus" bill) tries to turn the clock back to 2014 to prohibit "spill" of water through the Columbia River dams to help young migrating salmon survive by guiding them around and out of the way of turbines at the dams. **This is fundamentally anti-salmon and anti-jobs.**

This legislative end-run around both law and science simply seeks to Congressionally "lock in" a failed 2014 *status quo* that was harming our region's iconic and economically valuable salmon and steelhead populations and the communities that rely upon them. These past flawed salmon policies have already wasted more than $15 billion on a series of insufficient measures that have failed to recover a single one of the 13 protected wild populations of salmon and steelhead in the Columbia Basin. That *status quo* is not working for anyone today, and a different approach was clearly necessary. An accelerated "spill" program was part of that new approach.

In point of fact, the current Court-mandated "spill" program has proven to be far more successful at increasing overall salmon survival through the Columbia River dams than anyone had predicted.[20] As a result, 47 of the Pacific Northwest's most prominent regional fisheries scientists wrote to Congressional policymakers on August 16, 2017, and stated:

> "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 longterm 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."[21]

Ending this important, and now proven effective, mitigation practice by legislative fiat just throws one of our best salmon mitigation tools out the window. This would just promote more mitigation failures and puts that much more pressure on the other aspects of the Columbia River

[20] See: CSS (Comparative Survival Study Oversight Committee) 2017. Documentation of experimental spill management: models, hypotheses, study design, and response to ISAB. May 8, 2017. 138 p., http://www.fpc.org/documents/CSS/30-17.pdf.

[21] Scientists' Letter to NW Policymakers, Re: Importance of "spill" to salmon protections (08-16-17) at: https://tinyurl.com/y8x5z2om.

hydropower system to provide equivalent survival benefits they cannot easily provide. *This provision is clearly bad for salmon and salmon jobs.*

On June 18. 2018, the President of the Western Division of the American Fisheries Society (AFS), the nation's most prestigious scientific society for fisheries scientists and managers, wrote to members of the U. S. Senate considering H. R. 3144, and voicing AFS's concerns about the suppression of science that H.R. 3144 would mandate, stating:

> "We write to express concern with H.R. 3144 which was introduced by Rep. Cathy McMorris Rogers (R-WA), passed in the House in April, and referred to the Senate Committee on Environment and Public Works. The bill seeks to overturn science-based judicial decisions associated with recovery, and would likely imperil, several important Columbia River Basin anadromous fish populations. H.R. 3144 would also unduly suppress the evaluation of the full range of alternatives available to recover these fish stocks based on the best available scientific information."[22]

This legislative override is all the more troubling when the need – and opportunity – for durable, better solutions is so urgent. The provisions of H.R. 3144 further divide us when we need to come together.

Coastal salmon, fishing, and orca advocates are well aware how connected our communities are with those in the Columbia Basin. That means both our problems and our solutions are also shared. We stand ready to work with people in the Tri-Cities, and throughout the Inland Northwest, to craft shared solutions that help us make tough decisions to solve tough problems but in a manner that assures just transitions and leads all our communities forward. Fishing communities (whether commercial, recreational, or Tribal) know what this is like. We have already made big sacrifices, have lost many thousands of salmon-based jobs, have experienced increased substance abuse and other problems that come with reduced opportunities and economic devastation. We know what that is like – and we don't wish it on anyone.

It is wrong to pit honest, hard-working food producers – salmon fishermen and farmers – against each other. We all deserve a fair shake and opportunity to make a living and to pass on our trades to our children and the next generation. We need policies that bring people together, solve problems and create opportunity – not close out options.

Part 5 -- Dealing With Looming BPA Insolvency: The Need for a New Business Model

There is no doubt that the Bonneville Power Administration (BPA) is in financial trouble. The problem, however, is that they are still acting out of an increasingly obsolete, hydropower-only business model. The organization must rethink its position in the midst of a glut of energy in the Northwest and the continued emergence of wind, solar and other non-hydro renewable energy sources that will inevitably play a far bigger role in the region's future as they become more cost-competitive and as fossil fuel powerplants are finally phased out.

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[22] American Fisheries Society Statement on H.R. 3144: https://tinyurl.com/yd6t7po3.

A very insightful analysis of BPA's current financial crisis is contained in a recent study by Rocky Mountain Econometrics titled: *The Bonneville Power Administration 2018: Threatened, Endangered, or on the Brink of Extinction?*[23] The authors of that study also point out that one of the biggest drains on BPA's coffers are the four Lower Snake River dams (LSRD), **which today can run only at a substantial economic loss.** Since 2009, BPA has not needed a single kilowatt of LSRD energy to meet contracted customer demand. Wind energy alone has already replaced all LSRD hydropower three times over.

There is much misinformation (and considerable mythology) about the economic importance of the four Lower Snake River Dams (LSRD's). These are the actual facts:

It is often stated incorrectly that removing them would mean the supposed "loss of 3,000 megawatts of power production." While it is true that the combined maximum "nameplate capacity" of the four LSRDs is 3033 MW, to actually produce that amount of power would require all 24 turbines operating continuously every hour of every day for the entire year, which even under ideal conditions is an impossibility. In practical operation, their actual average power production over the past 17 years has only been 943 MW per year, or just 31% of capacity, most of which is produced during spring run-off when both demand and prices for power are at their lowest.

As far as the Lower Snake Dams benefits in terms of river transportation (none of which benefits BPA), over the past 20 years, total Lower Snake River freight volume declined nearly 70 percent. Lower Snake River reservoirs no longer transport logs, lumber, paper, pulp, pulse or petroleum. Container shipping is zero. Grain volume has declined 45 percent. The last dredging needed to keep open the Port of Lewiston cost taxpayers over $10 million. Finally, barge traffic on the LSR reservoirs has been declining for over 20 years, and every barge that leaves the Port of Lewiston now carries a taxpayer subsidy of at least $25,000.

This analysis is explained in more detail in a separate economics monograph from Rocky Mountain Econometrics, titled: *Bonneville Power Administration and the Lower Snake River Dams: The Folly of Conventional Wisdom.*[24] We commend your attention to that report and other citations in this testimony.

While some claim that the dams provide stability for the grid for a few days every year, a recent study has demonstrated that we could have a far more stable grid (and even replace all the power the dams generate) with reliable and clean renewable energy, for just over a $1.00/month for Northwest ratepayers. The cost is likely to be even lower as prices for wind, solar, and storage technologies continue to drop below the conservative cost assumptions in the study.[25]

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[23] Available from: http://www.rmecon.com/examples/BonnevillePower%20May%202018.pdf.
[24] Available from: http://www.rmecon.com/examples/BPA%20&%20LSRDs%206-5-18.pdf.
[25] Lower Snake River Dams Power Replacement Study: Assessing the Technical Feasibility and Costs of Clean Energy Replacement Portfolios. NW Energy Coalition (March 201). Available at: https://nwenergy.org/featured/lsrdstudy.

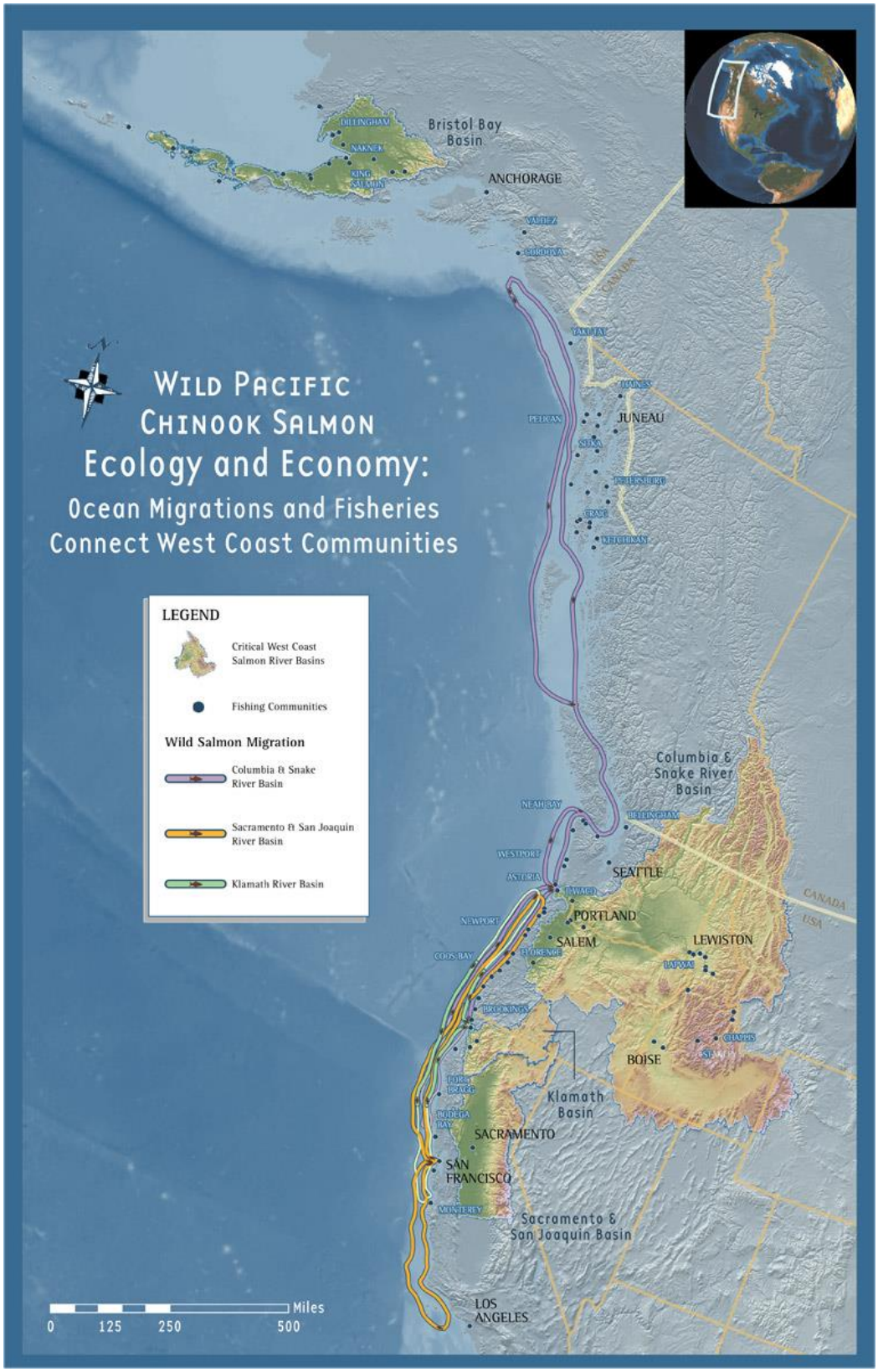

Figure 1: Geographical Influence of Columbia River-Origin Salmon Fisheries from Central California to SE Alaska