THE FEDERAL COLUMBIA RIVER POWER SYSTEM: THE ECONOMIC LIFEBLOOD AND WAY OF LIFE FOR THE PACIFIC NORTHWEST

OVERSIGHT FIELD HEARING

BEFORE THE

COMMITTEE ON NATURAL RESOURCES
U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTEENTH CONGRESS

SECOND SESSION

Monday, September 10, 2018, in Pasco, Washington

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CONTENTS

OVERSIGHT FIELD HEARING ON THE FEDERAL COLUMBIA RIVER POWER SYSTEM: THE ECONOMIC LIFEBLOOD AND WAY OF LIFE FOR THE PACIFIC NORTHWEST

Monday, September 10, 2018
U.S. House of Representatives
Committee on Natural Resources
Pasco, Washington

The Committee met, pursuant to call, at 10:01 a.m., at Pasco City Hall Council Chambers, Pasco, Washington, Hon. Doug Lamborn presiding.

Present: Representative Lamborn.

Also present: Representatives Cathy McMorris Rodgers and Dan Newhouse.

Mr. LAMBORN. The hearing will come to order. The House Natural Resources Committee meets today to hear testimony on an oversight hearing entitled "The Federal Columbia River Power System: The Economic Lifeblood and Way of Life for the Pacific Northwest."

By way of introduction, I am Doug Lamborn, the Chairman of the House Natural Resources Committee's Subcommittee on Water, Power and Oceans. I also represent the 5th District of Colorado.

I am grateful to be joined by two former members of the Committee who represent this region and are extremely familiar with these issues, Representatives Dan Newhouse and Cathy McMorris Rodgers, both from Washington.

To begin today's hearing, I will now defer to my distinguished colleague, Dan Newhouse, who represents Tri-Cities, for a brief statement and a few introductions.

Mr. NEWHOUSE. Good morning. I want to say welcome to central Washington, particularly to Chairman Lamborn and to Congresswoman McMorris Rodgers. Thank you.

It is truly a beautiful day here in the Tri-Cities in Pasco, Washington. I am very proud that this is my district, the 4th Congressional District. I am also very happy to see so many members of the community here who are truly engaged in a very, very important issue not only for our community but for our state, really for the whole Pacific Northwest, and I would even venture to say for our Nation.

As you know, many of you were with us outside just before the hearing began. A lot of community members besides yourselves were together, and we were serenaded by a group of young members of our community. You probably know this, but it was the state folk song, Washington State's folk song, that Woody Guthrie gem, "Roll On, Columbia." And what a perfect, perfect song for today's hearing, a great way to kick off the morning's proceedings as well.

So, I simply want to say thank you, Mr. Lamborn, Mr. Chairman, for being here today, agreeing to chair and host this important meeting.

And now, since this is an official congressional hearing, we are going to begin, as we do every session of the House of Representatives, with a prayer and a posting of the Colors and the Pledge of Allegiance.

First I would like to recognize Mr. Wes Hershberger of the Grandview Church of the Nazarene to lead us in prayer.

Pastor.

[Prayer.]

Mr. NEWHOUSE. If you will remain standing, I am now proud to recognize Pasco Boy Scout Troop 159 to post the Colors and to lead us in the Pledge of Allegiance.

[Colors.]

[Pledge of Allegiance.]

Mr. LAMBORN. Thank you, Representative Newhouse.

We will now begin with brief opening statements, as is our tradition, starting with myself.

STATEMENT OF THE HON. DOUG LAMBORN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF COLORADO

Mr. LAMBORN. The Committee meets today to conduct an oversight hearing entitled "The Federal Columbia River Power System: The Economic Lifeblood and Way of Life for the Pacific Northwest."

What often gets lost in the conversations inside the Beltway is the impact that this Federal infrastructure has on the lives of real people and the immense value the Federal Columbia River Power System creates for the region.

Only since the early 1990s has the system become a partisan issue. The construction of Bonneville and Grand Coulee Dams was a centerpiece of President Franklin Roosevelt's "New Deal." When President Roosevelt dedicated the Bonneville Dam in September 1937, he stated that, "in the construction of this dam we have had our eyes on the future of the Nation. Its cost will be returned to the people of the United States many times over in the improvement of navigation and transportation, the cheapening of electric power, and the distribution of this power to hundreds of small communities within a great radius. As I look upon Bonneville Dam today, I cannot help the thought that [. . .] we in America are wiser in using our wealth on projects like this which will give us more wealth, better living, and greater happiness for our children."

Eleven years later, speaking about the role that hydroelectric dams in the Pacific Northwest played in the United States' War World II efforts, Republican President Harry Truman stated that, "had we not had that power source, it would have been almost impossible to win this war."

From the days of early settlers in the region, to the exploration of Lewis and Clark, through World War II, and into the modern day, the story of the Pacific Northwest and the Columbia-Snake River System is uniquely American. Those of us in Congress owe it to you all here today to make good on the promises of the past and to do everything we can to protect this critical infrastructure that makes possible the way of life in the Pacific Northwest.

Before I conclude my statement, I want to give a special thanks to Representatives Dan Newhouse and Cathy McMorris Rodgers, who have been passionate and effective advocates for you back in Washington, DC. They work tirelessly to defend your livelihoods and the critical infrastructure that promotes a strong regional economy and way of life.

In fact, we are having this hearing today at their urging so Congress can be better informed on the critical issues facing the Pacific Northwest.

I also want to thank our witnesses here, all nine of them, for taking time out of their busy schedules to be here with us today. I look forward to your testimony on all sides of the critical issues facing the Federal Columbia River Power System.

[The prepared statement of Mr. Lamborn follows:]

PREPARED STATEMENT OF THE HON. DOUG LAMBORN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF COLORADO

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Before I conclude my statement, I want to give a special thanks to Representatives Newhouse and McMorris Rodgers who have been fierce advocates for you back in Washington, DC. They work tirelessly to defend your livelihoods and the critical infrastructure that promotes a strong regional economy.

Mr. LAMBORN. I now recognize, because we are in his district, Representative Dan Newhouse, for his opening statement.

STATEMENT OF THE HON. DAN NEWHOUSE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WASHINGTON

Mr. NEWHOUSE. Thank you, Chairman Lamborn.

Again, thank you to all of you who are here today.

Over the past few days, members of our community from throughout central and eastern Washington gathered to participate in what we call the "RiverFest: Our Rivers, Our Way of Life." It

has been an important opportunity to celebrate all the benefits our communities receive from the Snake and Columbia Rivers, as well as to educate the general public on all of these benefits.

This past Saturday, I, along with thousands of community members, visited dozens of booths and exhibits with community partners and organizations highlighting all of the gifts that our rivers provide. I requested this hearing of the House Natural Resources Committee, to coincide with these community events, because I believe it is important that Congress is educated about how vital our Federal River Power System is to the Pacific Northwest.

The Columbia and Snake Rivers and the Federal Columbia River Power System provide irrigation for Washington's agricultural industry, navigational routes for our export-driven economy, and flood control for our local communities. The system provides clean, renewable, affordable power, and provides for thriving recreational, manufacturing, and technology industries. These rivers truly are the economic lifeblood of the Pacific Northwest.

Unfortunately, in my opinion, misguided movements continue to push for the destruction or the degradation of our river power system. Along with my colleague, Representative McMorris Rodgers, and other Pacific Northwest bipartisan colleagues, I have been working on legislative efforts to protect this system and our hydroelectric dams.

As you know, a single Federal judge in 2016 overturned the plan which governs the operations and salmon protection management plans for the river system. This plan was the product of painstaking negotiations conducted by both the Bush and the Obama administrations, scientists and engineering experts at Federal agencies in affected states, as well as sovereign Northwest tribes and many local stakeholders.

The judge not only mandated that the breaching of the dams be considered as an option, but he has even stepped in to over-ride the scientists and the engineers who run the system and is now singularly dictating how the dams are managed, including going against the scientific analysis and ordering spill to maximum level, known as the gas caps.

Spilling at these gas caps not only threatens the reliability of the Federal power and transmission system and causes detrimental impacts to transportation and barging, to flood control and irrigation, there are also scientific studies warning that the increased gas levels harm the very fish species that we are trying to protect.

Six months ago, I sent a request to Washington's Senators, both Patty Murray and Maria Cantwell, warning of the $40 million bill that was estimated to fall on the backs of our constituents due to this spill order and asked them to join us in our efforts to save our dams. Unfortunately, that action did not take place, and in the end a $38.6 million bill landed on the backs of Washington ratepayers. Ratepayers could be facing the exact same bill this coming year if the Senators do not join our efforts.

So, I am doing everything in my power to protect ratepayers in Central Washington, from introducing legislation to protect the dams, which I am proud to say has now passed the House and awaits action by the Senate, to drafting an appropriations provision

that stops the reckless spill order, to requesting today's hearing, and I will not stop working on behalf of this vital system.

It is my hope for this hearing today that a national audience will learn more about the myriad benefits our river system provides and how our rivers truly do provide for our way of life. I look forward very much to hearing all of your testimony, and I yield back, Mr. Chairman.

Mr. LAMBORN. Thank you.

I now recognize Representative Cathy McMorris Rodgers for her opening statement.

STATEMENT OF THE HON. CATHY MCMORRIS RODGERS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WASHINGTON

Mrs. MCMORRIS RODGERS. Thank you, Chairman Lamborn.

It is great to be with my colleague, Representative Dan Newhouse. We are delighted to have everyone here today, and I appreciate the opportunity to join in celebrating the river system.

Congress created the Bonneville Power Administration (BPA) in 1937 on the heels of the Great Depression to distribute power generated from the development of two federally authorized dams, Bonneville and Grand Coulee. These marvels of engineering provided the Pacific Northwest with the Nation's most affordable and most reliable energy.

In 1945, Congress authorized the construction of four large dams along the Snake River—Ice Harbor, Lower Monumental, Little Goose, and Lower Granite—to grow what we call the Federal Columbia River Power System. These four dams can power nearly 2 million homes, or a city the size of Seattle, and provide reliable base load, important energy to meet BPA's peak loads during the hottest days in the summer, when the wind doesn't blow, or the coldest part of winter, when the sun doesn't shine.

We have a positive story to tell about how our dams bring incredible benefits and have transformed a dry, barren region of sagebrush into one of the most productive in the country.

In Washington State, hydropower provides almost 70 percent of our electricity needs, and it is clean and renewable.

Our dams also provide barging and irrigation benefits for our Number one industry, agriculture; flood control for our communities; and recreational opportunities.

Washington State is the most trade-dependent state in the country. An estimated 40 percent of our jobs are tied to trade, responsible for nearly $80 billion worth of exports. Our river system functions as a superhighway, employing 40,000 people in various capacities throughout our system of dams and locks.

It would take 174,000 semi-trucks to move the goods which travel by barge each year. One barge equals 134 trucks. Barging provides efficient, cost-effective, and low-carbon flow of commerce.

Despite all these benefits, we face significant challenges. Some argue that the four Lower Snake River dams in particular have negatively impacted migratory fish, yet the data show average fish survival rates of 97 percent. It is also important to note that of the 13 fish listed under the ESA, only 4 species pass these dams. These record fish survival rates are a significant result of Federal

research and investments in new technologies like fish-friendly turbines, new passage technologies, and modified operations.

In addition, we have implemented with Northwest states and tribes massive habitat restoration.

All of this comes at a cost. Around one-third of BPA's wholesale power costs go to fish and wildlife projects, $621 million on fish operations and fish and wildlife projects in 2016.

Now, due to a judge's decision in Portland, the region is spilling even more water over the dams, a mandate that will cost ratepayers an estimated $38 million. Why is this judge ignoring science? Why is this judge ignoring years of work on a Biological Opinion to satisfy the court demands, collaboration among Federal agencies, tribes, states, utilities, river users from the Pacific Northwest?

This over-reach by the courts is why I sponsored the bipartisan bill, H.R. 3144, that passed this Committee to stop senseless spills.

In eastern Washington, we understand the benefits of healthy salmon runs. That is why we have invested in research and new technologies and habitat restoration.

We were all saddened to see the recent death of a newborn baby orca whale off the coast of Washington. However, the four Lower Snake River dams did not cause the whale to die.

In fact, the Army Corps estimates that the dams would have a potential 2 percent impact on orca recovery. The larger impacts are ocean conditions and pollution. In order to protect orca whales and get them the salmon that they need, 50 percent of their diet, let's focus on what is actually going to get results.

In addition, we should also consider the impact of hatchery fish. Orcas cannot tell the difference between hatchery and wild salmon, and yet we have reduced hatchery production.

A recent NOAA and Washington Department of Fish and Wildlife report stated that recovering 12 western Washington rivers are more important to orca whales, and they provide the majority of the chinook they need to eat, not the Snake River. Another NOAA report states, and I quote, "While chinook salmon population in places such as the Columbia River are surging, other populations like Puget Sound chinook and Sacramento River winter run chinook are struggling."

Last year, the Ninth Circuit mandated an experimental spill operation to test their theory that it would improve fish passage. This experiment is not based on science. In fact, science shows that too much spill will actually kill fish through increased gas bubbles in the water.

Through the decades, the delegation from the Pacific Northwest has come together to protect and promote the value of the Columbia-Snake River System to our region. I appeal to my colleagues, House and Senate, Democrat and Republican, that we come together now and stop the courts from mandating theories not based on science that only add additional cost to ratepayers in our communities.

The House of Representatives has passed three significant bills to support our dams. This includes legislation to support the collaborative BiOp, a proposal to stop the costly spill requirement,

and Representative Herrera Beutler and Senator Risch's Sea Lion Predation bill. We have a lot to consider.

I stand ready to listen to my colleagues' ideas, and everyone here today, to help fish, orcas, recreation, clean power and low rates, transportation, agriculture, our economy, and our environment. The fact of the matter is that dams and fish co-exist. Let's keep looking forward to a future that builds upon our economy and our environment and a great quality of life.

And I yield back.

Mr. LAMBORN. Thank you.

Before we hear from our invited witnesses, I want to take a moment to urge the audience to submit written comments that will be printed in the hearing record and will become part of the official hearing record. We want to include as many comments as possible. So, there are comment forms at the room entrance, and you can also submit comments at our website, which is www.naturalresources.house.gov, under "Contact Us." We want to hear from you, and if you have any questions on how to do this, please see one of our staff members who are with us here today.

I will now introduce today's witnesses. Our first witness is the former Chairman of the Natural Resources Committee, the Honorable Doc Hastings from Pasco, Washington; our second witness is Mr. Dan James, Deputy Administrator for the Bonneville Power Administration, from Portland, Oregon; our third witness is Ms. Terry Flores, Executive Director of Northwest RiverPartners from Portland, Oregon; our fourth witness is Mr. Kris Johnson, President and CEO of the Association of Washington Business, from Olympia, Washington; our fifth witness is Glen H. Spain, Northwest Regional Director of the Pacific Coast Federation of Fishermen's Associations from Eugene, Oregon; our sixth witness is Mr. Rob Rich, Vice President of Marine Services for Shaver Transportation, from Portland, Oregon; our seventh witness is the Honorable McCoy Oatman, Vice Chairman of the Nez Perce Tribe from Lapwai, Idaho—excuse me for mangling that; our eighth witness is Mr. Jack Heffling, President of the United Power Trades Organization from West Richland, Washington; and our final witness is Ms. Marci Green, President of the Washington Association of Wheat Growers, from Ritzville, Washington.

Each witness' written testimony will appear in full in the hearing record, so I ask that witnesses keep their oral statements to 5 minutes as outlined in our invitation letter to you and under Committee Rule 4(a).

I also want to explain how our timing lights work. When you begin to speak, our Clerk will start the timer and a green light will appear. After 4 minutes, a yellow light will appear, and at that time you should speed up and begin to conclude your remarks. And at 5 minutes, the red light will come on and I will ask that you conclude at that time.

Congressman Hastings, you are now recognized for 5 minutes.

STATEMENT OF THE HON. DOC HASTINGS, A FORMER REPRESENTATIVE IN CONGRESS, PASCO, WASHINGTON

Mr. HASTINGS. Thank you, Mr. Chairman. If I may, before we start the official clock, just let me give you a bit of history here. You mentioned that I am from Pasco. As a matter of fact, I spent my childhood about six blocks from here, and the building that you are in right here used to be the high school. But when I was going to junior high, it was the junior high. This room right here is where the old gym was. Just a little bit of background.

Thank you, Mr. Chairman. I want to thank you, and it is nice to see my former colleague, Mrs. McMorris Rodgers here, and my Congressman, Dan Newhouse. I thank you for having this hearing today.

I appreciate the opportunity to testify about the importance of protecting the Northwest hydropower dams and the economic and environmental benefits that they produce for our region and our Nation.

Six years ago, when I chaired this Committee, we had a similar hearing to discuss my legislation on these dams, and I am pleased that the Committee continued focus on this issue.

BPA's unsustainable financial situation requires a legislative solution aimed at putting a halt to ongoing litigation and shoring up the value of our region's greatest carbon-free hydropower resource.

My testimony focuses on two basic points: (1) the need to advance the House-passed bipartisan legislation that uses best available Federal science to effectively stop an unelected Federal judge from running the river and halt edicts by extreme groups intent on misusing the ESA to remove dams; and (2) to highlight the hypocrisy of those that downgrade hatchery salmon as inferior to wild salmon.

First, I commend and strongly support your efforts to pass H.R. 3144 to codify the 2014 BiOp, an opinion that is supported by scientists, three different administrations, states, tribes, courts, and many more. The Senate needs to take up this legislation. And if they don't, I would encourage you to find a vehicle to attach it to before the end of this Congress.

Let me set aside for the moment the role of the dams, because that will be well-documented by the other witnesses. A continuing irony is that a vast majority of returning salmon to most areas of the Columbia and Snake Rivers come from hatcheries. Hatcheries have been used for more than a century, decades longer than dams have been around. Yet, some extreme groups say that there is a difference between so-called "wild" and hatchery-bred salmon. They claim hatchery salmon are inferior and negatively impact wild salmon. They file ESA-related lawsuits to shut down tribal and state hatcheries, which actually would help recover salmon.

This flies in the face of a number of scientific studies and the ESA itself. For example, a 2012 peer-reviewed scientific study conducted by the Columbia River Intertribal Fish Commission and Nez Perce tribal scientists found that hatchery fish did not negatively impact the fitness of wild fish and that hatchery fish can successfully boost populations with little, if any, negative impacts. And over a decade ago, 10 independent fishery scientists representing a range of educational institutions and agencies found that

hatchery fish successfully reproduce in the wild and found no evidence that they negatively impact wild salmon. In fact, they found that hatchery fish are indistinguishable when interbred with wild populations.

Mr. Chairman, I would like to ask consent to make those part of the record, if I may.

Mr. LAMBORN. No objection, so ordered.

Mr. HASTINGS. Many groups also focus on the declines of wild salmon, while primarily faulting dams for salmon declines, and they look the other way as huge numbers of wild salmon, ESA-listed salmon, are harvested. In a recent report to the Northwest Power Council, NOAA acknowledged that as much as 19 percent of Snake River steelhead; 43 percent, nearly half, of Snake River fall chinook; and 53 percent, over half, of Lower Columbia fall chinook are now harvested in the ocean or the river. These staggering numbers run contrary to the intent of ESA. We are, in fact, harvesting an ESA-listed species.

So, now it is time for Congress to step up and offer solutions such as H.R. 3144 that you alluded to. And let me suggest, too, that there is a model for this, and the model is the American buffalo. We all know how iconic the American buffalo was and how it roamed the Great Plains. We knew that the Native Americans used buffalo as a food source, and also as a clothing source. And we know that when we settled the West, the buffalo became a source of food for our settlers that settled the West, and they roamed the Great Plains.

As civilization moved, we know that the buffalo population declined. Somebody, or several people, decided well before ESA was put in place, that the buffalo needed to be preserved. So, they set up taking buffalo, reproduced them on farms, and so forth. Nobody to my knowledge suggested that we should wipe out the Great Plains and have the buffalo run the Great Plains.

So, we now have buffalo, which is a commercial product. You can buy that virtually any place in the country.

Let me suggest to you that the reason why that is done is because we have hatchery buffalo.

[Laughter.]

Mr. HASTINGS. So, what I would suggest, if we simply take the adjective "wild" out of salmon and put all salmon together as the number of salmon coming back, I think we will go a long way to solving our problem, because there is a great deal of hypocrisy in that.

Mr. Chairman, thank you very much, and members of the Committee, for inviting me to testify. I yield back.

[The prepared statement of Mr. Hastings follows:]

PREPARED STATEMENT OF DOC HASTINGS, FORMER REPRESENTATIVE IN CONGRESS FROM THE STATE OF WASHINGTON

Thank you, Mr. Chairman, Congressman Newhouse and McMorris Rodgers for holding this important hearing today.

I appreciate the opportunity to testify about the importance of protecting the Northwest's hydropower dams and the economic and environmental benefits they produce for our region and the Nation. About 6 years ago, as Chairman of the House Natural Resources Committee, I convened a similar hearing to discuss my legislation to protect the dams.

I am pleased with the Committee's continued focus on this critical issue. SPA's unsustainable financial situation requires a legislative solution aimed at putting a halt to ongoing litigation and shoring up the value of our region's greatest carbon free hydropower resource. In addition, the Trump administration can provide immediate policy leadership in the form of agency guidance and regulation that ensures dams and fish can co-exist.

My testimony focuses on two basic points: (1) the need to advance House-passed, bipartisan legislation that uses best available Federal science to effectively stop an unelected Federal judge from running the river and halt edicts by extreme groups intent on misusing the ESA to remove dams; and (2) highlight the hypocrisy of those that downgrade hatchery salmon as inferior to so-called "wild" salmon. This is an issue that could really benefit from high-level Administration scrutiny.

THE IMPORTANCE OF A LEGISLATIVE SOLUTION

First, I commend and strongly support your efforts to pass H.R. 3144 to "codify" the 2014 FCRPS biological opinion—supported by scientists, three administrations, states, tribes, utilities, ports and many more. This bill is critical, not just to protect our region's clean, reliable, renewable power generation and economic viability, but also to make clear that Congress plays an important role regarding the authorization of the multi-purpose dams and their legacy. The Senate needs to take this legislation up, pass it, and the Administration needs to sign it into law to end the uncertainty, get out of the courtroom, and allow the plan to protect the dams *and* salmon.

ADMINISTRATION POLICY LEADERSHIP—"HATCHERY" V. "WILD" ESA SALMON

Setting aside for a moment the role of dams, a continuing, troubling irony is that the vast majority of returning salmon to most areas of the Columbia and Snake Rivers come from hatcheries. Hatcheries have been used for more than a century—decades longer than dams have been around—to mitigate and supplement salmon. Yet, some extreme groups that distinguish between so-called "wild" and "hatchery"-bred salmon, claim hatchery salmon are "inferior" or negatively impact "wild" salmon. They've filed ESA-related lawsuits to shut down successful tribal and state hatchery programs, which actually help recover salmon.

This flies in the face of a number of scientific studies and the ESA itself. For example, a 2012 peer-reviewed scientific study conducted by Columbia River Intertribal Fish Commission and Nez Perce tribal scientists in Johnson Creek near Idaho's south fork of the Snake River, found that hatchery fish did *not* negatively impact the fitness of "wild" fish, and that hatchery fish can successfully boost salmon populations with little, if any, negative impacts. I have attached a full copy of that study to my testimony for the record.

Over a decade ago, 10 independent fisheries scientists representing a range of educational institutions and agencies found hatchery fish successfully reproduce in the wild, and found no evidence that they negatively impact "wild" salmon. In fact, they found that hatchery fish are *indistinguishable* when interbred with wild populations. I have also attached these findings, which cite more than two dozen scientific studies.

With technology such as DNA that wasn't used when salmon were first listed, the Trump administration would be wise to revisit and update its ESA policies and agency findings to ensure hatchery and "wild" salmon are treated the same for ESA listing and delisting purposes and recovery. A similar review of NOAA's policies sanctioning harvest of ESA-listed salmon should also be conducted.

Many groups focus on declines of "wild" salmon, while primarily faulting dams for salmon declines, and look the other way as huge numbers of "wild," ESA-listed salmon are harvested. In a recent report to the Northwest Power Council, NOAA acknowledged that as much as 19 percent of Snake River steelhead, 43 percent of Snake River fall chinook and 53 percent of Lower Columbia fall chinook are now harvested in the ocean or in the river. These staggering numbers run contrary to the intent of the ESA. Hatchery salmon simply cannot be ignored when counting and recovering salmon.

Now is the time for Congress to step up and offer solutions such as H.R. 3144 that seek to protect a clean, reliable energy resource that continues to drive our region's economy. It is also time for the Administration to provide policy leadership and put forth innovative solutions that ensure salmon and dams can continue to co-exist.

Mr. LAMBORN. Thank you for being here, thank you for your testimony, and thank you for your service to our country.

Let's see, Mr. James, you are now recognized for 5 minutes.

STATEMENT OF DANIEL JAMES, DEPUTY ADMINISTRATOR, BONNEVILLE POWER ADMINISTRATION, PORTLAND, OREGON

Mr. JAMES. Thank you, Mr. Chairman. My name is Dan James. I am the Deputy Administrator of the Bonneville Power Administration, and I am really pleased to be here today to discuss the continuing contributions of Federal hydroelectric power to the economy and the environment of the Pacific Northwest.

As Mr. Newhouse and Mrs. McMorris Rodgers have so eloquently stated, as has Mr. Hastings, BPA was created in 1937 to carry out Franklin Roosevelt's vision for harnessing the power of the Columbia River. In successive generations, the value of the river has been expressed in ways that met the challenges of the times: bringing electricity to rural homes and farms—I have met people in my life who can say I remember when the lights came on; powering the factories that built the ships and planes that won World War II; developing the inter-regional power exchanges between the Pacific Northwest and California; delivering the benefits of the Columbia River Treaty; enabling the development of additional renewable resources; and restoring the fisheries and wildlife so prized by the people of the Northwest.

Today, hydropower generation, along with the other authorized purposes of the Columbia River power system, remains the workhorse that powers the economy of the Pacific Northwest.

I would like to call our attention to three key attributes of hydropower that make it especially valuable in the evolving western electricity market.

First, hydropower is reliable and dispatchable. Columbia River hydropower provides dependable electricity generation around the clock and through every season of the year.

Second, here in the Northwest, our coldest weather can last for many days as high pressure systems hold over the region. Also, heat waves, including those we experienced this summer, drive peak demand for electricity, requiring sustained generation for many days. The hydro system is capable of, and in fact is planned for, meeting sustained periods of high demand.

The Columbia River Power System delivers carbon-free peaking capacity that is difficult to replace with alternative renewable resources. There is no comparable source of firm, reliable power available that delivers the same value at anywhere near the cost of the Federal Columbia River hydroelectricity system.

And not far from here, the four Lower Snake River dams supply up to one-quarter of BPA's operating reserves. Without the flexibility and operating reserves that these dams supply, the region would lose a substantial amount of its ability to deliver reliable energy, including the balancing of variable energy resources.

Second, hydropower is fundamental to the regional economy. As I mentioned in my opening remarks, low-cost hydroelectric power has been a major asset for this region's economy since the Great Depression and the days of World War II. Today, Federal power continues to serve many remote rural communities across the

Northwest that have few other economic advantages to offer industry and business.

And third, hydropower contributes to the clean energy economy. Responding to state mandates, Federal incentives, and the declining cost of technology, much of the West is attempting to meet clean electricity goals through other renewable resources such as wind and solar. As these variable resources grow in the Western Interconnection, hydro offers adaptable operational capability to integrate them reliably and at low cost.

Now I would like to turn to the success of fish and wildlife investments. The Federal hydro system is also unique in the extensive modifications and operational changes made for the protection and enhancement of fish and wildlife. BPA's ratepayers invested billions of dollars to improve design and operation of the dams. The trend of salmon and steelhead survival is on the rise. We continue to post returns that by some measures are near the numbers seen before Bonneville Dam was built.

Still, Federal hydropower operations are subject to ongoing litigation and environmental review. In 2018, court-ordered spill above the levels specified in the current Biological Opinion was valued at $40 million in lost revenue. It resulted in BPA implementing program funding reductions and a $10 million surcharge in its power rates.

Now I will conclude. I would like to thank you for the opportunity to participate in this hearing. The Columbia River hydropower system continues to deliver on President Roosevelt's original vision to benefit the people of the Pacific Northwest, while also driving our modern economy and contributing to the quality of life that we so greatly value here in the Northwest.

Thank you, Mr. Chairman.

[The prepared statement of Mr. James follows:]

PREPARED STATEMENT OF DANIEL M. JAMES, DEPUTY ADMINISTRATOR, BONNEVILLE POWER ADMINISTRATION

Good afternoon, Mr. Chairman. My name is Dan James. I am Deputy Administrator of the Bonneville Power Administration (BPA) headquartered in Portland, Oregon. I am pleased to be here today to discuss the continuing contributions of Federal hydroelectric power to the economy and environment of the Pacific Northwest.

BPA markets the hydropower from 31 Federal dams in the Columbia River Basin. These dams are operated by the U.S. Army Corps of Engineers (the Corps) and the Bureau of Reclamation (Reclamation). Bonneville also markets the output of the Columbia Generating Station, a 1,100 megawatt nuclear power plant near Richland, Washington. Connecting all of these resources with the rest of the Western electric grid are the 15,000 miles of high-voltage transmission lines that Bonneville owns and operates.

BPA was created in 1937 to carry out President Franklin Roosevelt's vision for harnessing the power of the Columbia River. In successive generations, the value of the river has been expressed in ways that met the challenges of the times: bringing electricity to rural homes and farms; powering the factories that built the ships and planes that helped win World War II; developing inter-regional power exchanges between the Pacific Northwest and California; delivering the benefits of the Columbia River Treaty; enabling the development of additional renewable resources; and restoring the fisheries and wildlife so prized by the people of the Northwest. Today, hydropower generation, along with the multiple other purposes of the Columbia River power system, remains the workhorse that powers the economy of the Pacific Northwest.

VALUE OF HYDRO

I'd like to call attention to three particular attributes of hydropower that make it especially valuable in the evolving Western electricity market.

- *Hydropower is highly reliable and dispatchable:* Columbia River hydropower provides dependable electricity generation around the clock and through every season of the year. For example, here in the Pacific Northwest, our coldest weather can last for many days as high pressure systems stagnate over the region. Similarly, heat waves such as what our region experienced this summer drive peak electrical demand requiring sustained generation for days. The hydro system is capable of, and in fact is planned for, meeting sustained periods of high demand. As the region has developed large amounts of wind generation, the Federal hydropower system has been able to compensate for the variable nature of wind and preserve reliability during periods of low wind generation. The dams of the Federal Columbia River Power System had a sustained peaking capacity in January of nearly 10,000 megawatts for 120 hours.
- The Federal Columbia River Power System delivers carbon-free peaking capacity that is difficult to replace with alternative renewable resources. There is no comparable source of firm, reliable power available that delivers the same value at anywhere near the cost of Federal Columbia River hydroelectricity.

  Not far from here, the four lower Snake River dams supply up to one-quarter of BPA's operating reserves. Reserves are the capacity that utilities are required to have available to meet unexpected changes in generation or electrical demand. Without the flexibility and operating reserves that these dams supply, the region could lose a substantial amount of its ability to deliver reliable energy, including the balancing of variable energy resources.
- *Hydropower is fundamental to the regional economy:* As I mentioned in my opening remarks, low-cost hydroelectric power has been a major asset for this region's economy since the Great Depression and the days of World War II. Today, Federal power continues to serve many remote rural communities across the Northwest that have few other economic advantages to offer industry and businesses. The new manufacturing economy in much of the Northwest is more technologically advanced than ever, and these manufacturers depend on reliable electricity with stable voltage and near-zero interruptions.
- *Hydropower contributes clean energy:* Responding to state mandates, Federal incentives and the declining cost of technology, much of the West is attempting to meet clean electricity goals through other renewable resources, particularly wind and solar. As these variable resources grow in the Western Interconnection, hydro offers adaptable operational capability to integrate them reliably and at low cost.

IMPORTANCE OF MAINTAINING HYDRO ASSETS

Preserving these valuable attributes requires constant reinvestment to replace and upgrade aging equipment. BPA is adopting a more rigorous approach for hydropower asset management that leads to the most efficient use of resources, recognizing that our assets do not all deliver the same value. Achieving these objectives for power requires collaborative, long-term planning with the Corps and Reclamation, our Federal partners. Through the Asset Investment Excellence Initiative, the three agencies have established prioritized goals to drive aligned investment decisions and improve contracting and project-management practices. We are already seeing the cost reductions and operational efficiencies from this effort. Longer term, this approach will produce the highest economic benefit and derive maximum value from the system, while meeting non-power purposes and environmental requirements.

SUBSTANTIAL FISH AND WILDLIFE INVESTMENTS

The Federal Columbia River hydro system is also unique in the extensive modifications and operational changes made for the protection and enhancement of fish and wildlife. Since the 1980 Northwest Electric Power Planning and Conservation Act, BPA has invested billions of dollars in improved design and operation of the dams, as well as in off-site restoration efforts for the benefit of fish and wildlife sponsored by tribes, states, and rural communities. The trend of salmon and

steelhead survival is on the rise—we continue to post returns that by some measures are near the numbers seen before Bonneville Dam was built.

Nonetheless, hydropower operations are subject to ongoing litigation and environmental review. In 2018, court-ordered spill above the levels specified in current Biological Opinions was valued by BPA at $40 million in lost revenue. It resulted in BPA implementing program funding reductions and a $10 million surcharge in its power rates. Also, BPA, the Corps, and Reclamation are undertaking a major environmental review of the Federal Columbia River hydro system through the Columbia River Systems Operation environmental impact statement.

SIGNIFICANCE OF THE COLUMBIA RIVER TREATY

The Columbia River Treaty is an agreement between the United States and Canada that jointly coordinates operations for flood risk management, hydropower generation, and other benefits. The Treaty went into effect in 1964 and has been a model of transboundary water resource cooperation ever since.

We are nearing an important date for the Treaty. In 2024, 60 years of prepaid flood control space from Canada will end, and the Treaty will shift to a different flood-risk management regime. Also, either country may terminate the agreement at any point after September 2024 with at least 10 years advance notice. These milestones present the opportunity for both countries to reconsider whether aspects of the Treaty's implementation can be modernized post-2024 to better reflect today's realities and continue to provide appropriate benefits to the region.

The United States has begun negotiations with the Canadian government on the future of the Treaty. BPA is the chair of the United States Entity and is a member of the negotiation team. The Department of State, with the United States negotiation team, holds regular meetings to inform the region and sovereigns of the status of the discussions.

CONCLUSION

In conclusion, Mr. Chairman, I would again like to express my appreciation for the opportunity to participate in this hearing. The Federal Columbia River hydropower system continues to benefit the people of the Pacific Northwest, while also powering our modern economy and contributing to the quality of life that people so greatly value in our region today.

Mr. LAMBORN. Thank you.

Ms. Flores, you are now recognized for 5 minutes.

STATEMENT OF TERRY FLORES, EXECUTIVE DIRECTOR, NORTHWEST RIVERPARTNERS, PORTLAND, OREGON

Ms. FLORES. Thank you, Chairman Lamborn, Representative Newhouse, and Representative Cathy McMorris Rodgers. I really appreciate the opportunity to come this morning and talk to you about not just the benefits that the Federal hydropower system provides but some of the issues that it is facing, particularly in the courtroom.

RiverPartners supports salmon restoration policies and actions that are based in sound science to ensure that the measures being taken will provide demonstrable benefits to the salmon and wildlife we are trying to protect and to ensure that they are a good investment of ratepayer dollars. Sadly, I am here today to tell you that decisions surrounding the operation of the Federal hydropower system and endangered salmon that affect every person in the Northwest are currently not being made based in sound science or cost-effectiveness, but by a District Court judge in Portland, Oregon; and anti-dam forces are once again trying to make the Snake River dams a scapegoat in salmon and now orca restoration efforts. So, I appreciate the opportunity to share some of the actual facts surrounding these issues with you this morning.

I would like to tailor my remarks to two issues: spill operations at the Federal hydro projects, and then dam removal. When I talk about spill operations, I want to emphasize that the spill levels that are out right now are absolutely a case of diminished returns for both the endangered salmon we are trying to protect, as well as Bonneville's customers.

Today, the Federal hydro system is at great risk, driven by over 20 years of ESA litigation and court rulings which have de-rated the system already by over 1,000 megawatts, increased Bonneville's rates roughly 30 percent in just the last few years, and have created huge uncertainty over how the Federal hydro system will be operated and at what cost to customers, even next year. That is because the Federal hydro system, as I mentioned, is being run from the bench in the Oregon District Court based on spill injunction motions that are being brought by national and local fish advocate and anti-dam groups.

Even this year, the Oregon District Court, as Dan mentioned, granted a motion that forced the Federal agencies to operate the Federal hydro system to maximum spill levels allowed by law on a 24/7 basis for 6 weeks during the spring run.

What is spill? Spill involves raising large gates at the dams which allow water and young fish to shoot out over the spillways. The theory is that spill will hasten juvenile salmon migration downstream to the ocean and result in more returning adults. However, spill also adds dissolved gas to the water, which can give young fish the bends, like divers, harming or even killing them.

So, spill is like medicine. The right amount can help you, and already we are spilling 30 to 40 percent of the Columbia and Snake Rivers. But too much can hurt or even kill you.

Here's the rub: as Congresswoman Cathy McMorris Rodgers noted in her statement, there is no proof that more spill will be better for salmon. NOAA Fisheries Science Center modeling of this year's court-ordered experimental spill operations showed there would be little to no impact on salmon survival. The Corps also found it nearly impossible to operate the system at maximum spill and routinely exceeded the state total dissolved gas standards that are in place to protect endangered fish.

Dan has already covered the cost of the spill and the spill surcharge. I would also note that the added experimental spill operations added 840,000 metric tons of carbon to our skies, which is a 1.7 percent increase in Northwest electricity sector emissions.

Now, let me quickly turn to Snake dam removal. Anti-dam groups continue to present Snake dam removal as a silver bullet that will save the Northwest's endangered salmon and now orcas. It is a false premise but a powerful fundraising tool for some of these organizations. There is no science that supports removal of the dams as the best means for salmon recovery.

Don't take my word for it. I am obviously here because I support those dams. But last fall, Dr. Peter Kareiva co-authored a paper with a UCLA graduate student, Valeri Carranza, entitled "Fealty to Symbolism Is No Way to Save Salmon," and I would submit, by extension, orcas. With your permission, Chairman Lamborn, I would like to enter that paper into the record.

Mr. LAMBORN. With no objection, so ordered.

Ms. FLORES. Here are some key points from Dr. Kareiva's paper:

"There is no doubt that dams have caused salmon declines, but the operators of the dams have spent billions of dollars to improve the safety of their dams for salmon, and it is not certain that dams now cause higher mortality than would arise in a free-flowing river."

That is right. Where we are at now, based on NOAA Science Center analysis, is all of the improvements that have been made to the dams means that salmon are surviving at levels that are similar to rivers like the Fraser that are undammed.

He also said, "The problem is that a complex species and river management issue has been reduced to a simple symbolic battle—a battle involving a choice between evil dams and the certain loss of an iconic species."

And he also says, ". . . it has become clear that salmon conservation is being used as a "means to an end" (dam removal) as opposed to an "end" of its own accord."

Dan has already covered——

Mr. LAMBORN. I am afraid we will have to conclude at this point, because the time is up.

Ms. FLORES. OK, thank you very much.

Mr. LAMBORN. I am sure you will have some questions, or at least I anticipate that you can finish up those thoughts.

Ms. FLORES. OK. Thank you. Sorry for going over.

[The prepared statement of Ms. Flores follows:]

PREPARED STATEMENT OF TERRY FLORES, EXECUTIVE DIRECTOR, NORTHWEST RIVERPARTNERS

INTRODUCTION

Thank you Chairman Lamborn, members of the Committee and Representative Newhouse for the opportunity to appear before you this morning to talk about the myriad benefits the Northwest's Federal hydrosystem provides to the environment, economy and our quality of life in the Northwest. I am Terry Flores, Executive Director of Northwest RiverPartners, an alliance of public utilities, ports, farmers and businesses joined together in the Pacific Northwest dedicated to the proposition that salmon and dams are and must continue to co-exist—and thrive. RiverPartners member organizations represent more than 4 million electric utility customers, 40,000 farmers, ports with thousands of employees and large and small businesses that provide hundreds of thousands Northwest jobs.

We support salmon restoration policies and actions that are based in sound science to ensure the measures being taken will deliver real benefits to endangered salmon and wildlife and are a good investment of ratepayers' dollars. Sadly, I am here today to tell you that decisions surrounding operation of the Federal hydropower system and endangered salmon that affect every person in the Northwest are currently not being made based in sound science or cost-effectiveness but by a District Court judge in Portland, Oregon. And, that anti-dam forces are again trying to make the Snake River dams a scape goat in salmon and orca restoration efforts. I appreciate the opportunity to share some of the facts surrounding these issues with you today.

THE FEDERAL HYDROPOWER SYSTEM: MYRIAD AND IRREPLACEABLE—BENEFITS

The Northwest is unique—and blessed—with an abundance of clean, carbon free hydroelectricity, nearly 60 percent of it supplied by the Federal dams on the Columbia and Snake Rivers. When President Franklin Delano Roosevelt signed the Bonneville Project Act in 1937, 81 years ago, he spoke of how the massive benefits of the Columbia River hydropower system would benefit the Northwest by providing power at cost to rich and poor alike, turn the desert into an agricultural oasis, and power industrialization. That vision came true and, along the way, the Federal hydrosystem helped win World War II.

The Federal hydropower system provides carbon-free, at cost, reliable power valued at more than $3 billion annually to the Pacific Northwest. The system is made up of 31 dams with a capacity to produce over 22,000 megawatts of energy and in an average year the system generates 8,700 megawatts of clean, reliable energy. The four Snake River dams alone produce 5 percent of the Northwest's total hydro energy, enough to power a city the size of Seattle or the cities of Boise, Tri-Cities and Spokane, every year.

Those calling for removal of these dams would have you believe that amount of power is insignificant, or can be replaced by intermittent wind or solar resources. The truth is this is a *lot* of carbon free energy that would be replaced largely by natural gas, adding 2–3 million tons of added carbon to our skies.

The Federal hydrosystem does much more than just provide clean energy. The system of Federal dams protect rural communities and big cities alike from devastating floods, creates a river highway that links the Northwest to the rest of the Nation producing over $20 billion in economic opportunity and wealth; provides recreational opportunities and irrigation for over 7 million acres of farmland producing $8 billion in agricultural income. There is no question that the Federal hydrosystem is the backbone of the region's carbon free energy supply and the lifeblood of its economy.

THE LARGEST SPECIES RESTORATION PROGRAM IN THE NATION

All this bounty came at a cost to the region's indigenous people, fish and wildlife resources and the land and water they occupy. As a result, the Northwest is home to the largest fish and wildlife restoration program anywhere in the Nation, and likely the world. Over $16 billion has been spent to mitigate for the impacts of the dams on fish and wildlife since the late 1970s. It is important to point out that the Northwest is unique in this respect too: almost all these costs are borne by Northwest families and businesses through their electric bills—not U.S. taxpayers. Without these costs, BPA's wholesale power rate would be about a third lower.

Investments in salmon restoration include a complete overhaul of the Federal dams to make them more fish friendly in the early 2000s, at a cost of nearly $2 billion. For example, every one of the Federal mainstem dams on the Columbia and Snake Rivers have been retrofitted with state-of-the-art downstream fish passage technologies. These "fish slides" and other technologies are helping young fish migrate downstream safely and swiftly with survival levels ranging from 96 percent to nearly 100 percent. Due to the success of improved passage and dam operations, *NOAA Fisheries and other scientists have stated that these survival levels are similar to those seen in undammed rivers such as the Fraser River in British Columbia*. The dams also provide for safe upstream passage for adult salmon which utilize fish ladders installed when the dams were built to access their natal spawning grounds.

The Northwest also is home to one of the largest habitat restoration efforts in the Nation. In the last 10 years, nearly $1 billion has been spent by Northwest states and tribes to restore degraded habitat, remove culverts and increase water flows as a result of BPA's Fish Accord agreements. Nearly 1 million acres, the size of Rhode Island, have been protected or restored to provide quality habitat for fish and wildlife (See: www.critfc.org/blog/2018/08/14/fish-accords-10-year-summary/).

Fortunately, the work being done by the states and tribes and paid for by Northwest utility customers are paying dividends. Overall, salmon returns are trending upwards over the last 12 years with some years seeing record returns. While scientists agree that ocean conditions, where salmon spend 3 or 4 years of their lives (as compared to 15–20 days migrating through the hydrosystem) have the most impact on salmon survival, it's clear all the salmon restoration measures being taken are helping too. Unfortunately, these positive results for salmon have not put an end to the ongoing court battles.

FOCUS ON SPILL IS A CASE OF "DIMINISHED RETURNS"

Today, the Federal hydrosystem is at great risk driven by over 20 years of Endangered Species Act (ESA) litigation and court rulings which have de-rated the system by over 1,000 megawatts, increased BPA's rates roughly 30 percent in just the last few years, and created huge uncertainty over how the Federal hydrosystem will be operated and at what cost to customers, *even next year*. That is because the Federal hydrosystem is being run by an Oregon District court judge from the bench, based on spill injunction motions brought by national and local fish advocate and anti-dam groups.

This year, the Oregon District court granted a motion that forced the U.S. Army Corps (Corps) to operate the Federal hydro system to the maximum spill levels allowed by law on a 24/7 basis for a 6-week period this spring. Spill involves raising

large gates at the dams which allow water—and young fish—to shoot out and over the spillways. The theory is that spill will hasten juvenile salmon migration downstream to the ocean and result in more returning adults. However, spill adds dissolved gas to the water which can give young fish the "bends," like divers, harming or even killing them.

Spill is like medicine: the right amount can help you, too much can hurt or even kill you. Already, 30 to 40 percent of the Columbia and Snake Rivers are spilled for fish instead of generating clean energy to power our economy and protect our environment.

Here's the rub: there is no proof that more spill will be better for salmon. *NOAA Fisheries Science Center modeling of this year's court ordered experimental spill operations showed there would be little to no impact on salmon survival*. The Corps also found it nearly impossible to operate the system at maximum spill, routinely exceeding the state Total Dissolved Gas (TDG) standards designed to protect fish and aquatic species.

The added court-ordered spill cost BPA and its customers $38.6 million which BPA managed to whittle down to $10 million this year—by cutting other fish and wildlife projects. And, it added 840,000 metric tons of carbon to our skies, a 1.7 percent increase in Northwest electricity sector emissions.

It's also important to point out another little known fact about Federal hydrosystem spill: the Army Corps has to obtain "waivers" from Oregon and Washington to exceed the state TDG standards that apply to hydro projects. Other hydro projects must be operated to meet a 110 percent TDG standard; the waivers for the Federal projects allows the Corps to go up to 120 percent. The states set the TDG standard at 110 percent because it is most protective of salmon and other aquatic species, based on their own review of the science. Years ago, some of the same plaintiffs that are now suing to increase spill, sued to keep TDG standards for hydro project at 110 percent.

Now, plaintiffs in the litigation, the Federal agencies and state of Washington are discussing increasing spill and TDG levels even further. To what end? Added spill puts young salmon in the danger zone, increases BPA and customers' costs, and the benefits to endangered salmon, based on NOAA Science Center analysis, are decimal dust. This is a poor use of public dollars in salmon restoration. It does however keep the focus on the dams and dam removal instead of other measures that can and should be taken: habitat restoration, hatchery and harvest reforms.

SNAKE DAM REMOVAL: SYMBOLIC BUT NO WAY TO SAVE SALMON OR ORCAS

Anti-dam groups continue to present Snake dam removal as a "silver bullet" that will save the Northwest's endangered salmon and orcas. It is a false premise, but a powerful fundraising tool. There is no science that supports removal of the dams as a means for salmon recovery.

Last fall, Dr. Peter Kareiva co-authored a paper with a UCLA graduate student Valeri Carranza entitled: "Fealty to Symbolism No Way to Save Salmon" (and I submit, by extension, orca whales in Puget Sound). Dr. Kareiva has an impeccable science vita: Fellow of the American Academy of Arts and Sciences and National Academy of Sciences, former Chief Scientist at The Nature Conservancy, current Director of UCLA's Institute of the Environment and Sustainability. He analyzed the Northwest's endangered salmon issues directly as Director of Conservation Biology at NOAA's Northwest Fisheries Science Center from 1999 to 2002.

Here are some key points from his and Ms. Carranza's paper:

- "There is no doubt that dams have caused salmon declines, but the operators of the dams have spent billions of dollars to improve the safety of their dams for salmon, and it is not certain that dams now cause higher mortality than would arise in a free-flowing river."
- "The problem is that a complex species and river management issue had been reduced to a simple symbolic battle—a battle involving a choice between evil dams and the certain loss of an iconic species."
- ". . . it has become clear that salmon conservation is being used as a "means to an end" (dam removal) as opposed to an "end" of its own accord."

The paper also describes how, in 1999, environmental groups supporting Snake dam removal ran a full-page ad in the *New York Times*, stating that if the dams were not promptly removed "wild Snake River spring chinook salmon, once the largest run of its kind in the world, will be extinct by 2017."

Dr. Kareiva and Carranza point out: "As we write this, it is 2017, the dams remain, and spring/summer chinook numbers are much higher than they were when

that confident prophesy of extinction was printed." Yet the drum beat for dam removal continues despite any science indicating it would actually help, and not harm, endangered salmon and other species, and despite the enormous costs, increased carbon emissions, and damage it would cause the economy.

BPA'S FUTURE IS IN PERIL

The uncertainty of ongoing litigation regarding future operations of the Federal hydropower system has put the agency at grave risk. In 2017, BPA announced a 5.4 percent increase in its wholesale power rate for Fiscal Year 2018 and 2019. This follows four sequential rate periods with rate increases averaging nearly 8 percent, meaning BPA's rates have risen roughly 30 percent in the last few years. Rising fish and wildlife costs have been a key driver in these rate increases. And, this year, BPA issued a $10 million "surcharge" on customers to pay for the costs of court ordered spill this spring.

Even more concerning is the potential for future rate increases. Customers' contracts with BPA expire in 2028, however, they will be making decisions on their future power supplies well before that. Should BPA's rates continue to climb at their current trajectory, they likely will not be cost-competitive with other alternative market supply choices available to customers. And, if that happens, if BPA loses a few large customers or many small customers or some combination, it will not have sufficient customers or revenues to cover its costs including the costs of the fish and wildlife program. This also could jeopardize its ability to make its annual payment to the U.S. Treasury, which also affects the Nation's taxpayers.

That is why RiverPartners thanks you, Chairman Lamborn, and Committee members who supported H.R. 3144, a bipartisan, common-sense bill that would have put science first and stopped judicial efforts to run the hydrosystem until a comprehensive environmental review of the system's impacts on listed fish was completed. I also thank and applaud Congressman Newhouse, Congresswomen McMorris Rodgers and Jaime Herrera-Beutler, and Congressmen Greg Walden and Kurt Schrader, among others, for their sponsorship and unflagging support of this legislation and other actions to help bring more certainty to the operations of the Federal hydropower system and BPA's future financial health and security.

As you recognize, as stewards of this great asset, it is imperative to identify practical and bipartisan solutions to these tough challenges. As stated, there is no silver bullet when it comes to restoring our iconic salmon, orcas or other species and the answer certainly won't be found in a court room. It requires following sound science, fostering collaboration, and providing strong leadership, as you have shown.

It is hard, but it is worth it. Every day millions of people depend on the electricity that hums over BPA's 15,000 miles of transmission lines. New challenges await, from climate change to the energy demands of internet servers, but the agency remains at the very center of the economy and the environment of the Pacific Northwest.

Thank you for holding this hearing today and for the opportunity to testify. I am happy to respond to any questions you may have.

Mr. LAMBORN. Mr. Johnson, you are now recognized for 5 minutes.

STATEMENT OF KRIS JOHNSON, PRESIDENT AND CEO, ASSOCIATION OF WASHINGTON BUSINESS, OLYMPIA, WASHINGTON

Mr. JOHNSON. Good morning, Mr. Chairman, Members of Congress. Welcome to the 4th Congressional District. It is my privilege and honor to speak before you this morning on a critically important tool.

My name is Kris Johnson. It is my privilege to serve as President of the Association of Washington Business (AWB), the state's largest employer association, representing nearly 7,000 employers—small, medium, and large—throughout the state of Washington. Those employers employ just over 1 million Washingtonians.

I have a couple of thoughts that I think are vitally important to our discussion today at the Columbia and Snake River dams, and they come from two perspectives. First, as a former Tri-Citian, I know how important the dams are, not only to this community, but they really serve as the lifeblood of this region.

Second, as the President of AWB, Washington's oldest and largest statewide business association, I can tell you that these dams play not only a critical role for the Columbia, for the state, but for the entire Pacific Northwest. These dams have fundamentally transformed our state's economy, opening new opportunities not only to agriculture but also manufacturing and high-tech. And I believe we all share the same goals: clean energy, a healthy environment, a sustainable future, and a strong economy, and that is what we enjoy right here.

Washington's employers and families have taken great care to protect the air, water, and land for the generations. It is something we hold seriously. It is not an either/or issue. We can have healthy rivers and a healthy economy.

Construction of these dams required a great deal of forethought and hard work from those before us. Investments in the dams laid the foundations for a strong and robust state economy. Low-cost power has been a key competitive advantage, attracting high-tech and manufacturing jobs throughout our state.

In fact, Washington's manufacturing sector employs over 286,000 Washingtonians, with an average compensation of $87,000 a year. These are great family wage jobs that we enjoy.

In fact, the total output from this sector was $58 billion in 2016, and the high-tech sector employs just over a half-million Washingtonians, again statewide. As you came into Pasco today, you happened to see that we are surrounded by rich, vibrant farmland, vineyards, and food processing industries, all made possible because of the dams.

In fact, Washington farmers are proud that they feed the world, whether it is potatoes, wheat, apples, milk, and so many other key important products. We are proud that we are a part of feeding the global economy.

This is also the heart of Washington wine country. I know when you choose to have a glass of wine at the end of the day, I am sure you are choosing a Washington-based wine. We are the second-largest producer of wine in the country. In fact, today there are 900 wineries here in Washington State, with 55,000 acres of grapes. The wine industry is critically dependent on two things, irrigation and dependable water. They have both of those here.

The dams provide low-cost, clean, renewable energy. In fact, nearly 70 percent of Washington's electricity comes from reliable, clean, renewable hydropower, which accounts for 40 percent of the hydroelectric generation in the entire United States.

As we have heard today, Washington is a trade-driven economy. In fact, trade represents 40 percent of all jobs in Washington and is the largest single driver of the state's economy. The dams are a critical component for trade. They serve our growers, our seaports, moving Washington products to market with a limited carbon footprint. In fact, 60 percent of Washington's wheat harvest, which is just finished, is worth billions to the economy and moves by river

to the West Coast ports, where it is sent around the world, and the dams provide a valuable recreation opportunity. It provides a quality of life, and we enjoy that in this state. Families enjoy boating, fishing, and other recreational activities that all drive local economies.

So, for those reasons we support H.R. 3144 to protect the Columbia and Snake River dams, and I want to thank Representatives McMorris Rodgers and Newhouse for your hard work and your leadership on this specific issue that passed the House on a bipartisan vote earlier this year.

We also vigorously support your appropriations provision to stop the spill order and hope our Senators will accept this compromise language to provide certainty for our river system.

It took strong, visionary leaders to build the Columbia and Snake River dams, the results of which we enjoy today. They have proved hugely successful, producing powerful results for our state and our region. They have been transformative, they have been a catalyst, and they have been dynamic to our state's economy. They are powering our homes, our communities, and our economy.

On behalf of Washington's employers and the employer community, we urge you to continue to support the Columbia and Snake River system. Thank you.

[The prepared statement of Mr. Johnson follows:]

PREPARED STATEMENT OF KRISTOFER JOHNSON, PRESIDENT AND CEO, ASSOCIATION OF WASHINGTON BUSINESS

Mr. Chairman and distinguished members of the U.S. House of Representatives' Committee on Natural Resources, it is an honor to have the opportunity appear before you today at this oversight hearing on the Federal Columbia River Power System and its economic impact to the Pacific Northwest.

As the president and CEO of the Association of Washington Business, which represents nearly 7,000 small, medium and large businesses across Washington State, I appreciate the opportunity to share with you today the vital importance of the Columbia and Snake River dam hydroelectric power system to Washington State's economy.

As a former resident of the Tri-Cities, the dams are vitally important to the community and the Mid-Columbia region. And, as the president of the state's oldest and largest statewide business association, our members rely on the Columbia River Power System to power their operations in an environmentally friendly and cost-effective manner. Simply put, the energy system is the lifeblood of Washington State and the entire Pacific Northwest region.

The Columbia-Snake River dam system transformed Washington State's economy, opening new opportunities for our agriculture community to access markets around the world, but to also support a sustainable future and strong economy.

The hydroelectric dam system aligns with our values—clean water, clean air and healthy land and waterways today and for generations to come. Our members—from the smallest businesses in rural communities to our large urban manufacturers—have proven it's not an either-or; we can have both healthy rivers and a healthy economy.

Construction of the dams required a great deal of forethought and hard work by those who came before us. Those investments laid the foundation for a strong state and regional economy. They knew then what we know today: Low-cost power is a key competitive advantage, attracting high-tech and manufacturing jobs to Washington State.

The numbers bear that out: Washington's manufacturing sector employs more than 282,000 people today and generated a total economic output of $58.4 billion in 2016. The growing high-tech sector today employs more than 503,000 people across the state.

And, the dam system allows for robust and productive farm land where potatoes, wheat, apples and hundreds of other products are grown and harvested, then

packaged by our vital food processing industry, powered by clean hydropower from the dams. Washington's agricultural land literally feeds people around the world.

This is also the heart of wine country. Washington State is the 2nd largest premium wine producer in the country with more than 940 wineries and 55,000-plus acres of wine grapes. This industry, like the other agricultural land, is critically dependent on the dams' water infrastructure for crop irrigation.

The Columbia River dam system provides low-cost, clean, renewable energy. In fact, nearly 70 percent of Washington's electricity comes from reliable, clean and renewable hydropower, which accounts for 40 percent of the hydroelectric generation in the United States.

Per capita, Washington is the most trade-driven state in the Nation. International trade today accounts for 40 percent of all jobs in Washington State and is the largest driver of the economy. And, the dams are a critical component of trade. They serve growers and our seaports, moving products to market with a limited carbon footprint. Sixty percent of Washington's wheat harvest, worth billions to the economy, travels to West Coast ports via barge on the Columbia River to where it is shipped around the world.

And, the dams are key to the quality of life in this region. Families enjoy boating, fishing and recreation, activities encourage tourism and drive local economies.

For all these reasons, the Association also supported H.R. 3144 to protect the Columbia and Snake River dams. Thank you to Washington's U.S. Reps. Cathy McMorris Rodgers and Dan Newhouse for their hard work on the legislation, which passed the House this year on a bipartisan vote. We also vigorously support your Appropriations provision to stop the spill order, and we hope Washington's U.S. Sens. Patty Murray and Maria Cantwell will accept the compromise language that will provide certainty for the river system.

It took strong, visionary leaders to build the dams that make up the Columbia-Snake River Power System. They have proved hugely successful, producing power for Washington State, the Pacific Northwest region and the Nation. And, the investments made—and continue to make—have transformed the region and its economy.

On behalf of Washington's employer community, we urge you to continue to support the Columbia and Snake River dams.

Mr. LAMBORN. Thank you.

Mr. Spain, you are now recognized for 5 minutes.

STATEMENT OF GLEN SPAIN, NORTHWEST REGIONAL DIRECTOR, PACIFIC COAST FEDERATION OF FISHERMEN'S ASSOCIATIONS, EUGENE, OREGON

Mr. SPAIN. Thank you, Mr. Chairman and members of the Committee. I have the honor to represent much of the West Coast commercial fishing industry, and I want to talk a little bit about the salmon fisheries. The Columbia River is our lifeblood as well, so I think the name of the panel here is quite appropriate to our interest as well.

A little bit of background. Salmon is a powerhouse in our commercial fishing industry, but not just here. Keep in mind that when salmon migrate out, the juvenile salmon go north and south, so we are talking about an impact—the Columbia River essentially has an impact through its salmon runs all the way up into southeast Alaska and all the way down to central California.

In fact, about 58 percent of the salmon that are harvested in Alaska come from the Columbia. It is still and once was the first largest salmon producing river in the world. So, we have that to look forward to.

In the last few years, our industry has been on the order between $500 and $600 million in terms of just the wholesale value of the salmon landed in all of our three states and Alaska, and that amounts to more than $1.25 billion in economic benefits. That,

however, is only a fraction of what is the potential productivity for salmon in the river. As you probably know, the original estimates are that between 10 and 16 million salmon return to the Columbia River historically. We are down to about between 1.5 and 2.5 million now. So, we have lost more than 80 percent of the productivity of the river system.

The question is not the benefits of the dams or the benefits of other values in the river. We all know those have great benefits to society. The question which you have raised and everyone has raised is how can we make those co-exist truly with salmon runs. There are a multitude of things that are being tried, and there are a number of things that need to be tried in the future.

We cannot stop the clock, go back in time, and rely on old science. It is pretty clear now and increasingly clear, for instance, that spill is a substantial benefit. I noted some recent studies, and I want to read into the record a paragraph from a letter from 47 of Pacific Northwest's most prominent regional fishery scientists which I referenced. It is an August 2017 letter I referenced in my comments.

"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 and Columbia fish for reasons described more fully below," a reference to the comments themselves. "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."

That is the consensus right now of the scientific community. Given that fact, to jettison spill as a tool and return to a discredited, essentially scientifically obsolete plan is not good policy. I respectfully have to object to the kind of policy work that has been proposed in the past in that way.

What we have is potential unexpected consequences from eliminating spill. Number one, keep in mind that the Pacific salmon treaty with Canada is an important element of Columbia River restoration, and the restoration elements in that treaty, provided for by international law with Canada, are being essentially abrogated by not using spill as a tool. It means a reduction in survival rates, which means we could go backwards. There have been very modest improvements in the runs because of a lot of the efforts, but we could easily slip backwards, particularly in adverse environmental conditions such as we are facing this year. That means we could potentially be wasting literally billions of dollars of ratepayer efforts for the past several years by going backwards in terms of our recovery efforts.

Another thing is that it is likely to require more water if we are not using the water at the spillways wisely. The science is fairly clear that it will require more water from the Upper Basin to go through this system in order to improve those survival rates the equivalent of what spill could produce. So, you are potentially, once again, pitting lower river versus upper river interests in a water fight that has no end in sight.

We can do better than that. We need a collaborative approach. We need to look realistically at all the science. We need to realistically look at all the policy decisions that are out there for us, and that are in the works now. To interfere with that with the legislative process would, in my view, be a serious mistake.

Thank you.

[The prepared statement of Mr. Spain follows:]

PREPARED STATEMENT OF GLEN H. SPAIN, ON BEHALF OF THE PACIFIC COAST FEDERATION OF FISHERMEN'S ASSOCIATIONS (PCFFA)

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 United States. 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*.

[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.

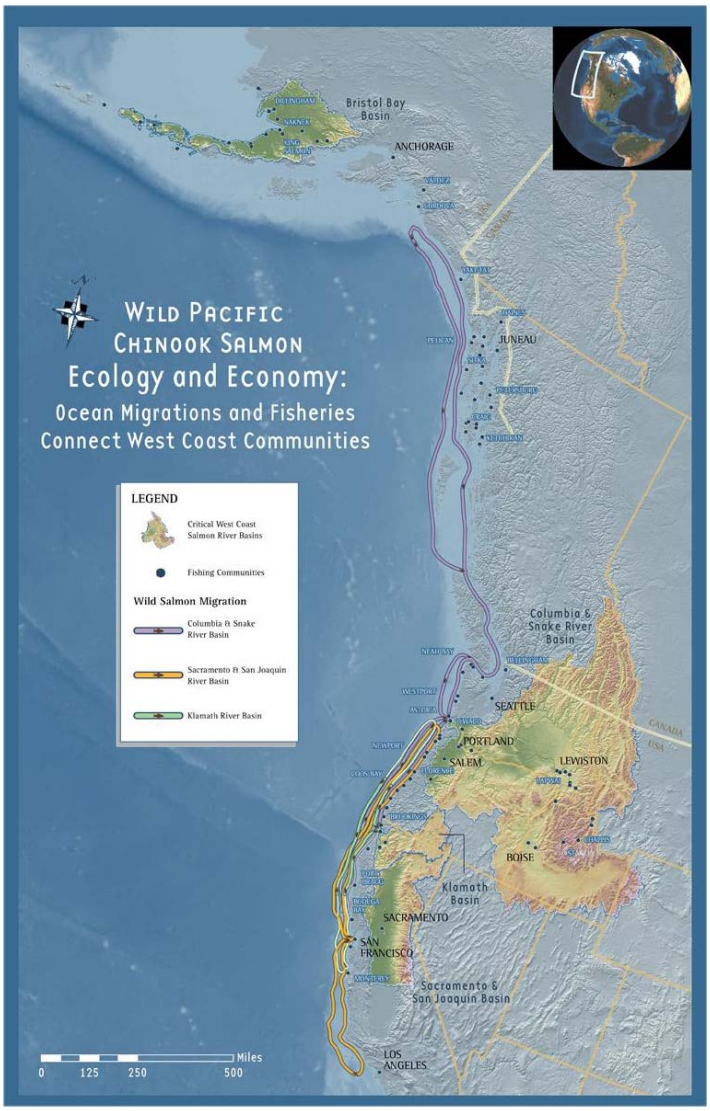

Figure 1: Geographical Influence of Columbia River—Origin Salmon Fisheries from Central California to SE Alaska

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

[3] This is an estimate from the NW Power and Conservation Council, based on the U.S. Army Corps of Engineers inventory of "significant dams." However, no universally agreed upon census of dams in the Columbia Basin seems to exist.

affect all salmon runs above their locations starting from the Bonneville Dam (near Portland). The FCRPS 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 percent 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 percent of historic numbers, and these are almost entirely hatchery fish in origin (95 percent coho, 60 percent fall Chinook and 80 percent 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]

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

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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.

[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/.

averaged only 5,866,870 pounds, a reduction of about 43 percent, and coho landings averaged only 3,102,894 pounds, a reduction of about 74 percent.[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 percent. 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 percent 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 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

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[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 percent 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).

[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).

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 United States for every day since the signing of the Declaration of Independence in 1776*.

Yet no dam can exist forever. All have engineered life spans, 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 life span, 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 percent 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 percent 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.

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

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[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.

[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.

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 life span, 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 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.").

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

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 policy makers 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 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." [21]

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[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.

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 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 over-ride 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.

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

[22] American Fisheries Society Statement on H.R. 3144: https://tinyurl.com/yd6t7po3.
[23] Available from: http://www.rmecon.com/examples/BonnevillePower%20May%202018.pdf.

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 percent 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]

Mr. LAMBORN. OK. Thank you.

Mr. Rich, you are now recognized for 5 minutes.

STATEMENT OF ROB RICH, VICE PRESIDENT, MARINE SERVICES, SHAVER TRANSPORATION COMPANY, PORTLAND, OREGON

Mr. RICH. Chairman Lamborn, Representative McMorris Rodgers, and Representative Newhouse, thank you very much for this rare opportunity to get to be in-district here and to have a panel such as this get to share the expertise and the background of the operational views of the river, some incredible information shared.

I work for Shaver Transportation Company. We are one of the many barge lines that work the Columbia-Snake River System from Astoria, Oregon all the way to Lewiston, Idaho, a 465-mile deep draft system up to Vancouver, Washington, a shallow draft barge system all the way to Lewiston. As we are all aware, they transit through eight navigation locks at the Federal facilities, four on the Columbia River system and four on the Lower Snake River system.

I am also fortunate enough to be the current president of the Pacific Northwest Waterways Association, and we represent a wide variety of transportation, agricultural, and port interests along our coast and up our Columbia-Snake River System. Again, very thankful to be able to be here today.

We are now a sixth-generation, family-owned company. When I think of how our company, amongst many others here on the river, relate to the agricultural interior, Representative McMorris Rodgers, you mentioned you are a fifth-generation family, and that

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[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.

goes back a long way. In other words, there has been a lot of change. There has been a lot of adjustment made in the work that your family has done, if they have had the exposure to agriculture, as our family has had, in marine transportation on the river.

I think of the 1,500 ships a year that cull the Columbia River system. For many of us in the upper reaches here, we don't get to see those ships, but we get to see the benefit of those ships culling the lower river, and that is the export of agriculture from this area.

There are 27 river elevators that receive wheat by truck from the inland to load barges between the Dalles and the port of Lewiston/Clarkston. So, there is a lot of barging activity that goes on on the river, in any given year 1,200 to 1,500 commercial barge tows a year transiting the river. And as I mention that number, it sounds like a pretty big number, but you are running about three, four, maybe five a day, going up and down the river. That is departing from Vancouver, kind of a silent service that sees an incredible amount of cargo moved on the river.

We are a dual-feed barge and rail system. When I mentioned the ships that cull the lower river, the majority of them are taking exported agricultural products out of our region here, also receiving those products by rail. Forty percent of the wheat that is exported out of the Number one wheat export terminal in the United States—terminal meaning the Columbia River export terminals down-river—of that, 40 percent is moved by barge from the inland, 60 percent by rail. Where you have barge and rail, you have competition. Where you have competition, you have competition for work that creates a better balance for shippers and gives opportunities.

Though opportunities in the Snake River Basin as far as wheat exports go, not so much. If you are a wheat producer in Whitman County, if you are a wheat producer in Columbia County, you are shipping by barge. That is your option. There is not a short-line railroad for you to go to. You are not going to be moving to trucking. If trucking was more efficient than rail, if it was more efficient than barging, it would be trucked all the way to the elevator down in Portland, a 600- or 700-mile round trip. That is not what we see.

When it comes to trucking, you are looking at 149 miles for a gallon of diesel to move a ton of fuel. For marine transportation, inland marine transportation for barging interests, you are looking at 576 miles. I can't find a more valued reason for keeping barging in effect. If we are concerned about the volume of fuel that is used, the volume of emissions that are going into our air, inland barging is certainly the most environmentally responsible way to go.

I am going to end with a little written piece here that I put together. I have given you a lot of facts and figures, but I just want to leave you with a little piece of heart. As a multi-generational, family-owned company, we directly relate to the family farm producers and shippers that we serve here in the inland Northwest. These families, our company, and the river system we know today have grown steadily and sustainably into the primary economic driver of our trade-dependent economy. From the family farm producers of eastern Washington and Idaho who have no other access to the Pacific Rim markets but through barging, to our crews that

depend on our jobs for their livelihood, it is with great respect and pride that we serve the Columbia River system.

Again, I thank you for this opportunity to share, and I look forward to questions later on.

[The prepared statement of Mr. Rich follows:]

PREPARED STATEMENT OF ROBERT D. RICH, VICE PRESIDENT OF MARINE SERVICES, SHAVER TRANSPORTATION

Mr. Chairman and members of the Committee, good morning. My name is Rob Rich, and I am the Vice President of Marine Services for Shaver Transportation. I have spent 39 years working on the Columbia Snake River System since 1979.

I also serve the current president of the Pacific Northwest Waterways Association, or PNWA. PNWA is a non-profit trade association that advocates for Federal policies and funding in support of regional economic development. Our membership includes over 130 public ports, navigation, transportation, trade, tourism, agriculture, forest products, energy and local government interests in Washington, Oregon and Idaho. I represent both Shaver and PNWA here today, and appreciate the opportunity to provide the perspective of the navigation community in the Northwest as it relates to the importance of the Columbia Snake River System.

BACKGROUND ON SHAVER TRANSPORTATION

Shaver is now a 6th generation, 138-year-old, family-owned tug and barge line. We are the oldest continuously operating tug and barge line on the West Coast.

With a staff and crew of 110 employees, we operate a fleet of 15 tugs and 20 grain barges on the Columbia Snake River System, with over $9M in payroll. Shaver handles 40 percent of all barged wheat from the 27 river elevators serving the inland empire from The Dalles, Oregon to Lewiston, Idaho. This represents approximately 500 barge loads of wheat at 120,000 bushels per barge shipped.

Shaver has built 10 of the last 12 new grain barges added to the river system since 1996, all told a $35M investment. We also have increased our upriver barging tug fleet by 40 percent since then, going from three to five tugs with an investment of $10M.

BACKGROUND ON THE COLUMBIA SNAKE RIVER SYSTEM

The Columbia Snake River System is essentially a river highway. It includes our 105-mile deep draft Columbia River channel from Astoria at the mouth of the river at the Pacific Ocean all the way to Portland, Oregon. From there, a 360-mile inland barging channel stretches from Portland to Lewiston, Idaho, with a series of eight locks along the way. Those dams are why we are here today, and I could not be more proud to talk about the benefits they provide to our region and the Nation.

The Columbia Snake River System as a whole moves over 50 million tons of cargo worth over $24 billion. The inland portion of the system helps to feed our deep draft export gateway, with over 9 million tons of cargo moving through the Columbia and Snake River dams.

This river system is the Nation's Number one wheat export gateway. Over 50 percent of the Nation's wheat exports moves through our river system. Barge lines operating on these rivers support over 1,200 barge tows annually, with the standard grain tow consisting of four barges, totaling 15,000 tons of wheat. Each four-barge grain tow represents over $3M in Inland Empire wheat producer income. Adding to this, a rail to barge transfer station is being constructed at Boardman, Oregon to shortstop wheat railed from the Midwest, adding to our system's value to producers located many states away.

Barging through the four Snake River dams is a particularly critical transportation link for our region. Nearly 10 percent of all U.S. wheat exports moves through just those four projects, destined for overseas markets. In 2014 alone, over 4.3 million tons of cargo was barged on the Snake River. It would have taken 43,610 rail cars to carry this cargo, or over 167,000 semi-trucks, with increased emissions and increased safety risks, all at a higher cost to the farmer and shipper.

Our barging system also safely and responsibly transports millions of gallons of refined petroleum products from Portland to the Tri-Cities, thousands of tons of wood products to downriver mills, as well as containerized solid waste, aggregates for concrete and asphalt plants, and scrap steel from Burbank, Washington to Portland, Oregon for export. In fact, a large portion of the diesel and gasoline used right here in the Tri-Cities is barged to Pasco and trucked out to our local gas stations. At certain times of the year, this can be up to 50 percent of the fuel this area

puts in our vehicles. In addition, Top of Form fertilizer is barged into this area to grow potatoes, apples, grapes and the many other crops prized in our Nation and overseas.

As you may be aware, there continues to be a small but vocal minority in our region who advocate for removing the four Lower Snake River dams. These four dams are among the most advanced, fish-friendly projects in the entire country, and do not block access for endangered salmon runs. In fact, juvenile fish survival rates past each of these dams is between 95 percent and 97 percent, which is higher than what is seen in some undammed rivers. Major improvements in fish ladders, dam design, optimized river flow, and habitat restoration (all paid for by revenues from the Snake and Columbia River dams) have resulted in improvements to salmon returns. The time it takes fish to pass through the dams is also the quickest it has been since the dams were installed and continues to decrease with each new improvement.

Northwest ports and navigation interests have always strongly supported robust salmon recovery efforts that preserve the multiple uses of the river system. We believe, like most in the scientific community, that salmon runs have been affected by a variety of factors. A commitment to improving all factors affecting the fish, including hydropower, habitat, harvest, and hatcheries, is necessary for listed species to recover. Extreme measures like dam breaching have been studied and rejected numerous times over the last 20 years. Mother Nature will always throw us some curve balls, but the trend lines for our listed fish species over the last 10 years demonstrates the success of regional collaboration on fish passage, habitat, and other river improvements.

I've given you a lot of facts and figures, but this is what I want to leave you with. As a multi-generational family-owned company, we directly relate to the family farm producers and shippers we serve here in the Inland Northwest. These families, our company, and the river system we know today has grown steadily and sustainably into the primary economic driver of our trade dependent economy. From the family farm producers of eastern Washington and Idaho who have no other access to the Pacific Rim markets but through barging, to our crews that depend on our jobs for their livelihood, it is with great respect and pride that we serve the Columbia Snake River System.

Thank you for the opportunity to testify. I welcome any questions you may have.

Mr. LAMBORN. Thank you.

Vice Chairman Oatman, you are now recognized for 5 minutes.

STATEMENT OF THE HON. McCOY OATMAN, VICE CHAIRMAN, NEZ PERCE TRIBE, LAPWAI, IDAHO

Mr. OATMAN. Thank you. It is an honor and a privilege to be before you here, Chairman and Committee members. My name is McCoy Tamoody Oatman, and I serve as the Vice Chairman for the Nez Perce Tribe. I have served on Council for 10 years now.

You guys have my written testimony, but the Nez Perce people are a people of the heart. So, being here today, I have to speak from my heart. I come from a treaty signer, Old Chief Looking Glass. In 1877, he signed the treaty, and he actually rode all the way back from buffalo country to Walla Walla to ensure that the treaty was adequate.

I come from seven generations from him, and during the treaty time he said that I am looking out for those that are not yet here, those that are unborn, so I would like to think that his foresight and knowledge, and that of the other treaty signers as well, were looking out for me and the future generations.

I understand what you guys are trying to do for your constituents and for those that are here today, and I am here to speak for those that are not here yet, those that are yet unborn, and to ensure that they have a way of life past the time that I am here.

There are only 3,500 or so Nez Perce that walk this earth. So, if we ourselves were a fish species, we would be considered endangered. We deal with a high rate of diabetes, heart disease, and a lot of that goes back to our diet, a lot of processed food and things that our bodies were not able to handle.

Salmon play an integral part in that, in how we live. Traditionally, Nez Perce, we used to bury just right off the streams, up on the hillsides, and we would bury in rock. And the reason we would bury ourselves in the rock is so that when the water came through and it washed our bodies back into the river system, and as well know how to fish, know how to get home. Well, it is by their scent.

So, we would provide ourselves—we would be part of that life cycle and be nutrients for the salmon, and also provide them a way of how do they get home.

There have been mentions of other tribes. There are the accords that the other tribes signed. Well, the other tribes don't live above all these dams, and the Nez Perce do, so it is about that we have to continue to fight. When Lewis and Clark came through, Old Looking Glass' father's name was Wyakaikt, and he gave Lewis and Clark a token that they would be able to pass through the Columbia system. And then when he passed, Old Looking Glass' son was born. But he got his name because Lewis and Clark gave him a medallion. After that, he wore that medallion and he became known as Looking Glass.

His son, Young Looking Glass, was the one that was in the war of 1877, and I am a descendant of his brother, who made it all the way into Canada when we were chased by the cavalry, and then they come back to Idaho, and that is why I am able to be here today.

So, this hearing is really important. It is really important to hear from all parties, but also in particular from the Nez Perce, the ones that have been here for tens of thousands of years that have been recorded. I want to continue that future for my people, for my children. I have three young daughters—6, 3, and 1. It is my battle here today to ensure that they have a future, that there will be fish in the waters for them.

We have our own scientists. We have our own biologists that have been part of this process, that have been part of the meetings that deal with spill. We want to continue in that collaborative fashion. We have had our day in court, and so we understand what others have been saying about the courts running the system. Well, sometimes there is no other place for us to go, if people aren't going to listen to us as a people that have been here for so long, that understand these systems.

As Mr. Hastings mentioned earlier about buffalo, I serve on the interagency buffalo management plan, and those are the last pure genetic species of buffalo in Yellowstone. The other buffalo have been bred with cows, and so it is not really a fair comparison. We call those "beefalo." They are not actually referenced as buffalo where we come from.

I thank you for allowing me this time to come and talk to you, and to talk to the public as well, and hopefully nationally people will understand where we are coming from as Nez Perce people. We are just trying to ensure that we have a river system that is

going to support those salmon and that will also support the future generations. Thank you.

[The prepared statement of Mr. Oatman follows:]

PREPARED STATEMENT OF VICE-CHAIRMAN MCCOY OATMAN, NEZ PERCE TRIBAL EXECUTIVE COMMITTEE

Honorable Chairman and members of the Committee, as Vice-Chairman of the Nez Perce Tribal Executive Committee, I would like to thank you for the opportunity to provide testimony on behalf of the Nez Perce Tribe (Tribe) for this oversight hearing by the Committee on Natural Resources (Committee) regarding the Federal Columbia River Power System (FCRPS) and its impact in the Pacific Northwest. The Tribe understands the premise of the hearing is an appreciation for the current system and the economy that has grown around it. The Tribe, however, challenges the Committee to look beyond memorializing the status quo, and instead conduct an honest examination of all ideas and concepts that can restore the health of the Columbia Basin such as providing spill, addressing impacts of climate change, examining dam removal, restoring habitat, decreasing carbon emissions, and furthering scientific study.

The Nez Perce Tribe is a federally-recognized Indian tribe with treaty-reserved fishing, hunting, gathering, and pasturing rights throughout the Columbia River Basin. The Tribe's traditional lands and waters encompass what are today northeast Oregon, southeast Washington, north-central Idaho, and western Montana. The Tribe engages in fishing, hunting, gathering, pasturing, and associated activities, and in the co-management of resources, within much of this area. The FCRPS system has had, and continues to have, a uniquely harmful impact on the Nez Perce people. The Tribe's fishermen fish in the mainstem Columbia River where four of the dams are located while the Tribe's Reservation and many of the Tribe's other usual and accustomed fishing places lie above the four dams on the lower Snake River.

Despite the impacts from the current operation of the FCRPS, the Tribe's treaty-reserved fishing right and fisheries within the Columbia Basin continue to be critically important to the Tribe in maintaining and practicing its culture, economy, and ways of life as it has done for thousands of years. In addition, implementation of treaty fisheries is consistent with the Tribe's legally enforceable treaty-reserved fishing right and resources and with the United States' treaty and trust obligations and responsibilities to the Tribe.

The importance of salmon and steelhead to the Tribe and to the Pacific Northwest cannot be overstated. The Tribe is deeply committed to restoring salmon and steelhead in the Columbia and Snake Rivers to healthy, harvestable levels for all citizens of the Northwest and to fairly sharing the conservation burden.

The Tribe has long advocated before Congress and through the Federal court system for the FCRPS to be managed in a way that minimizes adverse impacts on fish and the Basin. As a result, the Tribe disagrees with proposed legislation or any language that would restrict the use of Federal funds for dam removal or studies related to dam removal, or that would circumvent Federal court orders related to the operation of the FCRPS.

For example, H.R. 3144 attempts to short-circuit the Federal judiciary and Federal appellate process with respect to providing additional spill to protect fish. The Federal District Court for the District of Oregon has issued rulings on the dams that make up the FCRPS only after reviewing thorough and voluminous briefing and expert scientific information presented by the Federal Government, the states of Oregon, Washington, Idaho, and Montana, tribal sovereigns including the Tribe, and fishing, utility, conservation, and irrigation interests.

The District Court's May 4, 2016 decision held that the 2014 Biological Opinion on the operation of the FCRPS was arbitrary and capricious under the Endangered Species Act (ESA), and that the Federal action agencies' failure to prepare an environmental impact statement (EIS) on the implementation of that Biological Opinion violated the National Environmental Policy Act (NEPA). The Court observed that "Perhaps following the processes that Congress has established in the National Environmental Policy Act and in the Endangered Species Act finally may illuminate a path that will bring these endangered and threatened [salmon and steelhead] species out of peril." None of the parties pursued an appeal of the District Court's ruling. In contrast to H.R. 3144, the Federal agencies are indeed actively assuming their responsibilities under NEPA, engaging with the public, and with the region's sovereigns.

After the Federal agencies refused to implement any additional protective actions for salmon and steelhead during the ordered ESA and NEPA processes, the state of Oregon, supported by the Tribe and several fishing and conservation groups in the Pacific Northwest, requested interim protection for salmon and steelhead in the form of spill in the springtime that would be implemented only in those years where such levels of spill would not naturally occur simply as a result of runoff. The Oregon District Court did not order spill to begin until the spring 2018 migration season, ensuring that "the parties and experts in the region ha[d] sufficient time to consider an appropriate protocol and methodology for spill at each dam, incorporating the most beneficial spill patterns." Tribal Fisheries Department staff were among those experts in the region and were instrumental in helping craft spill operations that were feasible and met the intent of the Court's direction. The District Court's March 27, 2017 order went on to state that it expects that "the parties, amici, and other regional experts will work together to reach consensus." No party sought a stay pending appeal or an expedited appeal of the order. And again, the Federal action agencies and the region's state and tribal sovereigns have been actively engaged in, and are making considerable progress in, developing spill implementation plans.

H.R. 3144 would short-circuit and subvert Federal judiciary and Federal appellate processes and would undermine collaborative efforts that the region's sovereigns and the Federal Government are presently engaged in.

Second, H.R. 3144 attempts to short-circuit the full consideration of all alternatives to redress the impacts of the Federal FCRPS dams on salmon and steelhead—including breaching the four lower Snake River dams. The bill, in Section 4, would prohibit the identified agencies from even studying removal of the four lower Snake River dams through any EIS process without additional congressional authorization. This would undermine the existing EIS process proceeding now under existing NEPA law that the Court has ordered and that the Federal agencies are presently engaged in with the public and the region's sovereigns.

Again, as the District Court observed, "Perhaps following the processes that Congress has established in the National Environmental Policy Act and in the Endangered Species Act finally may illuminate a path that will bring these endangered and threatened [salmon and steelhead] species out of peril."

The Tribe has also opposed similar language proposed in the Fiscal Year 2019 appropriations package for Energy and Water Development, legislative branch, and Military Construction and Veterans Affairs. Section 506 of General Provisions of H.R. 5895 limits the use of Fiscal Year 2019 funds to operate the FCRPS hydroelectric dams in a manner that is inconsistent with the Army Corps of Engineers' 2017 Fish Operations Plan. The Tribe opposes this provision because it will prevent implementation of District Judge Simon's March 27, 2017 spill injunction order that the Tribe advocated for to limit the impacts of the current system operations on fish.

These legislative "fixes" are not solutions to the current issues but instead are roadblocks to ultimately finding answers to the issues created by the operation of the FCRPS that will work for everyone. They also cause unnecessary division between stakeholders and distract from productive conversations.

The current history of the FCRPS in the Pacific Northwest is dwarfed by the ancient history and existence of the Columbia River Basin prior to the FCRPS' construction. The current dynamic between the economy and the FCRPS is not natural, nor is it the only path forward. It is based on assumptions that should be challenged and explored.

There are ways for all people in the Pacific Northwest to thrive and be successful beyond an unexamined status quo. Pre-FCRPS history shows a thriving and prosperous economy and way of life for both Nez Perce and non-Nez Perce. The Nez Perce have had to adjust their way of life to accommodate the modern status quo. However, that is no reason to stop questioning and studying and then implementing better ways. The legislative actions proposed to Congress are attempts to end examination and exploration of better ways. They are a head-in-the-sand approach at an exact moment in time when we should all be fearlessly looking for better solutions. We encourage you to demonstrate your leadership by helping to support current efforts to find better solutions, not hide from them. The Tribe would be happy to continue dialogue with members of this Committee and the Northwest Congressional Delegation to search for those new solutions.

Thank you for your time today.

Mr. LAMBORN. Thank you, Vice Chairman.

We will now hear from Mr. Heffling for 5 minutes.

STATEMENT OF JACK HEFFLING, PRESIDENT, UNITED POWER TRADES ORGANIZATION, WEST RICHLAND, WASHINGTON

Mr. HEFFLING. Chairman Lamborn, Congressman Newhouse, and Congresswoman McMorris Rodgers, thank you for this opportunity to testify.

The United Power Trades Organization represents the trades and crafts non-supervisory employees at the U.S. Army Corps of Engineers hydroelectric projects in Washington, Oregon, Idaho, and Montana. These hydroelectric projects make up a portion of the Northwest Division of the U.S. Army Corps of Engineers and are divided up into the Portland, Seattle, and Walla Walla Districts. The Walla Walla District includes four hydroelectric projects on the Lower Snake River that seem to be the target of most dam removal proponents.

The Northwest Division of the Corps of Engineers is a major employer and a huge contributor to the economy of the Pacific Northwest, with an annual budget of over $3 billion and a professional workforce of nearly 4,800. The members of the United Power Trades Organization include the men and women who maintain and operate the equipment at the hydroelectric projects and number over 600. But this number doesn't include the engineers, administrators, biologists, park rangers, and the hundreds of others whose jobs are directly connected to the dams, nor does it include the many private companies who, by contract, also rely on the existence and operation of the dams for their employment.

High-technology firms such as Apple, Amazon, Intel, Google, and Facebook have located facilities in the Northwest because of the availability of reliable, clean hydropower creating jobs and boosting economies.

The dams of the Columbia-Snake River System are multipurpose in that they provide hydropower, flood control, navigation, irrigated agriculture, and recreation. The benefits of the dams cannot be measured by megawatts alone but in the overall value they provide the region.

Hydropower is clean, renewable, and plays a significant role in Pacific Northwest power production. Hydropower supports wind and other renewables by providing the peaking power necessary to meet demand. Hydropower turbines are capable of converting 90 percent of available energy into electricity, which is more efficient than any other form of generation.

The cost to operate the Snake River dams is about $65 million per year, which is relatively inexpensive considering the return on this investment is over $200 million annually.

Hydropower is not only measured by the total energy produced. It also stabilizes the transmission system and keeps it reliable. High-voltage transmission lines require a steady back-and-forth electrical flow, and flexible hydro generation meets the changing conditions to ensure reliability.

Navigation is a major benefit of the Columbia-Snake River system of dams. They provide 365 miles of navigable water from Portland/Vancouver to Lewiston. Every year, more than 50 million

tons of commercial cargo moves up and down the Columbia and Snake Rivers between Astoria, Oregon and Lewiston, Idaho.

A study by the Columbia River ports identified 40,000 port-related Northwest jobs. Firms that ship cargo via the Columbia River employ an additional 59,000 workers annually. Cruise ships carry 15,000 passengers a year on 5- to 7-day tours on the river, bringing an estimated $15 million to $20 million in revenue to local economies.

Irrigated agriculture is the economic powerhouse of the West, with annual revenues of $17 billion and more than 100,000 employees. It is the dams that provide the water for irrigation and, as a direct result, helps sustain the economy of the Northwest.

The Walla Walla District employs over 1,100 people, with over 400 working at the hydroelectric projects. In addition to being a major employer, the District pumps millions of dollars into the local economies. The Fiscal Year 2017 budget for the District was about $240 million.

Removal of the Snake River dams would be detrimental to a large amount of irrigated agriculture, would eliminate barging from Pasco to Lewiston, Idaho, and would damage the electrical infrastructure. Removal of the dams would cost thousands of jobs. Jobs at the dams themselves would be lost, contracting jobs would be lost, farm jobs would be lost, and jobs related to the barging of commodities would be lost. The impact on the region would be devastating.

As president and spokesman for the United Power Trades Organization, I can say our organization overwhelmingly supports H.R. 3144, hydropower, and the dams of the Lower Snake River. But I am not just a dam employee representative. I am a senior power plant operator and have been working at one of the Lower Snake River dams since 1986. As a power plant operator for over 30 years, I actually understand how the new technologies installed have benefited fish. The dams have been upgraded extensively, at great cost, and the improvements work. Since removal of the dams would provide no benefit to fish survival, it makes absolutely no sense to continue studying or considering a non-solution.

Thank you again for the opportunity to testify.

[The prepared statement of Mr. Heffling follows:]

PREPARED STATEMENT OF JACK W. HEFFLING, PRESIDENT, UNITED POWER TRADES ORGANIZATION

Thank you for this opportunity to testify. The United Power Trades Organization represents the Trades and Crafts non-supervisory employees at U.S. Army Corp of Engineers hydroelectric projects in Washington, Oregon, Idaho and Montana. These hydroelectric projects make up a portion of the Northwest Division of the U.S. Army Corps of Engineers and are divided up into the Portland, Seattle and Walla Walla Districts. The Walla Walla District includes four hydroelectric projects on the lower Snake River that seem to be the target of most dam removal proponents.

The Northwest Division of the U.S. Army Corps of Engineers is a major employer and a huge contributor to the economy of the Pacific Northwest with an annual budget of over $3 billion and a professional workforce of nearly 4,800. The members of the United Power Trades Organization include the men and women who maintain and operate the equipment at the hydroelectric projects and number over 600. But this number doesn't include the engineers, administrators, biologists, park rangers and the hundreds of others whose jobs are directly connected to the dams, associated lands and reservoirs. Nor does it include the many private companies who by contract, also rely on the existence and operation of the dams for their employment.

High technology firms such as Apple, Amazon, Intel, Google and Facebook have located facilities in the Northwest because of the availability of reliable, clean hydropower, creating jobs and boosting local economies. Traditional energy-intensive industries, such as timber, paper, chemical, food processing, aluminum and manufacturing all representing hundreds of thousands of Northwest jobs, continue to rely on low-cost hydro to stay in business and prosper.

The dams of the Columbia-Snake River System are multi-purpose in that they provide hydropower, flood control, navigation, irrigated agriculture and recreation. The benefits of the dams cannot be measured by megawatts alone but in the overall value they provide the region.

Hydropower is clean, renewable and plays a significant role in Pacific Northwest power production. Northwest residents and businesses enjoy lower power bills when compared to other regions of the United States which is directly attributable to hydropower. The dams of the Columbia-Snake River System alone produce enough power to meet the needs of more than 13 million homes with the surplus exported, providing additional economic importance to the Northwest. Only hydropower has the instantaneous capability to meet peak demands and provide power for heat when temperatures are frigid or sustain power for cooling on exceptionally hot days. Hydropower costs much less to produce than any other source such as nuclear, coal or natural gas and is pollution free, with zero emissions. The firm power alone provided by the dams of the Columbia-Snake River System keeps close to 30 metric tons of CO_2 out of the air. This is similar to taking nearly 6 million cars off the road.

Hydropower is clean, carbon-free, renewable and reliable. Hydro supports wind and other renewables by providing the peaking power necessary to meet demand. Hydropower turbines are capable of converting 90 percent of available energy into electricity, which is more efficient than any other form of generation. Even the best fossil fuel power plant is only about 50 percent efficient. Wind has about 30 percent efficiency. After hydropower, 83 percent of the region's energy production is from fossil fuels coal or natural gas.

Considering the four Lower Snake River dams alone, it would take 2 nuclear, 3 coal-fired, or 6 gas-fired power plants to replace their annual power production. It would take 3 nuclear, 6 coal-fired, or 14 gas-fired power plants to provide the peaking capacity of these four dams. It has been estimated that the cost to replace these dams with natural gas-fired generation would be $444 million to $501 million a year. It has also been estimated that it would cost $759 million to $837 million a year if these dams were replaced with a combination of wind, natural gas and energy efficiency. Electricity from the Northwest hydropower facilities typically cost 3 to 10 times less (per megawatt hour) than nuclear, coal and natural gas. It is also cheaper than wind and solar. The cost to operate the Snake River dams is about $65 million per year which is relatively inexpensive considering the return on this investment is over $200 million annually.

Hydropower is not only measured by the total energy produced. It also stabilizes the transmission system and keeps it reliable. High-voltage transmission lines require a steady back and forth electric flow, and flexible hydro generation meets the changing conditions to ensure reliability.

Navigation is a major benefit of the Columbia-Snake River system of dams. They provide 365 miles of navigable water from Portland/Vancouver to Lewiston, Idaho. Barging is the lowest cost, most fuel efficient and least polluting transportation mode. Each year, barging keeps 700,000 trucks off the highways through the Columbia River Gorge. The facts speak for themselves. The Columbia-Snake River System is the Number one wheat export gateway in the United States and the third largest grain export gateway in the world, with over 10 million tons of wheat exported annually through Columbia River ports. It is the Number one barley export gateway in the United States. It is Number one in West Coast paper and paper products exports. It is Number one in West Coast mineral bulk exports and Number two in West Coast auto imports. Every year, more than 50 million tons of commercial cargo moves up and down the Columbia and Snake Rivers between Astoria, Oregon and Lewiston, Idaho. The Snake River averages 3.5 million tons of cargo per year valued at an average of over $1.5 billion.

Navigation through the Columbia-Snake River System provides a vital transportation link for the states of Idaho, Montana, Oregon and Washington. The economies of these four states rely on the trade and commerce that flows up and down the most important commercial waterway of the Northwest. Navigation is fuel efficient. A ton of commodity goods can move 524 miles by barge on 1 gallon of fuel, compared to 202 miles by rail and 59 miles by truck. The average barge can transport 3,500 tons of wheat which would require 35 jumbo rail cars or 134 trucks. The economic benefit of the Columbia-Snake River System cannot be doubted. A study by the

Columbia River ports identified 40,000 port-related Northwest jobs. Firms that ship cargo via the Columbia River employ an additional 59,000 workers annually. Cruise ships carry 15,000 passengers a year on 5- to 7-day tours on the river, bringing an estimated $15 million to $20 million in revenue to local economies. A total volume of waterborne trade is expected to expand at an average annual rate of 1.7 percent per year through 2030.

Irrigated Agriculture is the economic powerhouse of the West. The net value of irrigated agriculture to all western states is over $60 billion. Net earned income from agricultural production in the three Northwest states exceeds $8 billion annually. Northwest states are the leading U.S. producers of apples, potatoes, raspberries, blackberries, asparagus, currants, hops, lentils, concord grapes, sweet cherries, spearmint and peppermint oil, pears, sweet corn, and frozen peas. All of these crops are grown on irrigated land. Northwest exports of irrigated agricultural products exceed $1.4 billion annually. Food processing in the Northwest adds another $6 billion in sales value just for fruit, vegetables and specialty products. Food processing is the largest manufacturing employment sector in the state of Idaho and the second largest in both Washington and Oregon. The net direct value to the economy of 1-acre foot of water, when used for irrigation is over $60 per acre-foot. The Columbia Basin Project alone supplies about 2.6 million acre-feet per year. It is the dams that provide the water for irrigation and as a direct result help sustain the economy of the Northwest.

Annual net earned income from agricultural production in the Northwest states exceeds $8 billion and Pacific Northwest food processing is the third-largest manufacturing sector, with annual revenues of $17 billion and more than 100,000 employees.

The Walla Walla District employs over 1,100 people, with over 400 working at the hydroelectric projects McNary, Ice Harbor, Lower Monumental, Little Goose, Lower Granite and Dworshak. In addition to being a major employer, the District pumps millions of dollars into the local economies. The Fiscal Year 2017 budget for the District was $240 million with about 60 percent of this funding coming directly from the Bonneville Power Administration (BPA). The power produced by the District dams, like other projects in the Northwest, is sold by BPA who, in turn, direct funds the operation and maintenance of the dams, plus provides additional funding for major work. This means that over $100 million annually is provided the area economy as a result of the power sales of these District hydroelectric projects.

Removal of the Snake River dams would be a detriment to a large amount of irrigated agriculture, would eliminate barging from Pasco to Lewiston, Idaho, and would damage the electrical infrastructure that relies on these generating units not only for power production, but for reactive support that helps to stabilize the electrical grid of the Northwest. While BPA markets power from 31 Federal dams, only the 10 largest dams keep the Federal power system operating reliably through Automatic Generation Control (AGC) which includes the four Lower Snake River projects. Under AGC, when total generation in the power system differs from the total load being consumed, automatic signals go to these few dams to increase or decrease generation. This is especially critical when generating facilities are suddenly added or dropped from the system. Removal of the dams would cost hundreds if not thousands of jobs. Jobs at the dams themselves would be lost, contracting jobs would be lost, farm jobs would be lost as a result of a large decrease in the amount of irrigated agricultural lands, and jobs related to the barging of commodities would be lost. The impact on the region would be devastating.

The fact is that science does not support the position that the lower Snake River dams need to be removed in order to aid in fish survival. Scientists using special acoustic tags planted in fish found that the survival rate of Idaho juvenile salmon reaching the ocean identical to migrating salmon that originate in the Yakima drainage in Washington. In other words, juvenile salmon passing through the four Snake River dams suffered no higher mortality rate than those that did not. Even more surprising is findings that show the survival rate of both Yakima and Clearwater fish was the same as survival measured in the Fraser River in British Columbia, a river with no dams. In addition, another finding from the research revealed that juvenile salmon transported by fish barges survived from Lower Granite Dam to the northern tip of Vancouver Island at five times the rate of fish that were not barged. This information strongly contradicts any claims by environmental groups that the removal of the dams is necessary for fish to survive and that barging juvenile salmon through the dams is ineffective.

It is time to eliminate dam removal from the discussion on the best way to support migrating fish. Studies have shown that adult fish have no problem passing through the dams at extremely high survival rates. Studies have also shown that the vast majority of juvenile fish migrating downstream are near the surface, so

screens at the intakes of generators are positioned to direct them into bypass channels where they are collected for barge transport or bypassed back to the river. Weirs are in place on the spillways that allow for spilling water directly from the surface, thus providing another effective bypass for juvenile fish traveling downstream. It is the existence of these spillway weirs that make any additional spilling unnecessary and, in fact, can have an adverse effect on fish due to the increase in dissolved gases that result when spilling from bays that don't have the spillway weir. Fish passage plans are in place at each facility and overseen by Federal and state biologists to assure that hydro plants are operated in criteria most advantageous to fish passage.

"The utter disappearance of the salmon fishery of the Columbia is only a question of a few years." That prediction was made by Hollister McQuire, Oregon Fish and Game Protector in '94. What makes this quote newsworthy is that it was made in 1894, long before the first dam was constructed on the Columbia-Snake River System. The decline of Columbia River salmon began in the 1800s and was originally attributed to two factors: overfishing and environmental degradation from such human activities as mining and logging. Millions of dollars have been spent during the last couple of decades studying the problem and millions more have been spent on making hydroelectric facilities as fish friendly as possible, even though studies have shown very little difference, if at all, between the decline of salmon runs on rivers with and without dams. Too much blame has been placed on the dams when it is obvious that no single factor caused the salmon decline.

And no single factor will solve the problem. Solutions must look at all factors impacting salmon decline, including dam operations, fish harvest levels, hatchery practices, degradation of habitat where salmon lay their eggs and the impact of ocean conditions. R. Hilborn from the University of Washington was quoted as saying "Any attempts to understand the impact of in-river action on survival will be confounded by changes in ocean conditions. The poor returns of Chinook salmon in the early 1990s are to a large extent almost certainly due to poor ocean survival, whether or not they encounter dams." My point here is that increasing and maintaining fish runs is a multi-faceted problem that requires solutions to many different factors. Since studies have shown that the survival rate of migrating fish is the same on rivers with dams as they are without, the focus should be on ocean conditions and their impact rather than dam removal which would provide no benefit.

The dams have been upgraded extensively at great cost and the improvements work. Dam operation now maximizes attraction water for adult fish and improves downstream migration due to flow augmentation that also serves to cool the reservoirs during low water months. Rotating screens at the turbine intakes direct fish to bypass channels where they are collected for barging or bypassed back to the river. And spillway weirs are strategically placed to provide a gentle "slide" for juvenile fish to travel downstream unharmed. Since removal of the dams would provide no benefit to fish survival, it makes absolutely no sense to continue studying or considering a non-solution.

The residents of the Northwest have made their opinion clear. The results of a poll administered in 2015 shows that three-quarters of the people recognize that hydropower generated by the Northwest dams is a renewable energy source. Forty-five percent agree hydropower is the region's most practical source for meeting energy needs, with wind trailing at 17 percent and solar at 9 percent. Two-thirds favor hydropower being declared a renewable resource by state legislatures and Congress, similar to wind and solar energy. A large and increasing majority (70 percent) agree that the dams on the Lower Snake River are critical to the Northwest's energy picture and 77 percent agree that it is critical that dams and salmon co-exist.

As president and spokesman for the United Power Trades Organization, I can say our organization overwhelmingly supports hydropower and the dams of the Lower Snake River. But I am not only just dam employee representative. I am a Senior Power Plant Operator and have been working at one of the Lower Snake River dams, Lower Monumental, since 1986. As a power plant operator, I run the turbine generator units, the spill gates, plus the adult and juvenile fish passage equipment.

As a power plant operator for over 30 years, I have personally seen all of the improvements made at our facility to increase fish survival and been the recipient of instructions to operate the dam in accordance with the fish passage plan or Biological Opinion (BiOp). Unlike most outside interests, I actually understand how the new technologies installed have benefited fish passage and how the BiOp works to maximize fish survival. Almost every operation performed requires adherence to the fish passage plan, including which generating units to run, at what power load they are operated at, what spill pattern to use and how much spill to release through those spill gates.

It is troublesome to those of us that know what works to receive operating instructions that are not beneficial to fish and may even be detrimental. For example, it is a scientific fact that migrating juvenile fish travel close to the surface of the river. That is why the fish slides installed are so successful in providing a means that allow the fish a gentler transition from the pool at the top of the dam to that below. Rotating screens are installed in the intakes of all of the turbine generators that direct the fish into a collection channel where ultimately they can be loaded onto barges for transport or bypassed back to the river far below the dam. However, because of pressure from outside interests, additional spill is ordered that requires spill through spill gates that don't have the fish slides installed. This forces the fish down through restricted openings at the bottom of the spill gates which is not only harmful to fish in the transition but causes significant increases in supersaturation of nitrogen in the water resulting in gas bubble trauma.

In addition, when fish are transitioned via spill, less are collected at each dam's fish facility for transport via the barge transport program which has proved highly successful. Fish transported by barge survive at five times the rate as those that traverse the river. Additional water spilled not only is detrimental to the fish because of the non-fish slide transition but this results in less water available for generation, less generating units running and less fish collected for transport via fish barge. Spilled fish are also more susceptible to predatory birds and fish that congregate below the spillway areas. More spill does not make sense economically in that generating revenues are lost, it doesn't help the fish, and may even have a negative effect on fish survival.

The BiOp is working despite faulty non-scientific reports given by outside interests. The radical changes proposed make absolutely no sense. Fish returns are higher than what they were prior to the first dam built on the Columbia-Snake River System and although hatchery fish are returning in large numbers, natural fish return is increasing as well. Fish survival through the Columbia-Snake River dams are at levels that meet or exceed those on rivers that don't have dams.

The current BiOp is the most science-based, comprehensive and expensive effort to restore and endangered species in the Nation. $1.6 billion have been invested in new technologies and the eight Federal dams on the Columbia-Snake System and operational changes are helping young salmon survive at very high rates and helping adult fish return to their spawning grounds. This unprecedented and massive program has also restored more than 10,000 acres of habitat in the Columbia Basin that has been providing incredible results.

Despite the plan's demonstrated success, environmental and commercial fishing groups continue to challenge the plan in court, as they have done for over two decades. These groups thrive on lawsuits and they will continue to sue, no matter what the facts say. They continue to press for extreme changes in dam operations, including requiring more spill which would increase Northwest energy costs and provide no additional benefit to fish.

Recent misinformation provided by outside interests blame the dams for excessive water temperatures on the Snake River and claim the dams must be removed to restore acceptable conditions. In fact, the opposite is true. Snake River water temperature data from 1952–1957 shows the average high water temperature to be over 74 degrees. High water temperature is actually better controlled by reservoir regulation and supplemental discharge of cooler water upstream.

It is true that record high temperatures in 2015 created a thermal barrier at the Lower Granite Dam fish ladder that impeded adult fish migration. This problem was fixed in 2016 with an "intake chimney" that provided cool water to the adult fish ladder.

It has been proven that the dams and fish can co-exist. Historical data shows fish counts for all species has increased dramatically since counts on the Snake River began in 1975. For example, the 1975 fish count showed a total of 209 Sockeye passing through Lower Granite Dam in 1975. In 2014, that count was 3,219. In 1975, 28,460 Chinook passed through Lower Granite. The count was 195,167 in 2014. In 1975, 17,311 Steelhead were counted passing through Lower Granite Dam. The count was 164,106 in 2014.

Yes, the last couple of years has shown a decline in returning fish. However, due to ocean conditions, there have been declines in numbers of fish everywhere on the Pacific Coast including Alaska. A warming trend in the Pacific has been the culprit and can't be blamed on the dams. Recent data shows that warming trend may be reversing so runs will again return to historic numbers as ocean conditions improve.

Thank you again for this opportunity to testify before the Committee.

Mr. LAMBORN. Thank you.

Ms. Green, you are now recognized for 5 minutes.

STATEMENT OF MARCI GREEN, PRESIDENT, WASHINGTON ASSOCIATION OF WHEAT GROWERS, RITZVILLE, WASHINGTON

Ms. GREEN. Thank you, Chairman Lamborn, Congressman Newhouse, and Congresswoman McMorris Rodgers. I am a sixth-generation farmer from Fairfield, Washington. My sons are seventh-generation wheat farmers. On our farm we grow wheat, blue grass seed, dry peas, lentils, and garbanzo beans.

I am also president of the Washington Association of Wheat Growers, a non-profit trade association that is comprised of 1,700 members.

Thank you for the opportunity to testify about the importance of the Columbia-Snake River System, which provides significant transportation and navigation benefits to our region. The river system is a 465-mile river highway that provides farmers and other producers as far as the Midwest access to international markets.

The Columbia-Snake River System is the top wheat export gateway in the United States, transporting over 50 percent of all U.S. wheat to markets overseas. Eleven states export through our rivers, which moved over 12 million tons of wheat in 2016. Over $500 million has been invested into Columbia River grain export terminals, and barge unloading capacity has been expanded by over 21 percent in expectation of increased sales in Asian markets. Besides grain, nearly $3 billion worth of commercial cargo is moved across the river system.

As wheat farmers, we are dependent upon the barging system to transport our products to export. Barging is one of the lowest cost, most environmentally friendly modes of transportation we have to get our wheat to major grain elevators in Portland, which is the gateway to world markets. A typical four-barge tow moves the same amount of cargo as 140 rail cars or 538 trucks using just a fraction of the fuel.

Personally, transporting my crop to the market is a notable cost. Currently, I pay 80 cents a bushel to transport my wheat to ports. Even if wheat is at $6, that is a significant expense. Without a navigable river system, barging would not be an option. Farmers would have to substitute rail transportation or trucks to get their wheat to ports, which would be more expensive and less efficient. Having three different transportation options also keeps costs more competitive and reasonable.

As price takers who compete in a global economy, we are very sensitive to increased costs to get our products to market. To move the same amount of wheat currently barged on the river system would require 137,000 semi-trucks or 23,900 rail cars, leading to increased fuel consumption, increased emissions, and increased wear and tear on our transportation infrastructure. The current rail capacity in the Pacific Northwest is insufficient to meet current as well as projected wheat transportation needs, and barging remains the most efficient way to move wheat to export terminals.

The river system is vital to the entire agricultural industry by providing multiple benefits in addition to navigation and transportation, including irrigation and flood control. Agriculture is the

second largest contributor to our state's economy and represents a significant component of our agricultural industry nationally. Six percent of the Columbia River Basin's yearly runoff is used to irrigate about 7.8 million acres of Northwest farmland. Greater irrigation efficiency in the Columbia River Basin has decreased water use by 10 to 25 percent per acre over the last decade. Several very large storage dams in the Columbia Basin also provide critical flood control benefits.

In addition to providing businesses with affordable, reliable transportation to move our goods to market, the dams provide the region's largest source of carbon-free, renewable electricity. The majority of the Northwest's renewable energy comes from hydropower dams which not only is clean, reliable power, but affordable electricity that attracts business to our region.

The Washington Association of Wheat Growers was proud to support H.R. 3144, legislation introduced by Representatives McMorris Rodgers and Newhouse, with other Pacific Northwest Members of Congress, to preserve the current operations plan for the eight Lower Snake and Lower Columbia River dams. The current court order forcing these dams to spill more water threatens the river power system and could be detrimental to the infrastructure of our dams and the reliability of navigation on our rivers. We also support Representatives Newhouse and McMorris Rodgers' appropriations provision to stop the spill order and thank them for their continued advocacy in support of the system.

In closing, thank you for the opportunity to testify about the multiple benefits the Columbia-Snake River System provides to the agriculture sector. It literally is the economic lifeblood and way of life for the Pacific Northwest. Our region is blessed to have it. Thank you.

[The prepared statement of Ms. Green follows:]

PREPARED STATEMENT OF MARCI GREEN, PRESIDENT, WASHINGTON ASSOCIATION OF WHEAT GROWERS

Chairman Bishop, Ranking Member Grijalva, and the esteemed members of the House Natural Resources Committee, for the record my name is Marci Green. I am a sixth-generation farmer from Fairfield, Washington. My sons are seventh-generation wheat farmers. On our farm, we grow wheat, blue grass seed, dry peas, lentils and garbanzo beans.

I am also the president of the Washington Association of Wheat Growers, a non-profit trade association that is comprised of 1,700 members which includes wheat farming families and industry supporters.

Thank you for the opportunity to testify about the importance of the Columbia Snake River System which provides significant transportation and navigation benefits to our region. The Columbia Snake River System is a 465-mile river highway that provides farmers and other producers as far as the Midwest access to international markets.

The Columbia Snake River System is the top wheat export gateway in the United States, transporting over 50 percent of all U.S. wheat to markets overseas. Eleven states export through our rivers which moved over 12 million tons of wheat in 2016. Over 50 percent of Idaho's wheat is exported through the Columbia Snake River System. Over $500 million has been invested into Columbia River grain export terminals, and barge unloading capacity has been expanded by over 21 percent in expectation of increased sales in Asian markets. Besides grain, nearly $3 billion worth of commercial cargo is moved across the river system.

As wheat farmers, we are dependent upon the barging system to transport our products to export. Barging is one of the lowest cost, most environmentally friendly modes of transportation we have to get our wheat to major grain elevators in Portland, which is the gateway to world markets. A typical four-barge tow moves

the same amount of cargo as 140 rail cars or 538 trucks using just a fraction of the fuel.

As a wheat farmer, transporting my crop to the market is a notable cost. Currently, I pay 80 cents a bushel to transport my wheat to ports. Even if wheat is at $6, that is a significant expense and clearly not my only one.

Without a navigable river system, barging would not be an option. Farmers would have to substitute rail transportation or trucks to get their wheat to ports which would be more expensive and less efficient. Having three different transportation options also keeps transportation costs more competitive and reasonable.

As price takers who compete in a global economy, we are very sensitive to increased costs to get our products to market. The price farmers ultimately pocket after factoring in all their expenses makes the ultimate difference whether they can stay in business.

To move the same amount of wheat currently barged on the river system would require 137,000 semi-trucks or 23,900 railcars, leading to increased fuel consumption, increased emissions and increased wear and tear on our transportation infrastructure. The current rail capacity in the Pacific Northwest is insufficient to meet current as well as projected wheat transportation needs, and barging remains the most efficient way to move wheat to export terminals.

The river system is vital to the entire agricultural industry by providing multiple benefits in addition to navigation and transportation, including irrigation and flood control. Agriculture is the second largest contributor to our state's economy and represents a significant component of our agricultural industry nationally. Six percent of the Columbia River Basin's yearly runoff is used to irrigate about 7.8 million acres of Northwest farmland. Greater irrigation efficiency in the Columbia River Basin has decreased water use by 10 to 25 percent per acre over the last decade. Several very large storage dams in the Columbia Basin also provide critical flood control benefits.

In addition to providing businesses with affordable, reliable transportation to move our goods to market, the dams provide the region's largest source of carbon-free, renewable electricity. The majority (90 percent) of the Northwest's renewable energy comes from hydropower dams which not only is clean, reliable power, but affordable electricity that attracts business to our region.

In closing, thank you for the opportunity to testify about the multiple benefits the Columbia Snake River System plays to the agriculture sector. It literally is the economic lifeblood and way of life for the Pacific Northwest. Our region is blessed to have it.

Mr. LAMBORN. Thank you, Ms. Green.

I want to thank all of you for your very informative and helpful testimony. We really appreciate that.

We will now begin questions for the witnesses. We will have at least two rounds of questions. To allow all of our Members to participate and to ensure that we can hear from everybody, Members are limited to 5 minutes for their questions.

I now recognize myself for 5 minutes.

Ms. Flores, I have a question for you. And, Mr. James, I am going to ask you to tag on and also respond to it.

There has been some discussion about how all of the stakeholders had previously agreed to a spill program that was optimized for salmon health, and getting the latest court order from an Oregon District Court judge, according to your testimony, has upset that balance. What are your views?

Ms. FLORES. Thank you, Chairman Lamborn. I am happy to respond.

In 2014, a Biological Opinion was issued that included, among many other things, spill operations that were agreed to by states, the vast majority of the Northwest states and tribes, and those spill operations were developed in a collaborative process with those states and tribes. But what we have seen was the District

Court rejected that Biological Opinion yet again and instead has been granting spill injunction orders brought by the plaintiffs, and I mentioned the one that was implemented this year, which was 24/7 spill to the maximum Gas Caps.

So, we literally do have a situation now where, since the BiOp is being re-done, operations are kind of up in the air and we are waiting to see if another injunction is brought this year.

Mr. LAMBORN. Thank you.

Mr. James?

Mr. JAMES. Sure. As a Federal agency, of course, we work with the other Federal agencies to follow the law, and the judge gave us the order, so we operate the river that way.

While we certainly seek consensus on current and future spill operations, we also know that as an agency we are under risk of being uncompetitive in the future in terms of the cost of power that we sell. So, at the same time that we were implementing new spill orders, we have also been reducing our investments in fish and wildlife projects, and we have, in fact, been reducing our agency budget across the board to become more competitive, but that included reducing investments in fish and wildlife in order to meet these new spill orders.

Mr. LAMBORN. OK, thank you.

And also for the two of you, Ms. Flores, you mentioned that the recent controversial spill order has actually led to an increase in the emission of carbon dioxide. Can you explain that in a little more detail, please?

Ms. FLORES. Yes, back to what spill is. When you are spilling water to move young fish more swiftly downstream in their downstream migration, you are obviously not generating power. So, because you are not generating carbon-free power, you have to replace it. And if you replace it today, you are replacing it with natural gas and perhaps other thermal resources, and natural gas and other thermal resources add to carbon emissions. So, if you are spilling, you are automatically increasing carbon emissions.

Mr. LAMBORN. And, Mr. James, as BPA Deputy Administrator, can you explain that in a little more detail?

Mr. JAMES. In order to continue to operate the system, loads and generation must always balance. You have to have as much coming off the system as you have coming on the system. So, the way that markets work is that you have to put the exact amount onto the system that you need. If we need to buy replacement power at certain times, we need to buy it when we need it. And as has been pointed out, that is likely to come in terms of cost and availability from a carbon-generating resource, most likely gas.

Mr. LAMBORN. And, specifically, where have some of those purchases come from in terms of power coming into the system from elsewhere?

Mr. JAMES. I can't say specifically what generators they are coming from, but I know that just in general they are likely to have come from gas.

Mr. LAMBORN. OK, I understand. Thank you.

Mr. Newhouse, you are recognized for 5 minutes.

Mr. NEWHOUSE. Thank you, Mr. Chairman.

I would also like to thank all of you for providing your testimony this morning. It was very informative, and it was also interesting to find out how quickly 5 minutes goes by.

[Laughter.]

Mr. NEWHOUSE. First of all, Mr. James, thanks for being here. Last week, I was able to speak with your boss, Mr. Mainzer, the Administrator of the BPA. He told me that he was working with our governor, at least for the last several months, on coming up with ways to negotiate a compromise, so to speak, to manage the river that could actually increase or provide higher rates of dissolved gases by managing the higher spill rates.

I just had a couple of questions about this whole thing. At least a lot of this centers around this increased spill. I like Ms. Flores' comparison to medicine: a little is good, maybe too much not so good. So, just a couple of quick questions.

Isn't it true that some of our Federal agencies have stated that 110 percent saturation of total dissolved gases could have detrimental effects on fish?

Mr. JAMES. I would have to defer that to the Environmental Protection Agency, which sets those gas standards and which, of course, the states then have to abide by. The states, as you know, then implement those standards and can, in fact, grant waivers on those gas levels. That is what is being considered.

Mr. NEWHOUSE. It is also true that the current spill order mandated by a judge has raised those levels up to 120 percent, correct?

Mr. JAMES. Yes.

Mr. NEWHOUSE. Your boss stated to me that our governor is now advocating to raise those levels even higher, up to 125 percent. And like you said, every state has their own water quality standards to determine what the safe level is. I fully understand the pressure the governor is under, as well as BPA, but certainly the recent news reports of the orcas and the challenges that they are finding for food right now, I certainly find it incredible that we are calling for more spills supposedly to help the fish, and yet that places what seems to be a high level, a toxic level of gas in the water. So, at the same time we are trying to help one species, we are harming another, and this just doesn't seem to be based on sound science to me.

So, this is, to me, the crux of the question here. Ms. Flores, do you have any comments on all of this? If the level of gas at 110 percent is dangerous, tell me more about 125 percent.

Ms. FLORES. I can shed a little bit more light on that. Unfortunately, I didn't do it when I was speaking. It is in my testimony. But the Washington Department of Ecology for dams in the state of Washington sets TDG levels, total dissolved gas levels, at 110 percent gas saturation to be protective of salmon and other aquatic species—lamprey, sturgeon, all the aquatic species in the rivers.

The Federal system is somewhat unique in that the Army Corps gets waivers from those standards of 110 to be able to spill up to 120. The Federal hydro system, with the exception of the mid-seas, which have temporary waivers to exceed the standards now and again—but the Federal hydro system is the only dam system that is actually spilling as much as it does.

So, with respect to the discussions, there are discussions going on, as I understand it, with Governor Inslee and Bonneville, and we do know that part of the discussions are intended to perhaps be able to spill less than we do now, but then the exchange would be maybe spilling at higher levels. We are concerned about going up to the 125 because we are concerned about the science, as you heard me discuss, and what the impacts might be on fish. We want to make sure that the ratepayers that are spending hundreds of millions of dollars every year don't undermine those investments by unintended consequences of spilling to an even higher level.

Mr. NEWHOUSE. Thank you.

I know my time is almost up, Mr. Chairman, but I just wanted to say that I was at McNary Dam this spring, and the operators at the dam, and that was right after the spill order began, were already seeing fish with symptoms of gas poisoning at that point, and that apparently was at the 120 level.

Thank you, Mr. Chairman.

Mr. LAMBORN. Thank you.

Representative McMorris Rodgers.

Mrs. MCMORRIS RODGERS. Thank you, Chairman.

I, too, want to thank everyone for being here and sharing your testimony with the Committee. It is very helpful.

I have a few questions of just about everybody, but we will get started with Ms. Flores.

I wanted to go to the example of the Elwha Dam that was authorized by Congress for removal in 1992. It wasn't until September 2011 that the dam actually came down. As we think about this call to remove the Lower Snake River dams for the purpose of saving the orca or somehow benefiting salmon—I was recently in Walla Walla, sat down with the Army Corps again and they said they don't believe it is going to benefit, it wouldn't have a positive impact on salmon returns beyond what we are doing today—I just wanted you to shed some light on how long you think it would actually take to remove the dams and how much it would cost, and what is your sense as far as how we replace the energy from those dams?

Ms. FLORES. Thank you, Congresswoman McMorris Rodgers.

You are obviously correct, the removal of the Elwha Dam took about 25 years, and I would note that Elwha Dam is in no way, shape, or form similar to the Snake River dams. Those dams provided very, very little power output, which went to a local paper mill. There is no navigation. There is no trade. There is no commerce. There just is no comparison. And even so, removal of those dams took congressional authorization, and it took 25 years, and appropriations.

I find it very discouraging and sad that people are again, when they talk about removing the Snake dam, saying we can do this without congressional authorization, we can get it done by the end of this year. Truthfully, there are people submitting comments into the orca record and so on and so forth saying we can get this done swiftly. That is just not true.

Obviously, Congress has been appropriating dollars to maintain these Snake dams and the other dams in the Federal system for years, decades. I don't see that coming to a stop. I do believe that

members of the delegation fully appreciate the value of the Snake dams. So, to get an authorization and appropriations I think would take decades. I think that whole argument that it be done swiftly just undermines efforts to try to take reasonable measures to help endangered salmon in the Northwest.

With respect to replacement power, you will hear that we can easily and swiftly replace the output of the Snake dams with wind and solar resources, and that is just not true right now. We don't have the ability to store those resources on a large scale. We may, but we don't right now, and it may be decades before we have the ability to store those resources.

So, again, right now, should those dams be removed, it would likely be with natural gas replacement.

Mrs. MCMORRIS RODGERS. Very good. Thank you.

I would like to move to Dan James, Deputy Administrator. Would you also give me your thoughts on how easy it would be to replace the energy that is generated at the Lower Snake River dams with resources like wind and solar? Do you think that is possible? What do you think is the most likely replacement?

Mr. JAMES. Sure. I think that currently we don't believe that it is possible on a 24/7 basis because the system has to operate all the time, and the system always needs to balance. So, the question is, how do you meet the needs at any given time, the hottest day of the year, the coldest day of the year?

Clearly, what would be the energy source that would most likely replace these dams? If we are talking about cost and dispatchability—in other words, what could be there all the time—the answer is most likely natural gas. On the other hand, does the system—we have lots of generation onto the system at given times. The question is when do you have capacity? How do you actually keep the lights on? How do you meet needs 24/7? So, capacity is one of the issues that we must deal with.

Mrs. MCMORRIS RODGERS. Do you believe that we could see blackouts?

Mr. JAMES. I would have to dive into that question a little more, and I would be happy to give you more of a substantive answer.

Mrs. MCMORRIS RODGERS. OK. Thank you.

I will yield back.

Mr. LAMBORN. Thank you. We will have another round of questions here.

Ms. Flores, I am going to ask you one question, and then I am going to broaden it to some of you who haven't responded to a question yet.

We had a bill recently in our Subcommittee and in the Full House on sea lion predation. To me, it was a no-brainer. If a sea lion is killing literally thousands of salmon, sometimes just biting a chunk out of it and then letting it go, or devouring the whole thing, when you balance that—and sea lions are not an endangered or threatened species, but they are protected under the Marine Mammal Act, but the salmon are threatened and endangered. So, it is pitting one against the other, which is unfortunate.

We had a bill to say if a sea lion cannot be removed because if you do that and it comes back, you don't solve the problem, that in some cases, some extreme cases, lethal force could be authorized.

But we had people, even though they professed to support and love the salmon, who voted against that. I did not understand how, if you want to preserve the salmon, you wouldn't want to preserve them in that case as well. But we had a whole number—I don't know, 100, 150 people in Congress—who did not support that legislation that Representative Jamie Herrera Beutler, to her credit, did introduce, and we did pass it from the House to the Senate.

What is your comment on that?

Ms. FLORES. Well, I think it is understandable that it is very challenging and difficult for people to wrap their brains around the need to lethally remove sea lions. But if you look at the information and the data, it is overwhelming, and it is not just in Astoria or on the Columbia. It is up in Puget Sound. I am hearing that the sea lions up there are taking as much or more than commercial sport and tribal fishing combined of our endangered salmon. We know on the Willamette River that there is a 90 percent chance that steelhead will go extinct due to sea lion predation.

So, I can understand from an emotional perspective, but at the end of the day we need to take tough measures, and we are really happy and very supportive of the sea lion bill because we think that is one of those tough measures that needs to be taken.

Mr. LAMBORN. I was just amazed. Some people say that they want to protect the salmon, but when it came time to vote to protect the salmon, they abandoned the salmon, in my opinion.

Doc Hastings and Kris Johnson, I want to ask you about irrigation. One of the benefits of the Lower Snake River dams is the benefit to agriculture through irrigation. What would happen to the economy of this part of the country, Washington or even other neighboring states, if those dams were to go away?

Mr. HASTINGS. Let me first respond to the sea lion question here. I remember when I was in Congress, I toured Bonneville Dam and saw the sea lions, and the first thing to remember is that the sea lions in question at the Bonneville Dam at that time were not indigenous. They are California sea lions, and because they proliferated so much in California because they are protected, they had to go someplace to find their food.

So, these are not indigenous sea lions on the Columbia River, and that needs to be taken into account.

Let me broaden your question by simply saying that the Snake River, I forget how many acres the Snake River irrigates, but it is quite a bit. An analogy to that would be the reservoir behind Grand Coulee Dam, Lake Roosevelt. That irrigates 500,000-plus acres.

A case in point: without irrigation, we wouldn't have an agriculture economy of any sort. Last year, our average rainfall I believe was around 7 inches, which is lower than normal here in this part of the country. I think to date, the average rainfall to date is less than 4 inches here in the Tri-Cities, and I could be off by a half-inch. But still, the point is you have to have water in order to irrigate our diverse agriculture economy. If you take that away, that would have a huge, huge impact on our economy, no question about it.

Mr. LAMBORN. Mr. Johnson?

Mr. JOHNSON. I think a couple of things to have some perspective on. When the dams were first opened in 1962, the state had about 2.9 million population. Today, it is 7.4 million. The mid-Columbia, where you are sitting, had 50,000 residents. Today, it has 300,000 residents. Those 300,000 residents in this region help produce 600 million pounds of French fries to go across the country and across the world, right? So, that is how transformative base load power has been to this region and to this state's economy.

Mr. LAMBORN. Thank you.

Representative Newhouse.

Mr. NEWHOUSE. I was just told recently that there was a meeting last week in Seattle, that the gist of the meeting was that there is a direct correlation between the dams and the plight that the orcas find themselves in at Puget Sound. I was going to ask Ms. Flores, could you speak to the nature of the Columbia River's fish species as being a source for food for the orcas? I think you brought that up in your testimony. My understanding is that they play a very small role, but I want to be sure about that.

Ms. FLORES. Yes, thank you. Again, back to the science. According to NOAA Science Center analysis, the Columbia and Snake chinook stocks in particular do provide food for orcas, but they are just one of many, many sources. And contrary to what you may be hearing, they are actually a bright spot in terms of providing chinook salmon for orca consumption.

Again, you have to go back and look at the actual data and information. Do salmon from Columbia and Snake provide a food source? Absolutely. But they are one of many. Right now in the summer, 90 percent of the orcas in Puget Sound, their food source is salmon from the Fraser River.

Mr. NEWHOUSE. Ninety percent?

Ms. FLORES. Ninety percent in the summer. So, yes, they do provide a source of prey, but, in fact, they are kind of a bright spot in terms of providing salmon for orca consumption.

Mr. NEWHOUSE. So, just to prove that these hearings, people do look at the Congressional Record, I know that 6 years ago when Chairman Hastings had a field hearing on similar issues, Mr. Heffling, both you and Mr. Spain—is that how you pronounce your name?—were in attendance at that hearing, and you were both asked whether it was a good thing to have a judge dictating the management of the river system. You both answered no, and I think in your testimony this morning, Mr. Spain, you talked about a collaborative approach.

What I find strange is that the years of painstaking negotiations that were conducted by both the Bush and the Obama administrations in coming up with the Biological Opinion which was worked on by scientists, engineers, Northwest tribes, all the stakeholders involved, doesn't equate to such an effort of collaboration.

So, I guess I would ask your opinion, Mr. Heffling. Do you think it does? Do you think it does demonstrate a concerted effort to manage the system in the best way possible for both fish and hydropower and all the other uses of the river?

Mr. HEFFLING. Of course we support the BiOp, and the BiOp works. It has been working for many years. I mean, we were returning to record numbers of returning fish. The additional spill

ordered by the judge, it makes me wonder what the purpose of the outside interest groups are, if they are really trying to recover salmon or if they want to make it worse on them so they have a reason to remove the dams.

For one thing, all the water spilled, fish passing through those spill gates have less chance to survive than when they are collected at the projects and transferred downriver by barge, five times more likely to survive.

So, I have to wonder why additional spill would do any good, not to mention the additional dissolved gas. I mean, for those of us who work at the dams, it is a no-brainer. You see all the spill and you look out there and downstream of the spill gates you see all these birds which are feasting on smelts that have been killed by dissolved gas or just the trauma of passing through spill gates.

Mr. NEWHOUSE. And real quickly—I know my time is short. Mr. Rich, I think it bears more focus that you talked about the number of trucks it would take to replace the barges that move freight up and down the river. Could you expand on that for just a second?

Mr. RICH. Sure. Of course, it will depend a little bit on the size of the truck. But your basic semi, where you are 26 to 32 tons, with a 3,600-ton barge, I was looking at some numbers this morning, you are between 120,000 and 160,000 trucks. Now, the reason I am saying 120 to 160 is because you have varying volumes of wheat that are produced each year. But rather than just the number of trucks, we think of the drivers, we think of all that it takes to produce those trucks, and we get back to the ton-mile-per-gallon of trucking.

Trucking is very efficient. I mentioned earlier there are 149 miles to move a ton of cargo on a gallon of diesel. That has come up tremendously in the last several years. Again, in marine transportation, 576. When we just look at the fuel consumed itself, adding the trucks to the freeways at a minimum of 120,000, I actually can't imagine what that would do to congestion.

When you say the word "congestion," that means different things to different people, but at some point you end up with gridlock. Is it a good goal to have 120,000 semis transiting from the Columbia-Snake River Basin to the seven export elevators in the Portland/Long View/Vancouver/Kalama market? I cannot believe that that would be in the best interest of anyone who is interested in supporting our environment.

Mr. NEWHOUSE. Thank you.

I yield back, Mr. Chairman.

Mr. LAMBORN. Representative McMorris Rodgers.

Mrs. MCMORRIS RODGERS. Thank you, Mr. Chairman.

I would like to go back to BPA and spend a little more time on the Biological Opinion and the work that was done to put that together in 2014. The legislation that we introduced that is known as H.R. 3144 would have preserved the current Biological Opinion until the current NEPA process could be finalized.

I would like you to address some of the steps the region took to come up with that Biological Opinion and speak to the support of the stakeholders.

Mr. JAMES. Sure. It was a collaborative process with elements that were reviewed by a number of constituencies and independent

science advisors. It was supported by most, if not all, constituencies, including most of the states and most of the tribes, to develop the 2014 Biological Opinion.

Mrs. MCMORRIS RODGERS. Does BPA support the legislation?

Mr. JAMES. I can't say I support the bill until the Administration takes a position. BPA and the other action agencies do support concepts of the bill. We believe that there is a thorough need to analyze the alternatives that could be beneficial to threatened and endangered fish. We are standing behind and are directly involved in helping the Corps and the Bureau complete an EIS, which is part of the Columbia River System operation, which will tell us a lot about the future of the Columbia River System. The bill would provide us the time necessary to develop a scientifically sound interim, experimental spring operation and continue to analyze it through the CRSO.

Mrs. MCMORRIS RODGERS. Would you speak to the path forward? Because right now, we have a pretty significant dispute over the science, and the science that was used—you spoke to the independent science advisors, whether it is the Corps, BPA, NOAA—the science is suggesting that this additional spill is not benefiting salmon, and yet that argument is out there and we are being forced by a judge in Portland now to test this theory.

I know that if BPA is to cut a deal with the states of Oregon, Washington, and others, to try to avoid further litigation, I guess I would like you to speak to the possibility of us being able to come together as a region to reach some kind of an agreement to move forward that will avoid litigation moving forward.

Mr. JAMES. Administrator Mainzer and others are deeply committed to a collaborative regional process that intersects with Columbia River System operation that we are conducting with the other agencies. I truly believe that for there to be consensus, we will need a very robust collaborative effort amongst the agencies and the sovereigns, the tribes, the states, and others.

So, while we negotiate an interim spill operation potentially, there is no agreement on what that might look like because there are unanswered scientific, operational, and economic questions as a result of that.

We also are committed to a robust EIS process with the other agencies. That is a public process that many people in this room are involved with.

Mrs. MCMORRIS RODGERS. Glen Spain, could you speak to the possibility of us being able to negotiate this?

Mr. SPAIN. There are already some collaborative efforts that the Columbia Basin Partnership, which I am a member in, and several other people have representatives there as well. The Columbia Basin Partnership is an ongoing process to try to work around this and envision a 100-year restoration effort, what do we want the basin to look like after we fix it, what will it look like fixed. So, there are those efforts.

I want to correct one thing that I think needs correction, and that is the judge threw out the 2014 BiOp because it was based on an illegal standard. But also, the science continually moves forward. We had no anticipation that spill would be as useful or as effective a tool as it turns out the recent studies have shown that

it is. That was not factored into the original BiOp. That will be factored into the next BiOp.

Mrs. MCMORRIS RODGERS. Why do you think the NOAA science, the Corps science does not back that up?

Mr. SPAIN. Well, actually, it does, and I would refer you to Note 20 and 21 of the two recent studies where it is fairly conclusive, with broad scientific consensus, including the agencies, that spill is an effective mitigation measure. That was not known back then. Keep in mind that the——

Mrs. MCMORRIS RODGERS. Are you speaking to the additional spill? Because we are not saying go backwards, but we are saying let's make decisions based upon science and what is best for the fish moving forward.

Mr. SPAIN. There we very much agree, but the old BiOp was based on old science. Science moves forward. We need to incorporate, and the judge required us to incorporate the best available science. That is what we are working on.

Mrs. MCMORRIS RODGERS. OK, thank you.

Mr. LAMBORN. OK. We are going to start our last and concluding round of questions. I will begin.

I want to thank Representative Newhouse. This morning you helped me, you led a tour of the Ice Harbor Dam east of the city here, and that was very informative. The Army Corps of Engineers is there. The dam administrator and other people were there. We heard a lot about the science and engineering that goes into not just the dam itself but the efforts to make sure that the fish going upstream and the juvenile fish going downstream have as easy a road as possible. So, it was very informative and fascinating, and was very helpful to this whole topic.

I want to ask Ms. Green a question, and, Mr. Rich, feel free to jump in as well. Without dams on the Lower Snake River, transportation would be devastated. There would be no barge traffic. What does that do for the agricultural producers, and are there some areas of production that don't even have access to other transportation at this point in time?

Ms. GREEN. I would say there are areas that don't have access to rail transportation.

Mr. LAMBORN. OK.

Ms. GREEN. I think we all have access to trucks. But as we have stated, the increase in the amount of trucks it would take to transport the wheat that is currently transported on barges would probably be devastating to our infrastructure. I don't believe we have the highway system to support that.

And as far as a farmer, as a producer, economically, it would significantly increase our cost of production, our cost to transport our crop to the market. Having the three different modes of transportation, which is barge, rail, and truck, they tend to keep each other in check. We are not subject to a monopoly. So, I am sure that our transportation costs would significantly increase. We already operate on very tight margins, so that would be devastating.

Mr. LAMBORN. OK. Thank you.

Mr. Rich, real briefly, and then I am going to finish up with someone else.

Mr. RICH. The barge industry, when I take a look at this, I see the 13 elevators between the Tri-Cities and Lewiston, and if those elevators had another way to go that made more sense for them economically, they would take it. I look back at the extended lot closure that occurred here on this river, the first one back in 2010–2011, there was quite a concern that the barge wouldn't be able to get to market. Through a series of efforts to educate the wheat availability, the long and short of it is that over the 3-month period that there was not barging available, that wheat came down the river afterwards. It was rather amazing to our industry to see that when given the choice between paying higher rail or incredibly high truck prices—and, by the way, this isn't a comment about high prices with trucking, it is just a cost of transport. So, to be able to see that the people who had a choice for 3 months to choose to hold their product and ship it by barge shows how incredibly important it is to those shippers. And those shippers aren't just companies, those are people and farmers.

Mr. LAMBORN. Thank you.

My last question is for Ms. Flores. One of the phrases that caught my attention this morning is from one of the administrators of the dam. He said that their goal was to make the dams transparent to the fish so that going downstream, as well as coming upstream, it was as if the dam wasn't there. In other words, to make their course both ways just as if it was natural conditions in terms of survivability. I think you pointed out it is not 100 percent, even in the wild it isn't 100 percent.

Was the old agreement better to achieve that goal, which I think is a goal we all share, than the new spill order from the Oregon judge?

Ms. FLORES. In my opinion, yes. And the reason for that is, again, back to more spill isn't always better. One of the things that more spill also does is it pulls young fish migrating downstream away from the fish slides that have been installed at the dams, or their equivalent, and we have Army Corps data that show the highest route of passage at the dams is over those fish slides. So, when you spill more, you are literally pulling the fish away from the highest route of passage.

When the dams were overhauled and $2 billion was spent on fish slides and other bypass means, they actually worked. They are providing very high survivals on the level, as stated by Dr. Kareiva, as undammed rivers.

Mr. LAMBORN. Thank you. It was kind of amazing to see the movable apparatus. What was that called?

Ms. FLORES. Movable spillway wares.

Mr. LAMBORN. Yes, movable spillway wares, a marvelous piece of technology that helped the fish survive going downstream in higher percentages, which I think is a goal that we all advocate for.

Representative Newhouse.

Mr. NEWHOUSE. Thank you, Mr. Chairman.

I have a letter here from the Tri-Cities Legislative Council, writing with their support for H.R. 3144, as well as for the passage of some of the critical measures to return stability and certainty to our river power system. I just want you to know the Legislative

Council is made up of local businesses and Chambers of Commerce, public utility districts, and economic development organizations.

Mr. Chairman, I would ask unanimous consent to submit this for the record.

Mr. LAMBORN. Without objection, so ordered.

Mr. NEWHOUSE. Thank you.

Just a couple more questions. And, again, thank you to all the panelists for being here today.

Mr. James, I have worked very hard in my short time in Congress to support the Bonneville Power Administration and public power as a whole. Mr. Mainzer testified in front of this very Committee in our Nation's capital that H.R. 3144, the legislation introduced by Representative McMorris Rodgers and I to provide certainty and reliability for the Federal river power system, would help BPA better manage the transmission system in a more effective and constructive manner. I am sure you know word for word his testimony. Would you agree with that testimony?

Mr. JAMES. Yes.

Mr. NEWHOUSE. OK. Let me just share with you that while working on your behalf, I need your help as well. You have to be an advocate for yourself by helping to push for this legislation to be signed into law. Frankly, I have not always found BPA's support for this legislation to be shared as strongly and directly with those who need to hear it most. You guys are the experts, and people need to hear from you.

So, just a simple question, Mr. James—can I count on you to be a more vocal, steadfast partner in this effort?

Mr. JAMES. We will absolutely provide all the information that is asked of us, absolutely.

Mr. NEWHOUSE. Thank you, appreciate that. We desperately need you.

Just one other question, Mr. Heffling. Your knowledge and expertise is a testament to over 30 years of experience in working this river system. It was more than 30, wasn't it? Thirty-seven? Did I hear that?

Mr. HEFFLING. Thirty-three.

Mr. NEWHOUSE. Thirty-three. Don't want to age you too soon.

My humble opinion is that one judge in Portland doesn't know how to manage this river system better than the experts and the professionals, the workforce who work day and night to keep the lights on for the entire Pacific Northwest. Did you have any thoughts on that?

Mr. HEFFLING. Just that a judge or outside interests cannot know how all of the improvements that have been put into place work and how they actually benefit fish. Those of us that are there every day operate this equipment, maintain this equipment. We see the results. We see how it works. We see how the fish pass.

I would just say we see it work, so I would think we have a better idea of what works, what we should be doing, and besides that we have the fish passage plan that we always follow when doing anything, what units we run, what load we run, what spill gates we operate. It is all part of the fish passage plan, and when we move outside of that, I don't see how anybody can determine what

is working if you are not using an established plan and finding out what the results of that plan are.

Mr. NEWHOUSE. Yes. It is a complex system, to say the least. Thank you very much, and thank you for your years of service in that effort.

With that, Mr. Chairman, I will yield back the balance of my time.

Mr. LAMBORN. Thank you.

We will have the final questions from Representative McMorris Rodgers.

Mrs. MCMORRIS RODGERS. Thank you, Mr. Chairman. I think in my final question I would just like to reflect a little bit on the importance of that established plan. Since the salmon were first listed, and we have reflected this morning a lot on the Columbia-Snake River System and all that it means to us, the lifeblood of our economy. It is the foundation of our economy, whether it is agricultural, manufacturing, technology. We have reflected on billions of dollars of investment in research and in technology to improve the fish runs. We have highlighted that fish runs are improving across the board, and that we have actually seen fish runs that exceed when the dams were actually built.

Why I believe it is so important that we get the Biological Opinion in place is the certainty that we need. For me, the question is who is going to be the one putting this plan in place? We have been in the court now for a couple of decades trying to get a plan in place, and we continue to run up against a judge who thinks that they know better as far as how to manage the Columbia-Snake River System.

I want to start with Ms. Flores and ask you—and I want to ask others too, as time allows. Would you speak to the financial impact on BPA that is passed on to the Pacific Northwest ratepayers due to the litigation, and what is the potential risk if litigation and unpredictable court rulings—what is the impact of that continued litigation on our hydropower generation and BPA's solvency?

Ms. FLORES. Yes. As I noted in my comments, Bonneville, in part, fish and wildlife is a prime driver of recent Bonneville rate increases. Over the last few years, they have had to increase their rates by 30 percent. There was a 5.4 percent rate increase for 2018–2019, and then we had the spill surcharge. And all of this is adding to Bonneville's current financial woes.

What I would say is of even more concern is the possibility for future rate increases. Can you imagine not knowing how the Federal hydro system is going to be run next year? That is amazing to me. We don't know exactly how much more that might cost, if anything, but we are very concerned about the prospects for future rate increases, which then contribute more to Bonneville's financial woes.

Contracts with the customers expire in 2028. Customers that purchase all or most of their power from Bonneville, they will be looking for options many years before that, and they want Bonneville to be solid and stable and a preferred choice. But they are obligated, if there are market choices, to go out to the market and get the most cost-effective power they can for their customers.

So, I think we are all in agreement that we want Bonneville to stay healthy and stable, but where this fish issue is going with respect to the BiOp and litigation, we are very, very concerned about how that will translate into future rate increases and what that means for Bonneville.

Mrs. MCMORRIS RODGERS. Mr. Bonneville, do you want to address this?

[Laughter.]

Mr. JAMES. What Ms. Flores raised, we describe as our efforts manifested in the strategic plan that we released in January of 2018. The thesis statement is, for BPA to continue to meet its public purposes, it must be a commercially viable business. That means that we have to have customers. And that means when our 20-year contracts expire in 2028, that our desire is to be fully subscribed.

But, as Ms. Flores stated, our customers will have choices, so we are working very hard to drive our costs down. I mentioned that one of the things that we have done is to cut agency spending across the board, including in fish and wildlife spending, to meet our obligations. One of those obligations was additional spill.

So, back to something Chairman Lamborn asked me earlier, where does that replacement power come from? That manifests itself both in revenue foregone, power that you cannot generate and cannot sell, and it also means replacement power. That ends up being a cost. I said it could come from natural gas, that replacement power could come from any variety of places. It could come from wind or solar or other hydro, other renewables.

But at the end of the day, we know that it drives our costs. So, while we drive our costs down across the agency, we have to carefully manage our fish and wildlife portfolio.

Mr. LAMBORN. Coal and nuclear, too.

Mr. JAMES. I'm sorry?

Mr. LAMBORN. Coal and nuclear, too.

Mr. JAMES. Oh, exactly, it could come from any number of sources. BPA also integrates the power from the Columbia generating station, which is just a few miles from here in the 4th Congressional District.

So, you are right, it could come from any number of sources, but it is a cost driver for us.

While we manage our costs across the board, we have cut departments. We are selling an airplane. We have done things across the board to do exactly what our customers are doing, which is to tighten their belts. We must also do that with fish and wildlife, which means that when we are not able to sell electricity, or when we have to buy it, then that comes at a cost. We have to manage that like we do everything else.

Mrs. MCMORRIS RODGERS. Thank you. I yield back.

Mr. LAMBORN. OK. That concludes our questions.

I am going to ask unanimous consent to enter three reports into the record: something from the Washington Policy Center, a report from NOAA, and an article from the *Seattle Times*. These talk about the adverse impacts of spill, the relationship between dams and orcas, and the cost of replacing power with wind and solar.

Without any objection, so ordered.

Mr. SPAIN. Mr. Chairman, something came to my attention. There was a letter submitted by the American Sport Fishing Association. I would like that entered into the record too, if I may.

Mr. LAMBORN. OK. Without any objection, so ordered.

Now I am going to ask Representative Newhouse to make any concluding remarks, and then I am going to wrap things up.

Mr. NEWHOUSE. Thank you, Chairman Lamborn. Thank you, Congresswoman McMorris Rodgers, both of you, for being here today.

I am going to also thank our witnesses for providing their expert testimony, helping us to better understand this complex system we have here called the Snake and Columbia Rivers. I think this has been a truly valuable opportunity to help analyze some of the benefits that we have that we receive from the power system.

I think there was something I picked up on in Ms. Flores' comments, and I can't pronounce his name, Dr. Peter——

Ms. FLORES. Kareiva.

Mr. NEWHOUSE [continuing]. Kareiva. If you didn't catch his credentials, he is a Fellow of the American Academy of Arts and Sciences and the National Academy of Sciences. He is a former Chief Scientist at the Nature Conservancy. He is the current Director of UCLA's Institute of the Environment and Sustainability. And perhaps most pertinent, he is the former Director of Conservation of Biology for NOAA at their Northwest Fisheries Science Center, where he analyzed the Northwest endangered salmon, and he wrote this just last year, and I think this is what you referenced, Ms. Flores.

I quote, "It is not certain that dams now cause higher mortality than would arise in a free-flowing river. The problem is that a complex species and river management issue has been reduced to a simple symbolic battle, a battle involving the choice between evil dams and the certain loss of an iconic species. It has become clear that salmon conservation is being used as a means to an end, as opposed to an end of its own accord." I end the quote there.

While some interests will continue to try to claim that we must pick one or the other, fish or dams, we know that that does not have to be the case. We can indeed balance economic prosperity as well as the environmental stewardship. Fish and dams can co-exist. We see that happening every day. The Snake and Columbia River system is a great example of that.

So, I have an ask. I am encouraging all the members of this community to use their voices to be heard. I will continue to implore our Senators Cantwell and Murray to help stop the spill orders, to protect and to save our dams, and to recognize the magnitude of the benefits that are received by both rural and urban communities on both sides of the Cascade Mountains that we get from our rivers. They really do provide for our way of life, and I would ask you to do the same thing.

I want to thank all of you, our witnesses, everyone in the audience that has been here this whole morning. I certainly want to thank the Pasco City Council for allowing us to utilize this beautiful facility. Thank you, Doc, for letting us be in your old gymnasium. It has been a pleasure to be here, and I truly express my appreciation to you, Chairman Lamborn, for being here. And as

always, to my good colleague and friend, Cathy McMorris Rodgers, thank you for being here as well.

With that, Mr. Chairman, I yield back.

Mr. LAMBORN. OK. Thank you for your hospitality and leadership.

Cathy, I appreciate what you offered as well.

Doc, did you start representing Congress in this area before the dams were built?

[Laughter.]

Mr. LAMBORN. I know it was a long, long, long time ago, a long time ago.

Mr. HASTINGS. No, but the arguments that you hear today are exactly the same as they were 25 years ago.

[Laughter.]

Mr. LAMBORN. OK. Well, I thank all the witnesses for their testimony, and I want to thank the audience for your interest. Please submit any last comments that you might have.

If there is no further business, the Committee stands adjourned.

[Whereupon, at 12:11 p.m., the Committee was adjourned.]

[LIST OF DOCUMENTS SUBMITTED FOR THE RECORD RETAINED IN THE COMMITTEE'S OFFICIAL FILES]

Rep. Lamborn Submissions

- Article titled "Errors and Arbitrary Assumptions Plague Study on Replacing Energy From Snake River Dams," Washington Policy Center, by Todd Myers, dated April 6, 2018.
- NOAA Handout titled "Southern Resident Killer Whales and Snake River Dams," 2016.
- Article titled "Dam spills extra water; tons of fish are killed," Seattle Times, by Craig Welch, dated May 26, 2011.
- Public Comments Submitted at the Field Hearing.

Rep. Grijalva Submissions

- Statement for the Record from Shoshone-Bannock Tribe, by Nathan Small, Chairman, dated September 19, 2018.
- Letter addressed to Chairman Bishop and Ranking Member Grijalva from the American Sportfishing Association, dated September 7, 2018.
- Letter addressed to Members of the Committee from Norm Cimon, InfoSynchronicity LLC, dated September 8, 2018.

Rep. Newhouse Submission

- Letter addressed to Reps. McMorris Rodgers, Herrera Beutler, and Newhouse supporting H.R. 3144 from Tri-Cities Legislative Council dated September 5, 2018.

Mr. Flores Submission

—Article titled "Fealty to symbolism is no way to save salmon," Oxford University Press, by Peter Kareiva and Valerie Carranza, 2018.

Mr. Hastings Submissions

—Article titled "Supportive breeding boosts natural population abundance with minimal negative impacts on fitness of a wild population of Chinook salmon," Journal of Molecular Ecology, by Maureen A. Hess, et al. 2012.

—Proposed National Marine Fisheries Service Listing Policy for Hatchery Fish Under the Endangered Species Act, dated February 2003.

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