

Congressman Jeff Duncan, Chairman Energy, Climate, and Grid Security

Congresswoman Cathy McMorris Rodgers, Chair House Energy and Commerce Committee

I was an online viewer of the January 30 Energy and Commerce hearing, I watched and listened as the Representatives and panel members questioned and responded on the issue of breaching the lower Snake River dams (LSRDs)

The bottom-line issue barely came up and would not have been mentioned without the input of Rep. McMorris Rodgers. The bottom line is: "What would breaching the dams do to help the Snake River salmon."

Mr. Takala of the Yakama Nation said that 18 million returned past Bonneville Dam site in 1855. Prodigious harvest and habitat loss started in the 1860s. In the first actual count in 1939, only 482,618 total salmon were counted at Bonneville Dam. The salmon runs had been reduced over 97 % from historic levels. Salmon runs totaled less than 1 million fish counted at Bonneville Dam each year until 2000, and the highest counts (up to 2.4 million in 2014) have occurred in the last 23 years (Figure 1). The truth is, over harvest and habitat destruction and loss due to other dams and human impacts caused the decline of the Columbia River salmon.

Breaching the LSRDs would not increase spawning habitat. Historically spring, summer, and fall chinook, steelhead, coho, and sockeye all spawned upriver from Lewiston in rivers and streams blocked by other dams or trashed by logging, mining, and agriculture before the LSRDs were built.

The Corps of Engineers in collaboration with the fishery agencies and tribes have been modifying and improving fish passage and protective measures at the LSRDs for over 50 years. In the powerhouse, screens in turbine intakes divert most juvenile salmon into a bypass system that either releases them to the river below the dam or into fish transport trucks or barges (over 95% are barged) at collection facilities. Survival through bypass systems ranges from 98 to 100% (no transport from Ice Harbor Dam). Survival through turbines ranges from 87 to 93%, but new turbine technology has provided over 98% survival through two replacement turbines at Ice Harbor Dam installed within the last 3 years. All LSRD turbines will be replaced with higher survival turbines as needed. Combined survival by all routes including spill at each of the four dams exceeds the 96 % ESA standard imposed by NOAA Fisheries.

Smolts transported from Lower Granite, Little Goose, and Lower Monumental dams survive at over 98% to tidewater below Bonneville Dam according to NOAA Fisheries studies.

Demand for in-river passage by harvest management agencies resulted in the Corps providing one, safer overflow spillway weir at each of the LSRDs. NOAA Fisheries evaluations showed the overflow weirs are 5 to 7 times more efficient than normal spillways and speed up juvenile fish passage past the powerhouse and spillway because the juvenile fish do not have to dive 50 to 80-

feet go under a gate or into a turbine intake. Smolts survive at 95% through normal spillways, but up to 100% through overflow spillways. However, normal spillway bays entrain air when water shoots from under spillway gates under 50 feet of hydraulic head at 45 miles per hour with an instantaneous pressure drop at 1.5 atmospheres. The frothy water plunges up to 50 feet in the plunge pool where pressure at depth forces air from bubbles into solution. Water is up to 150 % supersaturated with air immediately below the dam.

Harvest management agencies and environmental groups have encouraged the Federal Judge to order operation of the dams to 125% supersaturation from Lower Granite Dam to below Bonneville Dam. Mass spill not only causes over 400 miles of river to be operated at dangerous if not lethal gas supersaturation levels, more water over spillways and less through the powerhouse means more fish migrate in-river and fewer fish are transported. In-river survival is about 50 % compared with over 98% by transport. It also means more water passes without generating electricity.

The Juvenile Fish Transportation Program was developed in the 1970s by the NOAA Fisheries in collaboration with the harvest management agencies and Corps to avoid turbine passage, migration delays, and predators. With the gas supersaturation catastrophe of the 1970s, avoiding supersaturation levels believed lethal then by the harvest managers was added as a fourth objective. Degasification chambers on barges and spray systems on trucks ensure that smolts are transported at normal saturation levels.

The Lower Snake River Compensation Plan was based on 87% smolt survival past each of the four dams. Eleven fish hatcheries were constructed, or existing hatcheries modified to provide millions of smolts to offset losses at the dams and provide fish for harvest in the river from the ocean to above Lower Granite Dam. Improved technologies have added prodigious ocean harvest at the expense of returns to the Columbia River, dams, hatcheries, and spawning areas. Ocean harvest rates range from very low for steelhead to up to 80 % for some fall chinook stocks. Improvements in juvenile fish passage facilities have improved survival per dam to over the 96 % standards imposed by NOAA Fisheries.

Comments have been made that reservoirs heat the water. While that is true for storage reservoirs, the LSRDs impound run-of-river reservoirs. The truth is that water coming from the Clearwater and Snake rivers from Idaho reach 75 to 80 ° F. Cold water releases from Dworshak Reservoir cool the Clearwater to 60 ° F and, at Lewiston, this colder water flows under the 80 ° F Snake River water from Hells Canyon. Below Lower Granite Dam, the lower Snake River rarely exceeds 70 ° F where without the LSRDs low summer flows reached 80 ° F.

Smolt to adult return rates (SARs) are used to judge the efficacy of mitigation measures and dam operations. Yet Snake River salmon that migrate north to the Aleutian Islands are subject to commercial fisheries along the Alaska, British Columbia, Washington, and Oregon coasts. Furthermore, when the harvest management agencies predict returns above their established escapement (spawners allowed to return) levels, they liberalize harvest in the ocean, lower river,

river between Bonneville Dam and the Snake River, between LSRDs, and even above Lower Granite dam in the Clearwater, Salmon, Imnaha, Grand Ronde rivers, and in Hells Canyon on the Snake. Therefore, the harvest management agencies are like the fox guarding the henhouse.

For over 30 years environmentalists abetted by harvest managers have instigated litigation based on the widely spread misinformation that millions of salmon were returning to the Columbia River and construction of the LSRDs reduced the runs to threatened or endangered levels. While the runs have been severely depleted, it was caused by lost access to thousands of miles of spawning habitat by other dams, by destruction of habitats by mining, logging, agriculture, pollution, and by other human activities. Mitigation measures by the Corps of Engineers, Bonneville Power Administration, other agencies, and Tribes have made progress toward restoring runs to such levels as can be supported by available habitat. Breaching the LSRDs will increase salmon returns hardly at all.

Operate the dams and fish facilities as they were intended to operate. Allow more adult salmon to return and restore access to more spawning habitat to increase salmon returns to the Snake River Basin.

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PS: I was a Fish and wildlife Biologist for the Walla Walla district, Corps of Engineers from 1971 to 2000 when most of the fish passage and survival measures were implemented. Since 2000, I have been a consultant on fish passage issues in the Columbia Basin.

