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Following the annihilation of Idaho's Sockeye Salmon, poached in the hot waters of the Columbia and Snake Rivers of Washington State, I performed a back-of-envelope thermodynamic calculation of the river system. It was simple to do as I've a degree in Mechanical Engineering at UC Berkeley and an entry level class in thermodynamics was all that was required. I presented this to Northwest Power & Planning Council during public comment and to Elliot Mainzer and his staff at the Bonneville Power Administration (BPA) at our regular meetings (three times per year). Nothing at all resulted.

Instead, NOAA Fisheries Ritchie Graves has argued that temperatures have always been high in the tributaries and nothing could be done about that. He has no training in thermodynamics as far as I can tell. Instead, it appears that Mr. Graves is a member of the "Save Our Dams" movement and should not be trusted.

I've met with Mr. Graves and USACE David Ponganis in January 2018, to discuss the fact that Idaho's Steelhead are in steep decline and therefore are tripping the Early Warning Indicator of the Adaptive Management Implementation Plan (AMIP) of the 2014 Supplemental Biological Opinion governing the Federal Columbia River Power System. Mr. Graves tells me that this fact will be announced in July 2019 when the numbers have high precision. The fact of the matter, while ongoing delay is a strategy, the Early Warning Indicator has been tripped. (see bluefish.org/earlywarning.htm). For Idaho's Steelhead, this year's run size suggests that the AMIP's Significant Decline Trigger will also be tripped, once the numbers are reported with high precision, and after a long unnecessary delay ensues. Additionally, Idaho's Chinook run will be triggering the Early Warning Indicator due to last year's dismal run and this year's run is forecast to be even worse than dismal.

Now let's pause a moment and consider the definition of Ecology, so that you and the members of the Department of Ecology are fully aware.

Ecology: the branch of biology that deals with the relations of organisms to one another and to their physical surroundings.

The "physical surroundings" of Idaho's migrating salmon are lethal and threatening to their continued existence when they are in the impounded waters of Washington State. Will the Department of Ecology do anything about that? Or is the Department of Ecology more interested in keeping a heavily subsidized "navigable waterway" so that a few wheat farmers can save 3 to 13 cents per bushel on their shipment bound for Japan, Korea, Pakistan and/or the Philippines? Ecology or taxpayer subsidized wheat farmer Economy, that is the question to ask yourself. It is that simple.

## What could be done?

Your agency should TELL your Governor Jay Inslee to pick up the phone and call USACE Chief of Engineers, General Todd Semonite who is waiting patiently for that call. I've met with the General three times in the last year and I can assure you all that he is expecting such a call at any time. Gov. Inslee need only state that the Army Corps must recognize state's rights (see Public Law 78-534 at http://bluefish.org/answers/question7.htm) and that Washington State no longer has need for the four Lower Snake River dams. Take them damn dams down. Allow the cooler river to flow.

Millions more salmon will return and BPA electric power rates will go down with Idaho's Salmon recovery and the shuttering of Lower Snake River Compensation Plan hatcheries that provide salmon at a cost of \$250 each.

This travesty has gone on for far too long. Stop the madness NOW.

If any of you (or your friends, or your political associates) have further questions, visit bluefish.org and click on the Q&A responses to 27 questions asked by Gov. Inslee's Orca Task Force. Or contact me directly at any time, day or night. So long as you are not a robocall soliciting lower interest rates or extending my car's warranty, I will answer the phone and be willing and able to assist you with any and all of your questions.