The 2019 "State of the Snake"

2019 has been another year of costly efforts to recover salmon on the Snake River with disappointing results. In spite of millions Bonneville Power Authority spent on the basin-wide Fish and Wildlife Program to recover salmon, and salmon passage improvements on the four Lower Snake River Dams themselves, the number of fish returning to their spawning grounds above Lower Granite Dam are steadily dropping. 2019 continued to reflect the decline of these populations with negative implications for the food chain they are a part of, which includes Southern Resident Killer Whales. The data collected over 2019 only adds to the urgency in the case for immediate dam breaching.

Based on fish ladder counts, the number of adult fish returning in 2019 to Lower Granite Dam (the fourth dam), are **below the ten-year average for all fish run types**. All categories, except Wild Steelhead, showed a further increase in decline compared to 2018 counts (see fig. 1). A **total of 39,393 Chinook salmon and 47,371 Steelhead** returned to Lower Granite Dam in 2019. The number of Jack Chinook (first year fish) was 12,014 or 67% below the ten-year average, which predicts that returns for adult Chinook in 2020 will show further decline. These precipitous declines should come as no surprise. They were predicted in the 2015 Salmon White Paper (Damsense.org, under reports) which was distributed to Pacific NW state representatives as well as federal agency representatives.

Lower Granite Dam Fish Returns			
	Percentage of 10yr Average		
Fish Runs	2017	2018	2019
Spring Chinook	-56%	-50%	-69%
Summer Chinook	-48%	-58%	-72%
Fall Chinook	-26%	-54%	-58%
Sockeye	-80%	-76%	-92%
Steelhead	-54%	-66%	-76%
Wild Steelhead	-67%	-71%	-69%

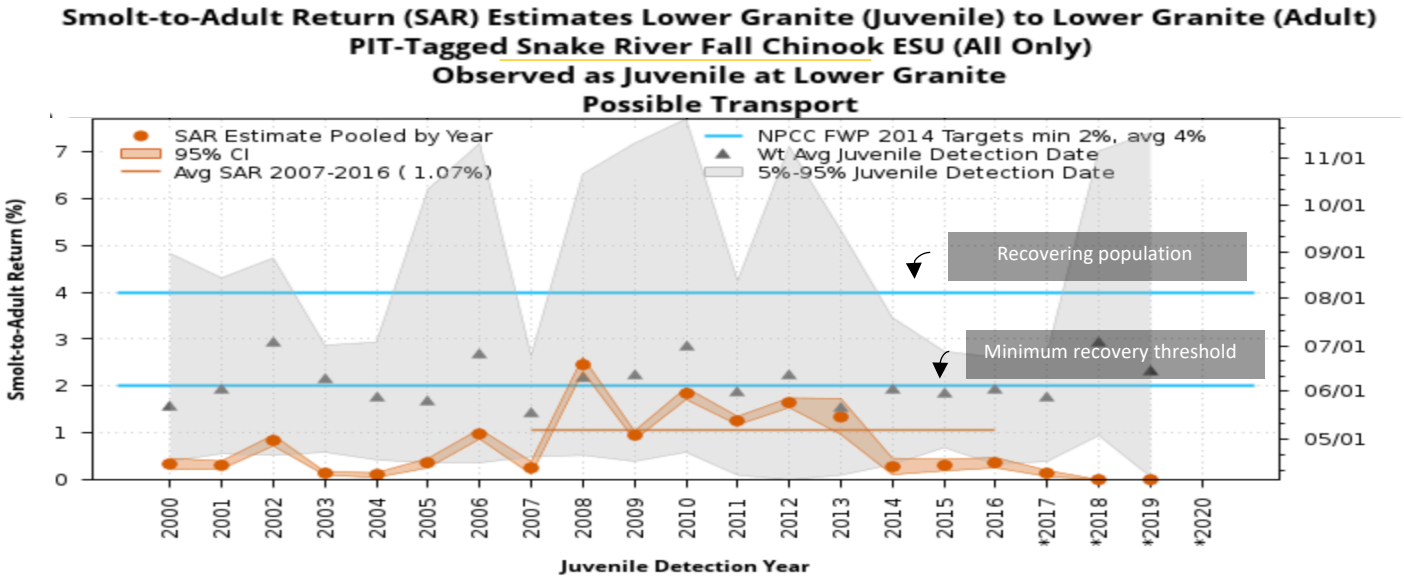
Figure 1. Data from Columbia Research Basin, http://www.cbr.washington.edu

Snake River Wild Steelhead have tripped a biological trigger point. Adult returns in 2018 marked the steepest five-year decline on record. In the Army Corps Adaptive Management Implementation plan, a decline trigger and subsequent response protocol is outlined, which was reached by the recent steelhead decline trend. NOAA notified the Army Corps of Engineers in October 2019. They have 12 months to decide on a solution addressing the biological trigger conditions. This does not guarantee dam breaching nor species survival while the public waits. The breaching alternative in the existing 2002 Environmental Empact Study is the needed solution that can be implemented quickly enough to prevent ecological extinction.

In the past year there has been no change in the status of Snake River Salmon and Steelhead on the Endangered Species List. Indeed the 2017 NOAA recovery plan for spring/summer Chinook states that the extensive list of actions in the plan "will NOT get us to recovery" (page 241). Columbia Basin Research produces the data on fish survival that portrays this unsatisfactory reality. SAR's which are smolt to adult ratios, or percentage of juveniles

that return as spawning adults, are shown in figure 2 & 3 for spring/summer and fall Chinook. The Northwest Power & Conservation Council's (NPCC) SAR goals are **2% for mere survival of the species** and **6% for recovery of the species**. Snake River Chinook **SARs have only been above 2% in two of the past twenty years**. Juvenile fish, who experience higher mortality leaving the river than returning as adults, experienced approximately 50% mortality migrating through the Snake River this year, as discussed in Northwest Fisheries Science Center's fish passage data. These results are in spite of increased spill, barging of fish around the dams, and in improvement in juvenile passage. Cumulatively, one billion dollars has been spent on juvenile passage improvement alone.

In contrast to Snake River fish, Mid and lower Columbia River Chinook and Steelhead pass through four instead of eight dams and are generally meeting the NPCC SAR goals. Mid and Lower Columbia fish have SAR ratios **2.3x - 3.4x greater than Snake River SARs**. **If the four Lower Snake River dams were breached, Snake River salmon would be migrating under similar conditions to their downstream cousins with comparable SARs. Thus breaching would create the conditions for species recovery.**



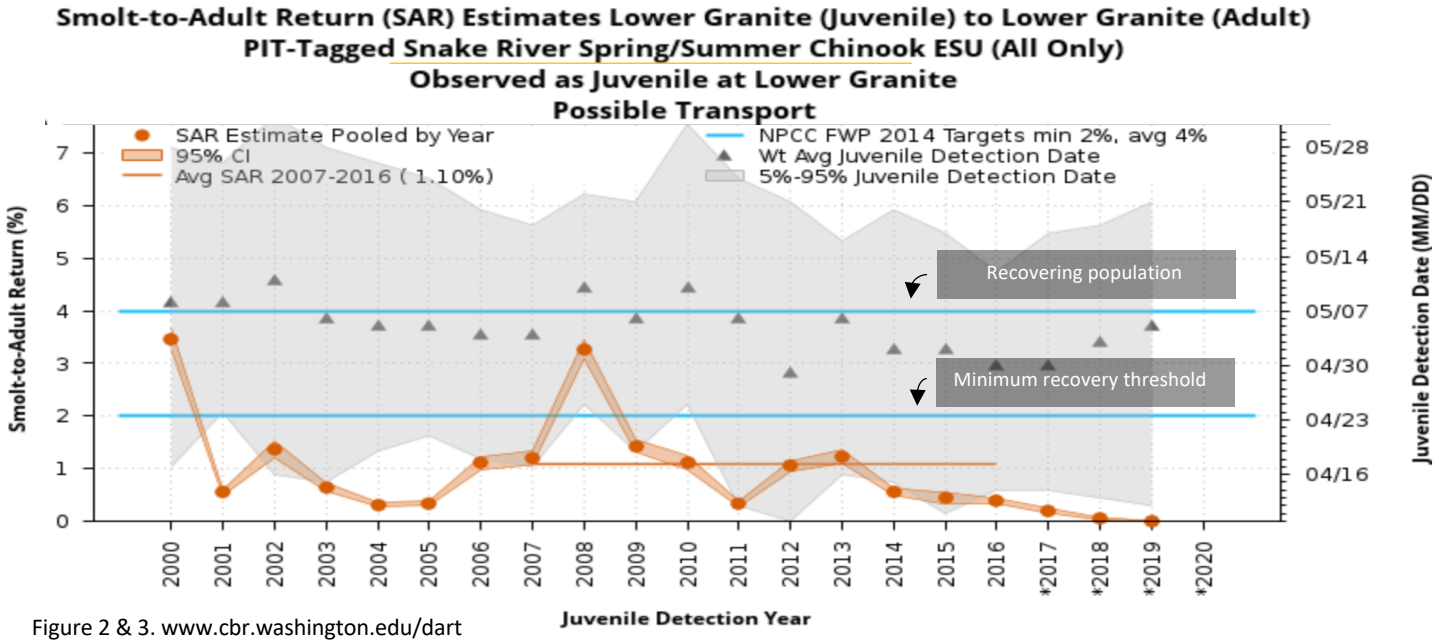


Figure 2 & 3. www.cbr.washington.edu/dart