WHITE PAPER ON DAM REMOVABLE OF THE FOUR LOWER SNAKE RIVER DAMS

By Rusty Bentz 2/4/2023

This is what I believe is wrong with the dam removal argument to save the anadromous fish runs. At no time in the 20th century, since the completion of Bonneville Dam in 1938 and counting of fish began, did the numbers of retuning anadromous fish come close to the numbers we got back in the 21st century. When you compare the 10-year period from 1938 to 1947 when Bonneville Dam was the only dam blocking fish from returning to the Snake River to the 10-year period 2000 to 2009 when all 8 dams were in place, you find that there was a 316% increase in returning steelhead and a 268% increase in spring chinook numbers in the 21st century. These are the two most important anadromous fish to Idaho sportsmen and the Nez Perce tribe. For two years in the 21st century, over 600,000 adult steelhead returned over Bonneville Dam. Nothing like that happened in the 20th century. See the data below and attached graph done by Dr. Charles Pottenger. See Graph 2.

Graph 1

Steelhead and Chinook Returns 1938-1947* vs Returns 2000-2009**

STEELHEAD RETURNS				SPRING CHINOOK			
1938	107,000	2000	275,178	1938	22,371	2000	178,302
1939	121,932	2001	663,073	1939	76,708	2001	391,367
1940	185,161	2002	483,956	1940	66,378	2002	269,520
1941	118,087	2003	365,821	1941	72,295	2003	195,770
1942	151,391	2004	313,337	1942	40,471	2004	170,308
1943	92,151	2005	315,650	1943	65,550	2005	74,053
1944	100,473	2006	339,301	1944	30,865	2006	96,458
1945	120,086	2007	325,275	1945	43,515	2007	66,646
1946	142,806	2008	357,845	1946	67,337	2008	125,585
1947	135,434	2009	604,970	1947	133,462	2009	66,630
TOTALS	1,274,530		4,014,400		618,952		1,634,639

***1 dam at Bonneville- no barging**

****8 dams (including Snake River Dams) with barging**

Bonneville Power Administration (BPA) has paid out over 18 billion dollars on anadromous fish recovery in the Columbia basin making it the most expensive species recovery ever. Congressman Simpson's proposal for dam removal may have a detrimental effect on fish and would add to that spending another 33 billion dollars.

According to the Army Corp of Engineers, the 4 lower Snake River Dams generate between $285 million and $300 million dollars in net revenue annually which helps pay for our hatcheries and fish programs. According to the Columbia Basin Bulletin, Bonneville Power Administration has been able to return to the national treasury between $500 million to $1 billion dollars annually in recent years with 2022 setting a record high, contrary to the assertion that BPA is going broke.

There is little evidence of mortality in adult anadromous fish while passing upstream over 4 dams and the 4 reservoirs created by the lower Snake River Dams. Temperatures on the bottom of the reservoirs where the adults spend most of their time are colder than they ever were in a free- flowing river.

Returning adult fish are the true indicator of the success of our efforts to make sure we have a viable return of our anadromous fish of all four species, steelhead, spring/ summer chinook, fall chinook, and coho. Each species offers different challenges especially on the out migration.

With construction of dams, especially those without fish ladders, we have lost 55% of our spawning habitat; Grand Coulee blocks the upper Columbia River ; the Hells Canyon Complex blocks the upper Snake River and Dworshak Dam blocks the North Fork of the Clearwater River. To mitigate for these losses both state and the Federal Governments, and Idaho Power have built fish hatcheries scattered throughout the Columbia River Basin. Before some those hatcheries came online, we lost our Idaho steelhead seasons for 2 years in the mid-70's. In response the Army Corp of Engineers built smolt transport barges and smolt collection facilities at Lower Granite Dam. Steelhead return numbers responded well and we have had a catch and keep season for steelhead in Idaho ever since. Steelhead smolts are the largest smolts of the 4 species of anadromous fish and barge the best. About 2/3 of the adult returning steelhead are so-called 1 ocean fish or A- run that spend 1 year in the ocean before returning to spawn. The other 1/3 are 2 ocean fish or B- run meaning that they spend 2 or more years in the ocean before returning. For sportsmen in the Snake River Basin, steelhead are the most important because they are here in adequate numbers for a season that is 8 months long and therefore many more hours are spent in pursuit of them, which of course means the biggest economic boost to the local economy.

The positive effects of barging can be demonstrated by the 2 large runs of 2001 and 2009 where the returns of over 600,000 steelhead each year were proceeded by the highest % of steelhead smolts ever barged from Lower Granite dam, 95% and 83%. In 2017 we went away from barging in favor of spill on orders of Judge Simon and according to NOAA and published in the Columbia Basin Bulletin we had the worst out-migration of smolts ever recorded to date. The result was that we lost our catch and keep season on the Clearwater River for the fall season of 2019. Most of the Clearwater steelhead are 2-ocean fish.

A paper published by the Idaho Fish and Game on 4/9/2020 by Joe DuPont, Allison Lebeda, Lance Hebdon, and John Ebel and as illustrated by their graph on page 4/4 (our graph 3) shows that almost 80 % of the time steelhead smolts are better off being barged and the remainder of the time barging has no effect good or bad. Hatchery spring/summer chinook are better off being barged 60% of the time with no effect 40% of the time. Remember these are the 2 most important anadromous fish to Idaho

sportsmen and to the Nez Perce Tribe. Table F.9 from the FISH PASSAGE CENTER 2018 Annual Report shows that in 2018 48% of the hatchery steelhead smolts and 62% of the wild steelhead smolts were transported to below Bonneville Dam. The result was that rounded off the nearest 1000, unclipped (presumably wild) adult steelhead returned in equal numbers to hatchery fish. This is a dramatic result brought about by transportation. See attached graph 4.

A NOAA report dated 11/4/2021 and titled "HIGHEST SPILL LEVELS EVER FOR JUVENILE SALMONIDS MAKES SMOLT DETECTION DIFFICULT IN 2021, IMPRECISE REACH SURVIVAL ESTIMATES" and published in the Columbia Basin Bulletin, makes the following points. The report says that in addition to the highest spill ever, the percentage of transported fish from Snake River dams was the lowest since records have been kept by a substantial margin, just 9.8 % of wild and 5.9% of hatchery spring/summer chinook were transported, while just 11.1% of wild steelhead and 4.3% of hatchery steelhead were transported".

The 2022-23 Snake River Hatchery Steelhead Return Estimates at Lower Granite updated 10/30/2022 shows that 2,938 1-ocean steelhead and 38,406 2-3 ocean fish are projected to return to Idaho for the 2022-2023 season. See attached graph 5.

This report is very alarming. The 1-ocean steelhead returning this cycle are the first class of fish to return from the 2021 out migration that had the highest spill ever with the lowest transportation ever. Instead of comprising nearly 2/3 of the normal adult steelhead run, 1-ocean fish are making up just over 7%. Based on these numbers high spill coupled with very low transport numbers resulted in a disaster. See graph 5.

We are asking Idaho water users upstream to use their valuable irrigation water to flush fish with disastrous results. Also, water spilled over the spillways is costing millions every year in lost power revenue. If we are killing our smolts with spill as the data suggests, it is appropriate to ask why.

Ocean conditions play an important role in our adult fish returns with colder ocean conditions favoring our anadromous fish. We are in the 3rd year of an El Nina weather cycle which moves cold water north and improves ocean conditions. We should be seeing high return numbers and we are not. See attached graph 6.

Under Idaho's governor Phil Batt, the "Spread the Risk Theory" was begun and roughly half the fish were transported and half left in the river. This continued during the golden decade from 2000 thru 2009 although, the big years were proceeded by high barging years. Perhaps we should return to what worked so well in the past.

The dam removal advocates only advance one reason to take out the dams and that is for salmonid recovery and to them only wild fish count. For steelhead the average return from 1938 to 1947 was 127,000 fish. From 2000 to 2009 the annual wild fish component of the run was 117,000 fish despite losing 55% of the spawning habitat since completion of Bonneville dam. Spring/summer chinook currently are in the worst shape but again in the golden return years of the 21st century we had healthy wild fish returns. There is important new research done by a group of scientists led by Ian Courter, published in the Columbia Basin Bulletin on 8/28/2022, that based on research done on the Hood River in Oregon and in Johnson Creek in Idaho for over20 years shows that hatchery fish spawning with wild

fish enhances productivity. This research directly challenges a study done in 2009 by Michael Blouin, which found that hatchery fish do compete with wild fish. They state that Blouin's study is a crude oversimplification. I hope this will stop the killing of adult hatchery chinook returning to places like Johnson Creek and the South Fork of the Clearwater River.

If we can have 5 times the number of returning steelhead as were returning when Bonneville Dam was the only dam blocking fish returning to the Snake River, now with 8 dams blocking the way, it is time to stop blaming the 4 lower Snake River dams. To further fortify that position let us examine some other negative factors that were not present in the 1938 to 1947 period. Pinnipeds (seals and sea lions) have learned to target both our smolts and adults. Research shows that Stellar sea lions are killing up to 40% of our spring and summer chinook at Bonneville dam. Research shows that bird predation on the Columbia results in the loss of 50% of our migrating smolts. Bass, a nonnative species, introduced in 1899 have greatly expanded their range and numbers. It is a similar situation for walleye, both species eat many smolts. Pelicans appear in large numbers every spring on the Snake River as far up as the Grande Ronde River that were never seen until the last decade. The Boldt decision in the 1970's said the Indian Tribes were entitled to ½ the fish coming up the Columbia River and then to ½ the fish coming up the Snake River.

The fish issue is complicated and cherry-picking data can be used to support a variety of ideas. At the present it appears that there is not the political will to remove the 4 dams so let us set that aside and talk about other issues that can be influenced. The biggest issue is the amount of water that we flush and whether it helps or hurts fish. This issue is complicated by which of the 4 anadromous runs we are targeting. Steelhead and spring/summer chinook seem to benefit the most from barging and fall chinook and sockeye salmon appear to respond better to flush.

Fall chinook have really responded well to 3 acclimation smolt sites, 2 on the Snake River and 1 on the Clearwater River, all installed in the 90's. We have gone from a low of under 200 adults returning above Lower Granite Dam to tens of thousands in most recent years. On the best years they are approaching utilizing the maximum spawning habitat in the Snake River above Lewiston. The Salmon River and the Grande Ronde River now have a viable spawning population.

According to the book " THE GREAT SALMON HOAX" sockeye salmon were purposely poisoned for 2 years at Red Fish Lake at the headwaters of the Salmon River. After being listed on the endangered species act, we have made a strong effort to restore the run. In the past few years, we seem to be making headway. An encouraging sign is the large number of sockeye salmon returning to the upper Columbia River even though they are above a total of 9 dams.

If the choice comes down to flushing which may favor fall chinook and sockeye salmon or barging which is shown to favor steelhead and spring/summer chinook. The 2 most important species to Idaho sportsmen and the Nez Perce Tribe, are steelhead, and spring/summer chinook.

Gas trauma disease is a well- known problem especially for smolts traveling downstream. The Corp of Engineers began to address the problem with a flip lid design for John Day Dam which shot the water out horizontal instead of letting it plunge straight down there-by capturing air and forcing nitrogen and oxygen to be dissolve into the water. Nitrogen enters a fish's blood stream when they breath this water.

The nitrogen sometimes forms a bubble and leaves the blood and migrates to the skin where it breaks to the outside causing a sore. Adult spring salmon returning really suffered from this disease in 1969, it killed most of the smolts as evidenced by having only 1 more chinook season in 1973 and no more seasons until the 21st century.

Natural weather patterns give different spring flows and weather. In 2015 nature gave us low flows and hot temperatures which warmed the surface temperatures in the reservoirs and caused sockeye salmon bound mainly for the upper Columbia River to refuse to climb the fish ladders and they died by the thousands. Adult sturgeon also died after gorging on dead sockeye. Environmentalists sued and Judge Simon ordered spill for 2016. 2016 was a high- water year and a poor out migration caused by gas trauma disease ensued. Judge Simon doubled down on spill in 2017 even though it was another high-water year and according to NOAA it was the worst outmigration recorded to date and again gas trauma disease was the culprit. 2018 saw a return to more barging, but there was still a court ordered spill. NOAA's preliminary report said that survival for both salmon and steelhead were higher than normal, but the 2019-2020 steelhead returns to Idaho were the worst in years. Spill was costing millions of dollars in lost power production and lost agriculture output. A regimen of flexible spill was adapted to reduce costs. Spill was the chosen method of moving our smolts down the river. If the A-run steelhead return numbers for 2022-2023 season are any indication, we have chosen poorly.

In a lengthy paper from Michele DeHart of the FISH PASSAGE CENTER dated 2/9/2010 and addressed to The Fish Passage Advisory Committee, she outlines NOAA'S recommendation that juvenile fish passage operations be used to increase the proportion of juvenile out migrating salmon and steelhead that are transported. NOAA'S Biological Opinion includes initiating the transportation program earlier than has recently occurred and eliminating spill throughout the season when flows are low, or during 2 weeks in May under any flow conditions. She goes on to say this decision taken within a management decision framework does not give enough consideration to sockeye salmon and lamprey eels. This points out two different scientific schools of thought, one that follows my logic of steelhead and spring/summer chinook and another that says sockeye and lamprey eels are the most important.

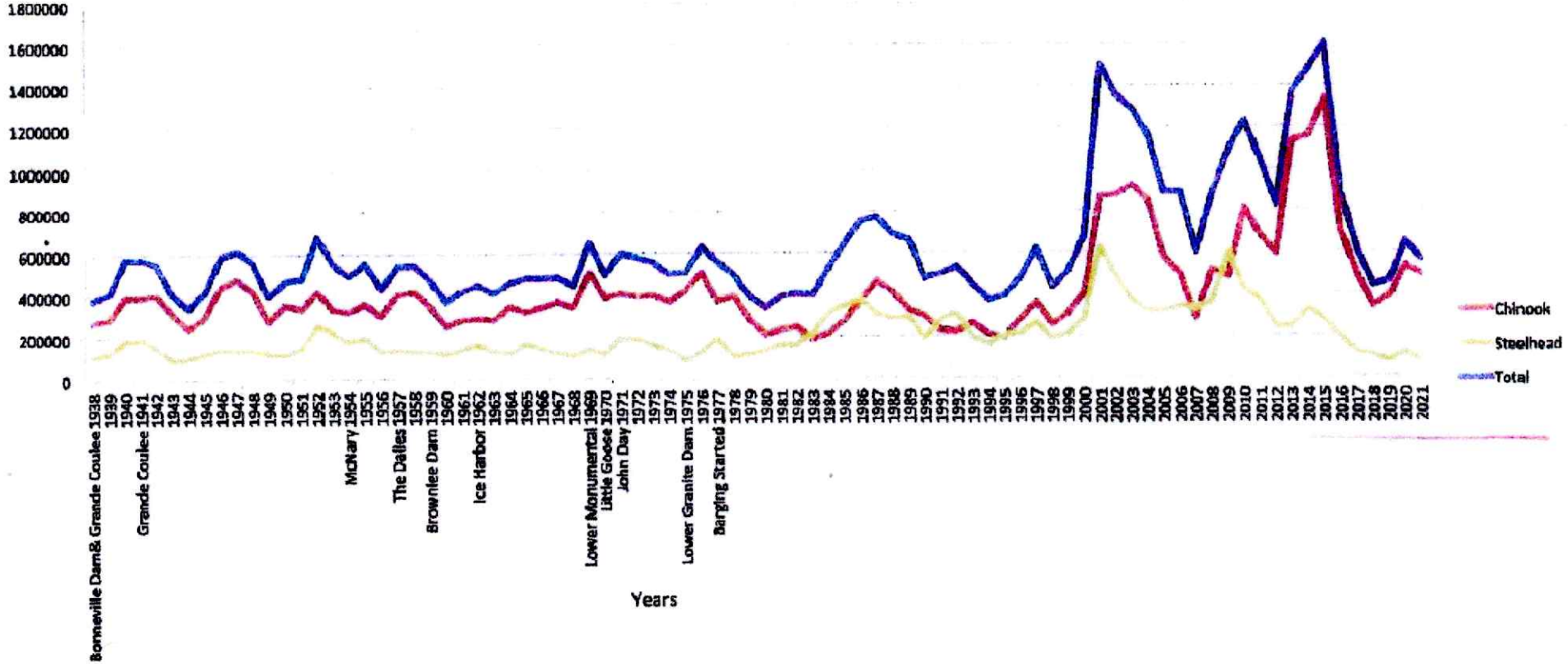
We need the best science to rise to the top. One way that we might further our understanding is to design some experiments to further test whether fish are better off being left in the river versus being transported. One such idea I have advanced in the past is to bring a fish barge up to the Port of Lewiston where it would be bringing in Clearwater River water. Then bring a load of steelhead smolts from Dworshak hatchery by truck and transport them by barge to below Bonneville dam and compare the returning adults to adults from smolts left in the river. Also do the same for spring salmon. I think we would learn a lot.

Rusty Bentz. Outfitter and guide for steelhead and salmon

Graph 2

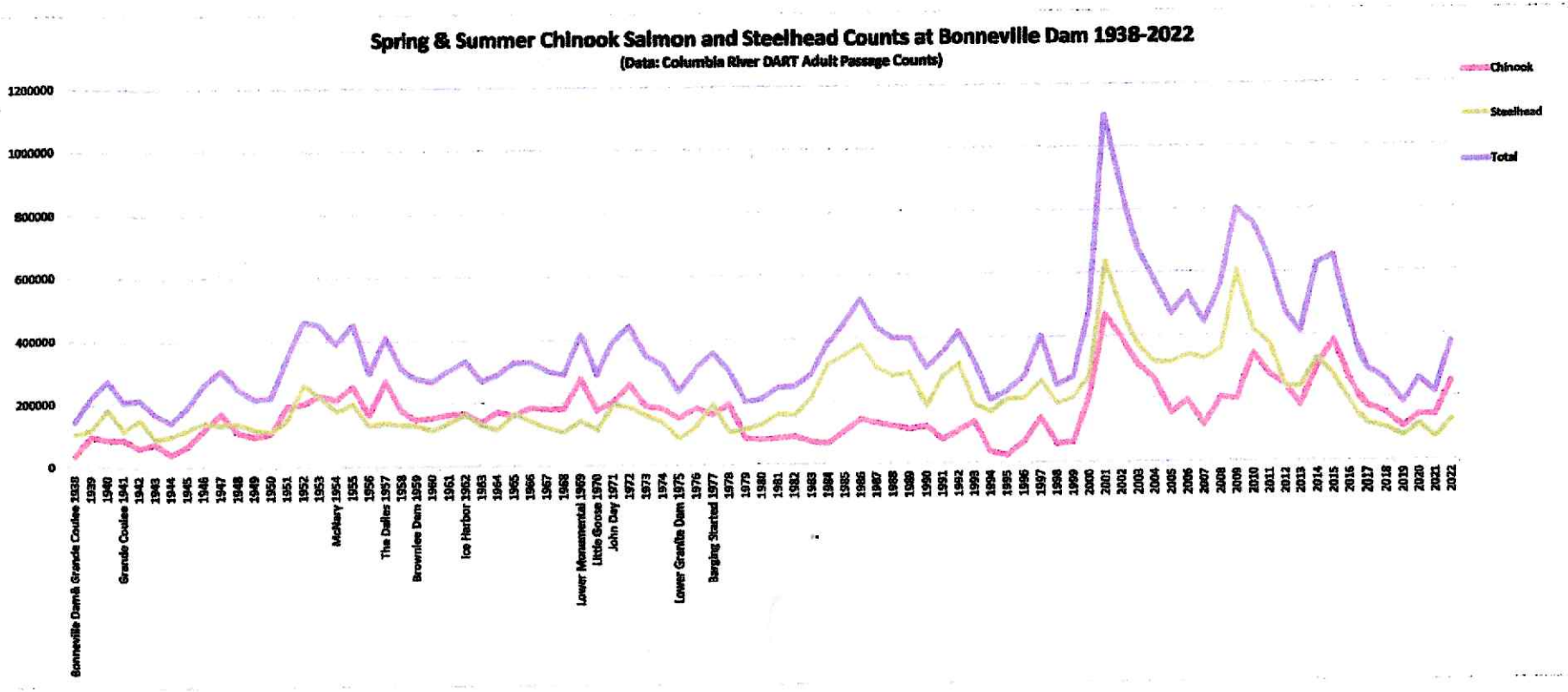
By Dr. Charles Pottenger (2022)

Chinook Salmon and Steelhead Counts at Bonneville Dam 1938-2021



Graph 2

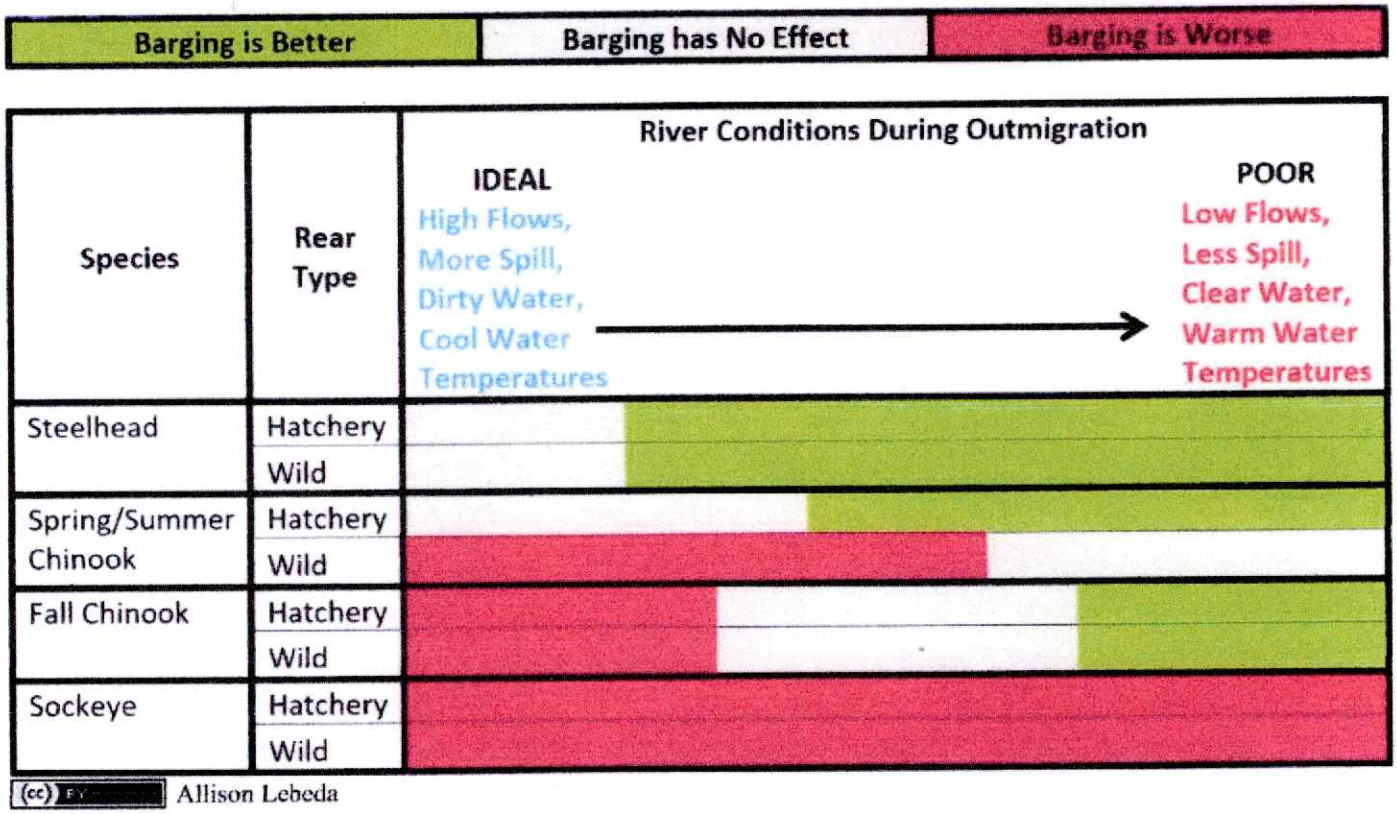
By Dr. Charles Pottenger (2023)



Year	Chinook	Steelhead	Total	Dam Built
Bonneville Dam& Grande Coulee	37744	107011	144755	Columbia Bonneville
1939	100150	121932	222082	
1940	88324	185161	273485	
Grande Coulee 1941	88691	118087	206778	Columbia Grande Coulee
1942	65087	151395	216482	
1943	78966	92151	171117	
1944	43466	100473	143939	
1945	71116	120086	191202	
1946	118853	142806	261659	
1947	172318	135434	307752	
1948	109953	139062	249015	
1949	96805	119285	216090	
1950	106893	114087	220980	
1951	194171	149539	343710	
1952	200461	260990	461451	
1953	227873	223914	451787	
McNary 1954	214117	176260	390377	Columbia McNary
1955	254519	198411	452930	
1956	164614	131116	295730	
The Dalles 1957	271444	139184	410628	Columbia The Dalles
1958	177064	131347	308411	
Brownlee Dam 1959	150052	129026	279078	
1960	154765	113676	268441	
1961	165129	139726	304855	
Ice Harbor 1962	168591	164025	332616	
1963	139337	129418	268755	
1964	171868	117252	289120	
1965	160243	166445	326688	
1966	184507	143661	328168	
1967	180407	121872	302279	
1968	181999	106974	288973	
Lower Monumental 1969	275741	141782	417523	Snake River Lower Monume
Little Goose 1970	175854	113510	289364	Snake River Little Goose
John Day 1971	203428	193966	397394	Columbia John Day
1972	256970	185886	442856	
1973	187508	157823	345331	
1974	180431	137054	317485	
Lower Granite Dam 1975	148455	85540	233995	Snake River Lower Granite I
1976	182461	124177	306638	
Barging Started 1977	160531	193437	353968	
1978	194186	104431	298617	
1979	85679	114007	199686	
1980	80052	129254	209306	
1981	85190	159270	244460	
1982	90140	157640	247780	

1983	72944	213779	286723
1984	69187	315587	384774
1985	107418	343961	451379
1986	144293	379891	524184
1987	131402	303081	434483
1988	121673	279072	400745
1989	110055	287798	397853
1990	119141	183027	302168
1991	76236	274545	350781
1992	103488	314975	418463
1993	132865	188377	321242
1994	37800	161978	199778
1995	25222	202448	227670
1996	67526	205216	272742
1997	141939	258385	400324
1998	59775	185094	244869
1999	64838	206488	271326
2000	208918	275178	484096
2001	467523	633073	1100596
2002	396249	480309	876558
2003	306818	365821	672639
2004	262295	313371	575666
2005	153246	315650	468896
2006	193975	339301	533276
2007	114506	325275	439781
2008	203814	357816	561630
2009	196461	604970	801431
2010	341989	416603	758592
2011	275376	369365	644741
2012	239738	235276	475014
2013	176396	234047	410443
2014	297812	326001	623813
2015	381985	268730	650715
2016	256767	188132	444899
2017	171660	117878	289538
2018	148947	102920	251867
2019	105706	77320	183026
2020	143757	114423	258180
2021	141721	71967	213688
2022	248543	126367	374910

Graph 3



In summary, although barging can increase the number of smolts that reach the ocean, transported fish often return at lower rates as adults than fish that migrate in-river. Under certain conditions, barging juvenile salmon and steelhead can lead to higher survival and higher return rates as adults. Migration timing, fish size, river conditions, and fish species are just some of the variables that play a role in whether barging can be beneficial or not. Researchers with the multitude of cooperating agencies continue to learn from and modify the Juvenile Transport Program to best increase adult returns. Barging juveniles through the complex network of dams is not the sole solution to salmon and steelhead restoration, but it is one of multiple tools managers have that can aid in increasing juvenile survival and adult returns in some situations.

Graph 4

Table F.8. Estimated proportion destined for transportation in 2018.

Species- age group	Probability of being collected during Transport operations	Proportion Passing During Transport	Overall Seasonal Transport Probability
Hatchery Yearling Chinook	0.56	0.79	0.44
Wild Yearling Chinook	0.69	0.56	0.38
Hatchery Steelhead	0.64	0.74	0.48
Wild Steelhead	0.71	0.86	0.62
Hatchery Subyearling Chinook	0.43	1.0	0.43
Wild Subyearling Chinook	0.30	1.0	0.30
Sockeye	0.49	1.0	0.49

Model Pt = P1 +(1-P1)*P2 + (1-P1)*(1-P2)*P3

The proportions transported yearling Chinook in recent years (2009 to 2018) are much lower than years prior because of the delayed start to transportation, the decreased collection efficiency at collector dams with the installation of surface spill devices and, especially for subyearling Chinook, the inclusion of summer spill beginning in 2005. Since 2009, the lowest flow years have seen the lowest proportion transported for spring migrants, such as happened in 2010 and 2015. This year was another relatively high flow year in the Snake River, resulting in higher detection probabilities and higher collection rates for all species. Particularly late migrant subyearling Chinook and sockeye were transported at relatively high rates in 2018. But hatchery and wild steelhead were transported in relatively high numbers in 2018 as well.

Table F.9. Comparison of the 2018 estimate of the proportion of Snake River Basin smolt population in Lower Granite Dam forebay that are "destined for transportation" and the corresponding estimates from 2010 to 2018. For yearling Chinook, steelhead, and sockeye the results exclude transport at McNary Dam.

Species- age group	Transport Proportion								
	2018	2017	2016	2015	2014	2013	2012	2011	2010
Yearling Chinook	0.44 (H) 0.38(W)	0.19 (H) 0.19 (W)	0.22 (H) 0.20 (W)	0.08 (H) 0.15 (W)	0.36 (H) 0.28 (W)	0.37 (H) 0.38 (W)	0.20 (H) 0.20 (W)	0.42 (H) 0.40 (W)	0.24 (H) 0.40 (W)
Steelhead	0.48 (H) 0.62 (W)	0.22 (H) 0.45 (W)	0.37 (H) 0.31 (W)	0.17 (H) 0.18 (W)	0.29(H) 0.44(W)	0.32(H) 0.48(W)	0.24(H) 0.28(W)	0.36(H) 0.48(W)	0.39 (H) 0.42 (W)
Subyearling Chinook	0.43 (H) 0.30 (W)	0.42 (H) 0.50 (W)	0.45 (H) 0.59 (W)	0.36 (H) 0.33 (W)	0.47(H) 0.42(W)	0.30(H) 0.61(W)	0.41(H) 0.41(W)	0.46(H) 0.42(W)	0.56 (H) 0.49 (W)
Sockeye	0.49	0.40	0.53	0.08	0.38	0.58	0.61	0.395	0.33

Conclusions

A relatively high proportion of wild steelhead were transported in 2018. An estimated 62% were destined for transportation in 2018, based on the early start time for transportation and relatively high detection probability of steelhead.

Graph 5

2022-23 Snake River Adult Hatchery Steelhead Return Estimates at Lower Granite

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		Current Return Estimates			
Idaho Estimates	**Stock**	**1-Ocean**	**2-Ocean**	**3-Ocean**	**Total**
CLFH	SFCLW	273	4,935	-	5,208
	CLFH Total	**273**	**4,935**	**-**	**5,208**
DNFH	DWOR	287	20,522	111	20,919
	DNFH Total	**287**	**20,522**	**111**	**20,919**
HNFH	SAW	541	2,315	-	2,857
	EF NAT.	1	76	-	77
	HNFH Total	**542**	**2,392**	**-**	**2,934**
MVFH	DWOR	-	97	-	97
	PAH	180	921	-	1,100
	USAL*	152	1,128	-	1,279
	SAW	462	916	-	1,378
	MVFH Total	**794**	**3,062**	**-**	**3,856**
NISP	OX	552	3,861	-	4,413
	PAH	490	3,524	-	4,014
	NISP Total	**1,042**	**7,385**	**-**	**8,427**
	Idaho Total	**2,938**	**38,295**	**111**	**41,343**
Oregon Estimates	**Stock**	**1-Ocean**	**2-Ocean**	**3-Ocean**	**Total**
WALL	WALH + BCANF	735	3,530		4,265
	LITTLE SHEEP	338	1,859		2,197
	Oregon Total	1,073	5,389	**NA**	6,462
Washington Estimates	**Stock**	**1-Ocean**	**2-Ocean**	**3-Ocean**	**Total**
LFH	WALLOWA	686	3,390		4,076
	TUCANNON	16	140		156
	TOUCHET	-	10		10
Washington Total		**702**	**3,540**	**-**	**4,242**
Hatchery Steelhead Grand Total		**4,713**	**47,224**	**111**	**52,047**

* A locally adapted stock derived from DWOR smolt released into the Upper Salmon River.

USACE Dam Counts

AD-clipped	#ERROR!
Unclipped	#ERROR!
Total	**#ERROR!**

FPC Data Updated: 11/5/2022

		Current Return Estimates			
Basin	**Stock(s)**	**1-Ocean**	**2-Ocean**	**3-Ocean**	**Total**
Clearwater	DWOR & SFCLW	559	25,457	111	26,127
Salmon	EF Nat, OX, PAH, SAW	1,674	8,156	-	9,830
	DWOR & USAL*	152	1,225	-	1,377
Snake	OX & PAH	552	3,457	-	4,010
Snake**	Wallowa	40	271		311
Grande Ronde	Wallowa	1,303	6,220		7,523
Imnaha	Little Sheep Cr	338	1,859		2,197
Tucannon**	Tucannon	16	140		156
Touchet**	Wallowa and Touchet	77	439		516
Walla Walla**	Wallowa				-
Snake River Total		**4,712**	**47,224**	**111**	**52,046**

* A locally adapted stock derived from DWOR smolts released into the Upper Salmon River

**Release locations downstream of Lower Granite Dam in SE Washington

WA Updated: 10/30/2022
OR Updated: 10/30/2022

Graph 6

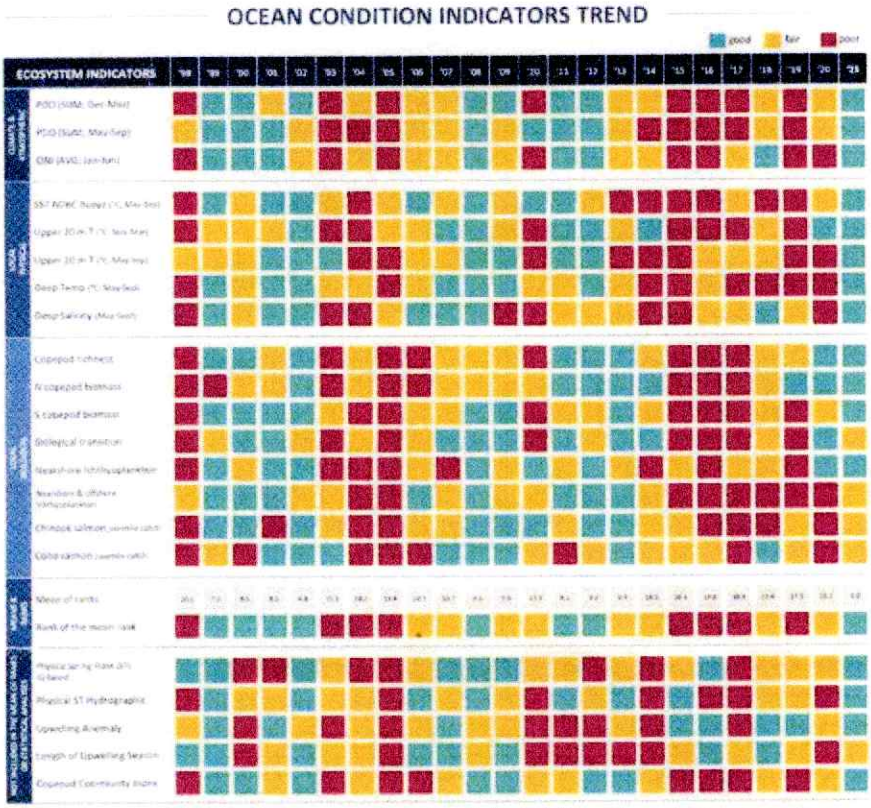
Cautious Optimism Over Fish Forecast

Since the mid-1990s, NOAA's NW Fisheries Science Center has monitored a number of factors that affect ocean conditions, that then impact Pacific salmon numbers.

Their ocean indices combine oceanographic data to capture the changing ecosystem. These indicators characterize ocean conditions experienced by juvenile salmon entering the northern California Current in Washington and Oregon. They rate each indicator in terms of whether the relative impact on the marine survival of juvenile salmon is "good" – green; "fair" - yellow; or "poor" – red.

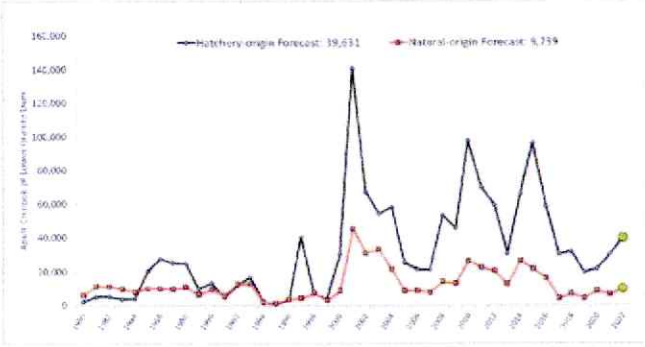
Of the chart's recent results, NOAA said: "Our ocean ecosystem indicators ranked second best in the 24-year time series (2008 ranked first). The indicators on the stoplight chart of ocean conditions are mostly green, signaling productive ocean conditions for juvenile salmon and other marine species." Read more here:

https://www.fisheries.noaa.gov/west-coast/science-data/ocean-ecosystem-indicators-pacific-salmon-marine-survival-northern



The above stoplight chart is produced by the National Oceanic and Atmospheric Administration (NOAA). As you can see, there's some cause for optimism.

And, as you can see below, the predicted numbers for Spring Chinook and Sockeye look promising.



Natural and hatchery-origin Chinook Salmon. 1980-2021 are actual returns. 2022 is the preseason forecast.

Columbia River Adult Salmon Returns: Actual and Forecasted

		2021 Forecast	2021 Return	2022 Forecast
Spring Chinook	Upriver Total for Spring Management Period	75,200	91,736	122,900
	Upper Columbia totals	15,000	n/a	n/a
	Upper Columbia natural-origin	2,700	n/a	n/a
	Snake River Spring/Summer (total)**	60,000	82,274	75,400
	Snake River natural origin **	11,109	9,450	15,700
	Mid-Columbia (by subtraction)	22,200	n/a	n/a
Summer Chinook	Upper Columbia Total for Summer Management Period	78,800	56,800	87,500
Sockeye	Total Annual Return	155,600	151,765	198,700
	Wenatchee	27,300	41,219	10,200
	Okanogan	127,500	105,403	175,700
	Yakima	200	3,531	3,500
	Deschutes	100	n/a	100
	Snake River	700	800	200

* Components may not sum due to rounding
** 2021 return is based on standard TAC run reconstruction methodology. ISFG does not support the TAC methodology and has provided alternate estimates of 17,949 total adults, including 8,975 natural origin.

While there are some bright spots, as you can see from the chart above, there's still more work to do to increase the number of salmon returning to Idaho.

Rusty Bentz Biography

My interest in steelhead began at age four when I often tagged along after my father while he rode for cattle. He always had time to wrangle me a horse and I almost always wanted to go. Our ranch encompassed the White Bird Creek drainage and from about the 20th of April until around the 12th of May steelhead were spawning in White Bird Creek. My dad always watched carefully for them and for the next 12 years so did I. The most important thing I learned was that there was very little of the creek that was suitable spawning habitat, probably less than 3%.

While in college my brother and I wanted to see the North Fork of the Clearwater River before it was flooded by Dworshak dam. We had a small rubber raft and while passing an area above Grandad Bridge we found the remnants of a jet boat that Potlatch Forest Industries had sank that spring (1966) on their annual log drive. We returned the following weekend and salvaged an inboard engine and a jet pump. The following spring we built our first jet boat and it had a large impact on our lives. Darell went on to start Bentz Boats.

In the spring of 1969 after coming home from college, I guided friends and a few clients with our original boat for spring chinook below White Bird. I keep a daily diary which records that we caught a total of 40 salmon. It was my first introduction to nitrogen disease. A large majority of the fish had sores covered by white fungus, mostly on their heads. It had to be devastating on the smolts and we only had 1 year in the remainder of the 20th century that we could have a season in Idaho for spring chinook.

By then I was addicted to fishing for steelhead and salmon. With our jet boats we explored the Snake River to Hells Canyon Dam, 200 miles up the Salmon River to the mouth of the Middlefork, and the Clearwater River with its tributaries, the North Fork, the Selway and the Lochsa.

In 1975 I bought an airplane and found another venue for exploring. The vast Idaho back country became accessible. In 1983 I flew my Cessna 185 to Alaska to go Dall sheep hunting. It was on that trip that my eyes were opened to the effects of glaciation. Starting in Northern Idaho and all the way north through western Canada and Alaska were wide valleys formed by glaciers with meandering streams. The majority of the stream bed had ideal sized spawning gravels, something I found lacking in many of the Idaho streams except for some high meadows. I returned a number of times to Alaska with my airplane and explored a number of rivers; the length of the Columbia, the full length of the Frazier River, the Thompson, the Chilcotin, the Skeena and its various tributaries, the Stikine, the Yukon, the Susitna, the Talkeetna, the Nenana, the Tanana, the Chena, the Newhalen, and the Nushagak. I also explored at least a section of each one of them with a power boat. They are all salmon bearing streams. I also did a 13 day float trip on the Sheenjek River north of the Arctic Circle and a 2000 mile jet boat trip down the length of the Mackenzie River and through the Northwest Passage to the Coppermine River up to Bloody Falls. All of those rivers in Canada and Alaska have great spawning habitat.

For 40 years I owned and operated a fence and erosion control company. We worked many Corp of Engineer projects including almost all of the Corp fish hatcheries in the Snake River Basin.

Since 1999 I have had an Idaho Outfitters and Guides license to take steelhead and salmon fishermen. My brother and I built a fishing lodge 17 miles up the Salmon River from its mouth in 1991 and still operate it today. I can honestly say that I still get that same excited feeling when a salmon or steelhead gets on the line as when my dad first showed me spawning steelhead in White Bird Creek.