

MYTHBUSTERS #7

Public Power Council Fish and Wildlife Committee *Revealing Fish and Wildlife Myths*

MYTH: *Salmon and steelhead in the Columbia River are going extinct.*

THE FACTS:

- Salmon and steelhead counts in the Columbia River are higher now than when fish were first counted at Bonneville Dam in 1938.
 - ⇒ Since 2000, average fish passage at Bonneville Dam has been over 1 million fish each year. Less than 500,000 fish passed the dam when it was built in 1938.
 - ⇒ Federal agency studies have shown wild salmon and steelhead numbers increasing since the 1990s.
- Many Endangered Species Act-listed salmon and steelhead have improved since they were listed in the 1990s.
 - ⇒ Snake River sockeye salmon are returning in larger numbers than observed since 1968.
 - ⇒ Summer chinook have tripled in population since the 1980s, increasing from 20,000 to over 60,000 fish in 2000.
- State fish and wildlife agencies are forecasting larger salmon and steelhead returns in 2009 than observed in 2008.

What arguments are used to support this myth?

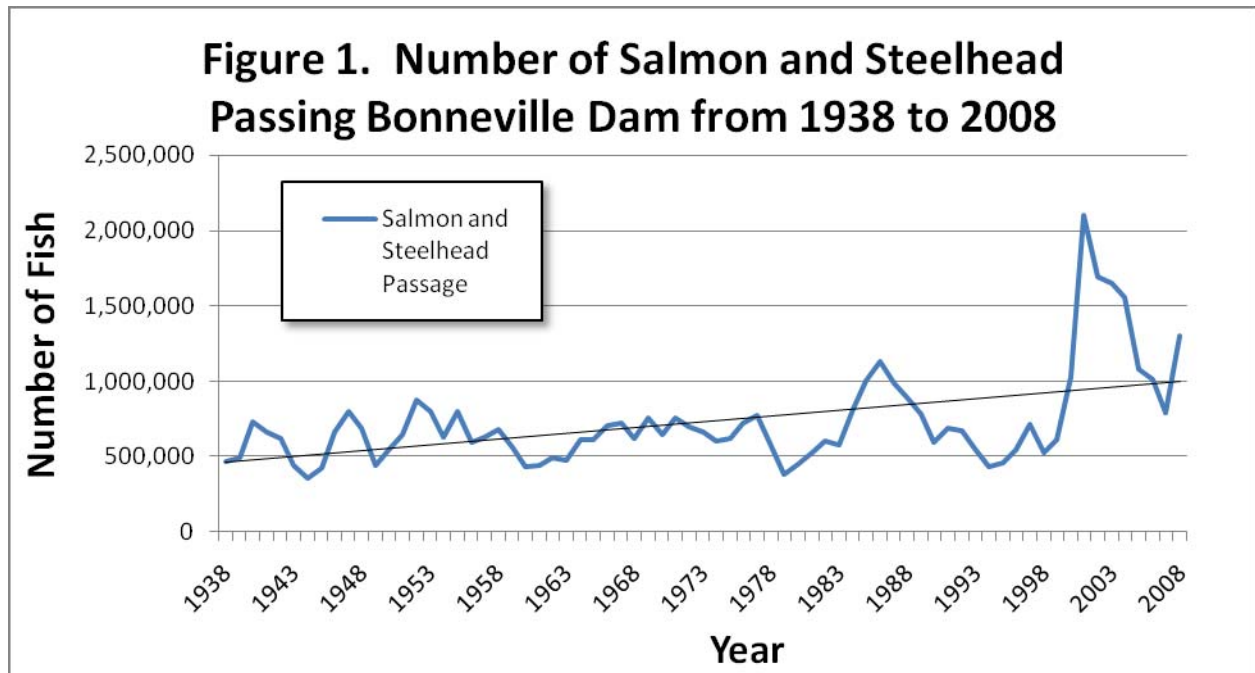
- **Salmon in the Columbia River are not returning in numbers comparable to historic highs.**
 - ⇒ **Counter:** Although salmon populations are lower than historic highs observed in the 1880s, before large scale human development, current conservation and protective measures, including improvements at dams are resulting in an increased number of salmon in the Columbia River since the 1990s.
- **Columbia River salmon will be extinct by 2017.**
 - ⇒ **Counter:** This conclusion was based on a study released in 1999 by Trout Unlimited. This study was not peer reviewed, contained faulty assumptions in the way fish runs are counted and assumed the poor ocean conditions at the time would persist in the future.
- **The increased salmon runs are only made up of hatchery fish, and wild fish populations are not improving.**
 - ⇒ **Counter:** While hatchery fish comprise a majority of the adult fish returning back to the Columbia River basin, both hatchery and wild fish populations have improved significantly since the 1990s.

What this means:

- With both wild and hatchery adult salmon and steelhead from the Columbia River Basin trending up in numbers, the risk of near term extinction is reduced.
- Improvements and better practices are working; improvements in dam operation and configuration have increased survival of fish passing through the federal hydrosystem, land-use practices have been improved and create better spawning and rearing habitat in some tributaries, and hatchery programs have been modified to reduce impacts on wild fish.
- Long term survival of these populations is dependent upon continued improvement of ocean conditions, reduced harvest of wild fish and adequate protection of available habitat.

What are the supporting arguments for these facts?

- 1. Salmon counts in the Columbia River are higher now than they were when fish were first counted at Bonneville Dam in 1938.** The states began counting the number of salmon and steelhead entering the Columbia River when Bonneville Dam was constructed in 1938. The number of fish passing over the dam remained constant from this time through the 1980s. After improved conservation measures and more favorable ocean environments, the population of fish passing Bonneville Dam has doubled to over 1 million each year. Figure 1 illustrates the population of salmon and steelhead passing Bonneville Dam from 1938 to 2008. The trend line in Figure 1 illustrates that the average population of fish passing Bonneville Dam has increased from less than 500,000 fish per year to over 1 million fish per year.



Data courtesy of:

- WDFW and ODFW 2000. Status Report: Columbia River Runs and Fisheries 1938 - 2000
- University of Washington, School of Aquatic & Fishery, Columbia Basin Research Sciences - <http://www.cbr.washington.edu/dart/dart.html>

The ODFW and WDFW issue annual reviews and forecasts of fish populations returning to the Columbia River. The following are excerpts from these documents (ODFW and WDFW 2008, 2009).

Upriver spring chinook: 2000-2008 run sizes improved substantially, with an annual average return of 214,300 adults.

Summer chinook: The average run size between 2000 and 2007 was 60,900 adults, which was three times greater than the average run size of the 1980s and four times greater than the average run size of the 1990s.

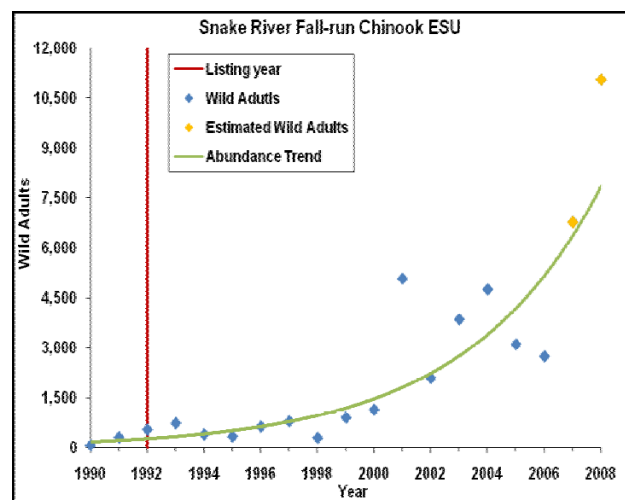
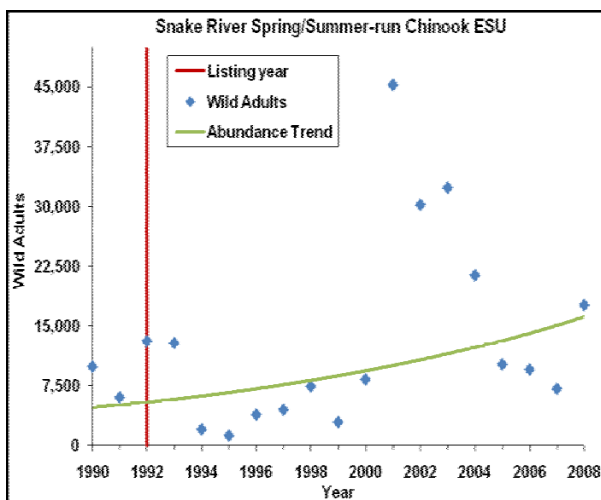
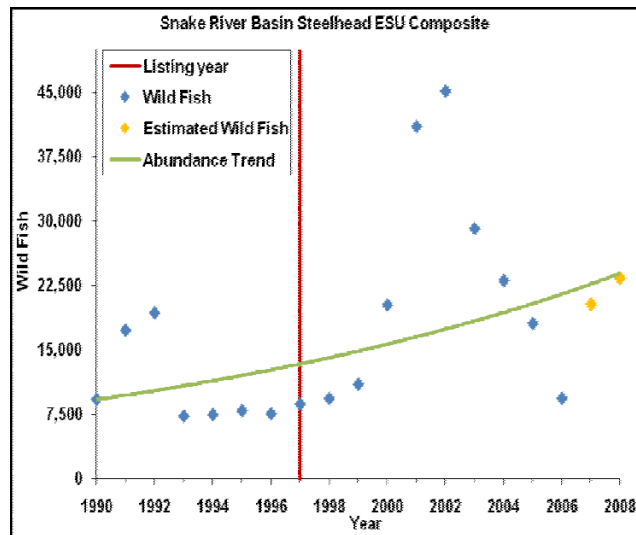
Snake River sockeye salmon: The 2008 return of sockeye to the Columbia River of 214,500 adults was the largest return since 1959.

Snake River fall chinook: Since 2003, Snake River fall chinook returns have averaged over 2,500 fish, which is the interim ESA recovery goal for this stock.

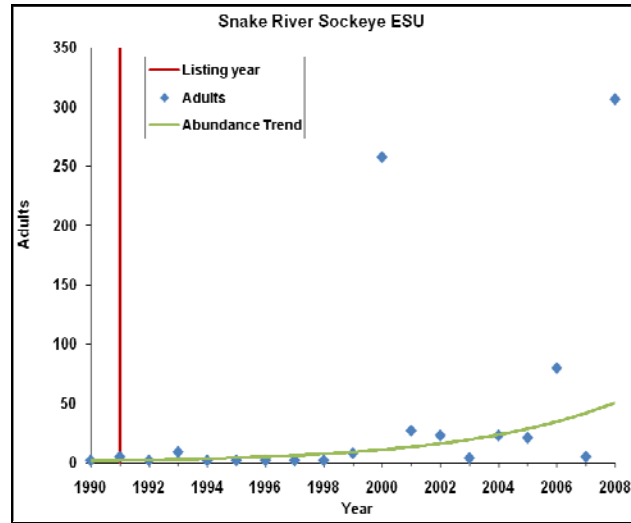
2. Endangered Species Act-listed wild salmon and steelhead numbers have significantly improved since they were listed in the 1990s. Several salmon and steelhead populations from the Columbia River were listed under the Endangered Species Act (ESA) in the 1990s.

The federal agencies recently summarized the abundance of ESA-listed wild salmon and steelhead stocks in the Columbia River. The following graphics illustrate the abundance of these populations through 2008. Data was collected from the regions fish and wildlife managers and specific data references are contained in Appendix 1 (Fisher 2009).

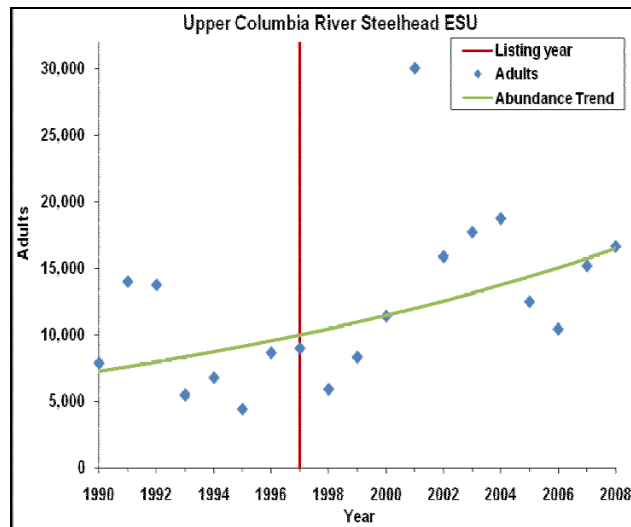
- Abundance Trends for ESA-Listed Wild Columbia and Snake River Chinook Salmon Populations**

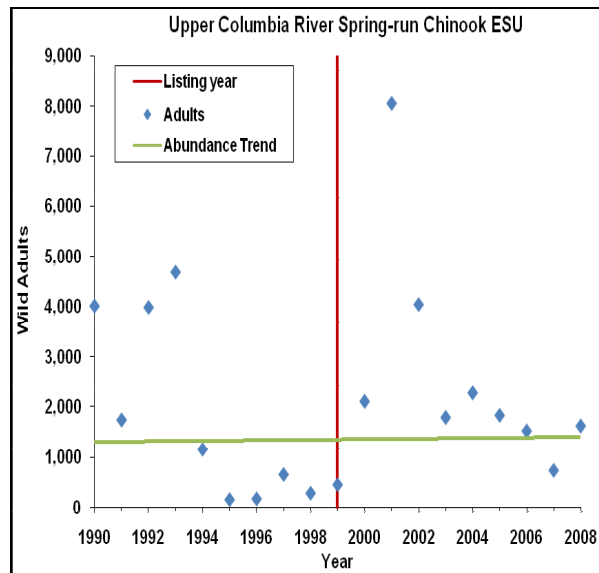
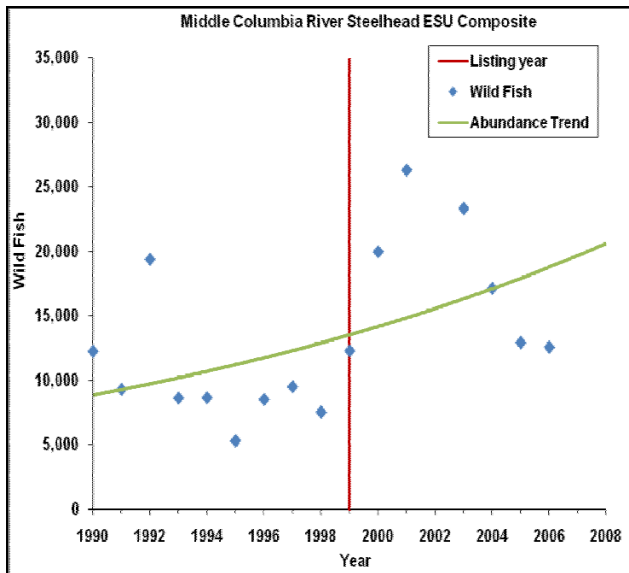


- Abundance Trends for the ESA-Listed Wild Snake River Sockeye Salmon Population



- Abundance Trends for ESA-Listed Wild Columbia and Snake River Steelhead Populations





3. **2009 forecasts predict adult salmon and steelhead returns of ESA-listed fish are continuing to increase.** In general, forecast returns are larger than those observed in 2008. The following was summarized from Columbia River Compact Fact Sheets issues by the States of Oregon and Washington.

Summer Chinook--24% greater than 10-year average:

- Over 70,000 are expected to return which is 24% greater than the recent 10-year average.

Fall Chinook--60% higher than 10-year average:

- Over 500,000 fall chinook are expected to return on 2009. This is greater than the 400,000 that returned in 2008 and about 60% higher than the 10-yr average.
- The WDFW expects about 6,600 ESA-listed wild Snake River fall chinook will enter the Columbia River in 2009. This is significantly greater than the returns seen during the 1990s.
- The projected returns for wild Snake River fall chinook are also greater than the NOAA-Fisheries interim ESA recovery target of 2,500 wild adult fish.

Sockeye--2 times the observed over last 10 years:

- The forecast for the 2009 sockeye run is 183,800 adults to the Columbia River. The Snake River sockeye return for 2009 is forecast at 600 fish.
- The forecasts for the both Columbia and Snake Rivers are higher than 2008 and are at least two times the average observed annually over the last 10 years.

Coho Salmon--Third highest return since 1986:

- In 2009, the WDFW has forecast that 1,042,400 adult coho will enter the Columbia River, significantly more than the 540,000 adult fish that returned in 2008.
- The 2009 forecast is one of the largest recorded runs of coho into the Columbia River, rivaling the most recent large run in 2001 and near the record return of 1.4 million adults in 1986.

Estimates that salmon and steelhead are going to go extinct in the near future are false.

Salmon and steelhead populations throughout the Pacific Northwest have declined significantly since large scale human development began in the 1880s. Logging and commercial fishing were the primary factors for this decline in those early years. While human development has continued to impact salmon runs, both wild and hatchery populations of salmon and steelhead from the Columbia River Basin originating above Bonneville Dam have been growing due to improvements in dam operation and configuration, improvements in land-use practices, improvements to hatchery programs and improved ocean conditions.

Recent statements that salmon in the Columbia River are going extinct by 2017 appear to be based on a report issued by Trout Unlimited in 1999. The conclusions in this report have been since refuted. The author only focused on Snake River spring/summer chinook and chose not consider fall chinook or steelhead in the study; all three stocks have since increased in abundance. Additionally, the analysis was over a very short time period between 1985 and 1990, years which saw very low spring chinook adult returns. The authors also assumed the poor ocean conditions in these years would continue in the future. Ocean conditions have improved since then resulting in significantly higher adult fish returns for all of these stocks.

References:

Columbia River Compact Fact Sheets - <http://wdfw.wa.gov/fish/crc/crcindex.htm>

Fisher, Tim 2009. Fisher Fisheries. Originally prepared for FCRPS Action Agencies' 2007 Comprehensive Analysis and updated March 2009.

ODFW and WDFW 2008. 2008 Joint Staff Report: Stock Status And Fisheries For Fall Chinook Salmon, Coho Salmon, Chum Salmon, Summer Steelhead, And White Sturgeon Joint Columbia River Management Staff. Oregon Department of Fish and Wildlife and Washington Department of Fish and Wildlife

ODFW and WDFW 2009. 2009 Joint Staff Report: Stock Status And Fisheries For Spring Chinook, Summer Chinook, Sockeye, Steelhead, And Other Species, And Miscellaneous Regulations, Joint Columbia River Management Staff Oregon Department of Fish & Wildlife Washington Department of Fish & Wildlife.

WDFW 2009. Preliminary coho salmon forecast for the Columbia River.

Appendix 1: References for Salmon and Steelhead Abundance Graphs. (Fisher 2009)

Detailed description of information sources, methods, and assumptions used to estimate the adult or total (adult and jack) spawner return run to selected Columbia and Snake River tributaries Datasets used for the calculations are highlighted with green shading.

ESU No. / ESU / Stock		
Attribute		
Time period	Information sources	Methods, assumptions, or comments
Middle Columbia River Steelhead		
Composite Stocks		
Wild or total adults		
1985-2006/07-08	Deschutes – ODFW; John Day – NOAA Fisheries; Umatilla – Umatilla Tribe; Touchet – WDFW (Joe Bumgarner, pers.comm.); Walla Walla – NOAA Fisheries; Fifteenmile – NOAA Fisheries; Yakima – Yakima-Klickitat Fisheries Project	Composite of 7 stocks (below); 4 BRT stocks (Walla Walla, John Day, Fifteenmile, Umatilla) and Deschutes, Touchet, and Yakima. Most datasets start before 1985 and are complete through 2006. Unable to locate post-2005 data for two stocks (Walla Walla and Fifteenmile). Note: SASI (WDFW) stock abundance estimates, while kept up to date and are fairly inclusive of most stocks, were not used since their methods are undocumented and in many cases the estimates are inconsistent with other available estimates (this applies to almost all WA stocks for all ESUs as well).
Snake River Sockeye		
Lower Granite Dam		
Total run		
1980-2008	PSC Chinook Technical Committee	2009 Joint Staff Report: Stock Status And Fisheries For Spring Chinook, Summer Chinook, Sockeye, Steelhead, And Other Species, And Miscellaneous Regulations. Table 16. Estimated Number of Sockeye Entering the Columbia River, Mainstem Harvest, and Escapement, 1980-2008.
Various Points		
Total run		
1975-2002	NOAA Fisheries Biological Recovery Team. 2003 IDFG Reports (Sawtooth Hatchery); K. Barnas	Sawtooth Hatchery trap adult counts
2003-2008	NOAA Fisheries; ODFW & WDFW Compact Reports	Sawtooth Hatchery trap adult counts; 2004 is trap count + adults netted below the weir; 2008 count is incomplete but run had concluded at LGR.
Snake River Basin Steelhead		
Lower Granite Dam		
A & B Run Summer Steelhead		
1980-1997	BRT spreadsheet: CRFMP Technical Advisory Committee (TAC)	Estimates of wild adult A & B-run summer steelhead by length class (unknown if by run year or calendar year)
1998-2001	BRT spreadsheet: P. Dygert, NOAA Fisheries, Montlake WA	Estimates of wild adult A & B-run summer steelhead by length class (unknown if by run year or calendar year)
2002-2003	S. Marshall, smarshal@idfg.state.id.us, IDFG Boise, pers. comm. 8/27/2004	Estimates of wild adult A & B-run summer steelhead by length class (by calendar year)
2004-2006	PSC Chinook Technical Committee	2009 Joint Staff Report: Stock Status And Fisheries For Spring Chinook, Summer Chinook, Sockeye, Steelhead, And Other Species, And Miscellaneous Regulations. Table 13: Summer Steelhead Counts By Run Year At Lower Granite Dam With Wild Steelhead Estimates And Goals, 1984-2008.
2007-2008	Estimated from Lower Granite adult count and historical data	Total LGR count * % wild from 1997-2006 (2008 adjusted for % or run complete since run year ends in spring 2009). This method comports well with CTC estimates from 2004-2006).
Snake River Fall-run Chinook		
Lower Granite Dam		
Total wild return over the dam		
1982-2006	BRT updated spreadsheet	Natural run; methods not specified
2007-2008	Estimated from Lower Granite adult count and historical data	Total LGR count * average % natural adults from 1998-2005
Snake River Spring/Summer-run Chinook		
Lower Granite Dam		
Wild adult count		
1980-2008	PSC Chinook Technical Committee	2009 Joint Staff Report: Stock Status And Fisheries For Spring Chinook, Summer Chinook, Sockeye, Steelhead, And Other Species, And Miscellaneous Regulations. Table 9. Estimated Numbers of Adult Snake River Wild Spring/Summer Chinook Entering

ESU No. / ESU / Stock		
Attribute		
Time period	Information sources	Methods, assumptions, or comments
Upper Columbia River Steelhead		
Priest Rapids Dam		
Total adults counted at dam		
1974-2008	Priest Rapids Dam adult count	From Columbia River DART website; used since wild steelhead estimates not updated by NOAA Fisheries since 2003.
Upper Columbia River Spring-run Chinook		
Priest Rapids Dam		
Total adults counted at dam		
1980-2008	Priest Rapids Dam adult count	2009 Joint Staff Report: Stock Status And Fisheries For Spring Chinook, Summer Chinook, Sockeye, Steelhead, And Other Species, And Miscellaneous Regulations. Table 8. Estimated Numbers of Adult Upper Columbia Wild Spring Chinook Entering the Columbia River, 1980-2008