



Snake River Dams

--FACTS--

Navigation

- The Columbia Snake River System is a 465-mile river highway that provides farmers and other producers as far as the Midwest access to international markets.¹
- The Snake River experienced a 34% increase in cargo movement from 2012 to 2014.²
- 4,361,000 tons of cargo were barged on the Snake River in 2014. It would have taken 43,610 rail cars to carry this cargo, or over 167,000 semi-trucks.³
- Barging is the most efficient and environmentally friendly method for moving cargo.⁴
- Barging depends on the navigation locks at the Snake River dams for access to the federally maintained channel.
- The Columbia Snake River System is a unified transportation network providing local and national benefits. The 18 deep water and inland ports handle marine commerce serving farmers as far inland as the Midwest.
- Barging disciplines rail and trucking costs, ensuring that the price of moving goods in the Pacific Northwest remains competitive.⁵
- A typical four-barge tow moves the same amount of cargo as 140 rail cars or 538 trucks.⁶

Agriculture

- The Columbia Snake River System is the top wheat export gateway in the United States.⁷
- The Snake River dams and navigation locks allow inland farmers access to international markets.
- In 2014, nearly 10% of all U.S. wheat exports moved through the Snake River dams (9.5%)⁸
- It would take at least 137,000 semi-trucks or 23,900 railcars to transport the wheat which moves by barge on the Snake River.⁹
- Over half of the wheat barged on the river is locked through one or more of the Snake River dams.¹⁰
- The primary wheat crop grown in the Northwest, soft white wheat, is a highly sought after product worldwide and the Pacific Northwest grows the best in the world.
- Over \$500 million has been invested into Columbia River grain export terminals, and barge unloading capacity has been expanded by over 21% in expectation of increased sales in Asian markets. The current rail capacity in the Pacific Northwest is insufficient to meet current as well as projected wheat transportation needs, and barging remains the most efficient way to move wheat to the export terminals.¹¹
- Over 50% of Idaho's wheat is exported through the Columbia Snake River System.¹²

¹ [Pacific Northwest Waterways Association, 2017](#)

² [Waterborne Commerce of the U.S., 2014](#)

³ [Waterborne Commerce of the U.S., 2014](#)

⁴ [Texas Transportation Institute, Texas A&M University, for the U.S. Maritime Administration, 2008](#)

⁵ [Study by economist Eric Fruits, PhD., 2013](#)

⁶ [Pacific Northwest Waterways Association, 2017](#)

⁷ [U.S. Department of Agriculture, 2016](#)

⁸ [Waterborne Commerce of the U.S., 2014](#)

⁹ [Waterborne Commerce of the U.S., 2014](#)

¹⁰ [U.S. Wheat Associates, 2016](#)

¹¹ [U.S. Wheat Associates, 2016](#)

¹² [Idaho Wheat Commission, 2007](#)

Energy

- The total output of the Snake River Dams is 3033 MW, which is enough energy to power 1.87 million homes. This output is also a vital aspect of the wind power grid. Since the wind does not blow constantly, the energy output of the dams can be increased or decreased by hundreds of megawatts in a few seconds to match the variability of the wind.¹³
- According to the Northwest Power and Conservation Council, removal of the Snake River dams would increase “the carbon emissions, cost, and risk of the power system. [...] Small increases in conservation and renewable resources occur in this scenario, but the primary replacement of the dams is provided by changes in the construction of new gas-fired generating plants, changes in the operation of existing and new generating plants, and changes in net exports. Existing natural gas-fired and coal-fired generation is used more intensively.”¹⁴
- Cost to replace lower Snake River dams’ capacity and energy while maintaining system reliability with natural gas: \$274 million to \$372 million per year.¹⁵
- The total cost to breach the dams would be \$1.3 billion to \$2.6 billion.¹⁶
- The dams also work in concert with current renewables, particularly wind and solar, to balance the load through the grid when renewables are not producing.
- In 2013, hydropower produced 58% of the Northwest’s energy profile while renewables were only 6% of the mix. Another 15% was coal and 17% was natural gas.
- It would take 2 nuclear plants, 3 coal fired plants, or 6 natural gas plants to replace the Snake River dams.

Fish and the Environment

- 2014 continued a 20-year trend of record breaking salmon returns past the Snake River dams. Major improvements in fish ladders, dam design, optimized river flow, and habitat restoration (all paid for by revenues from the Snake and Columbia River dams) have resulted in consistent improvements to salmon returns. 2014 saw the best year in history for salmon returns.¹⁷
- Dam investments have resulted in improved fish returns and a 25 year sustained increase in salmon populations. 2015 adult returns past McNary dam are the highest returns recorded since the dam was completed in 1957.
- The U.S. Army Corps of Engineers has spent \$800 million in fish passage improvements on the dams on the Columbia and Snake Rivers. This has increased downstream salmon migration survival rates to 1960 levels, before the Snake River dams were constructed.¹⁸
- Juvenile fish survival rates past the eight federal dams were between 95% and 98% in 2014.¹⁹
- Between 2002 and 2011, average wild Chinook salmon populations have more than tripled, and average wild steelhead populations have doubled.²⁰
- The time it takes fish to pass through the dams is also the quickest it has been since the dams were installed, and continues to decrease with each new improvement.²¹

¹³ [Bonneville Power Administration, 2009](#)

¹⁴ [Northwest Power and Conservation Council, Sixth Northwest Conservation and Electric Power Plan, 2010](#)

¹⁵ [Bonneville Power Administration, 2016](#)

¹⁶ [Bonneville Power Administration, 2016](#)

¹⁷ [\(US Army Corps of Engineers and Bonneville Power Administration, 2014\)](#)

¹⁸ [\(Bonneville Power Administration, 2010\)](#) and [\(US Army Corps of Engineers and Bonneville Power Administration, 2014\)](#)

¹⁹ [\(Bonneville Power Administration, 2010\)](#) and [\(US Army Corps of Engineers and Bonneville Power Administration, 2014\)](#)

²⁰ [\(US Army Corps of Engineers and Bonneville Power Administration, 2014\)](#)

²¹ [\(US Army Corps of Engineers and Bonneville Power Administration, 2014\)](#)

Fish and the Environment *(continued)*

- The Snake River dams do not block access for fish, as was the case with the Condit, Elwha, and Glines Canyon dams. The Snake River dams have state of the art fish passage which allows over 97% of juvenile salmon to safely migrate past each of the dams.
- NOAA Fisheries - responsible for protection of listed salmon - says that survival rates through the hydro system are now approaching levels seen in rivers without dams.
- In 2014, over 2.5 million adult salmon and steelhead passed Bonneville Dam, setting new overall record levels since counts began in 1938. Of the fish returning in 2014, the sockeye, fall chinook, and coho were record or near-record runs, including the Snake River stocks.
- There are now more fish in the river than at any point since 1938, when the first dam, Bonneville, was put in and populations continue to increase.
- The level of collaboration on the river system is at an all-time high. Cooperation between the federal agencies, the States of Washington, Idaho and Montana, and sovereign tribes is producing real results for listed fish runs. The only entities who are left as the plaintiffs in the FCRPS BiOp lawsuit are the environmental groups, the Nez Perce tribe, and the State of Oregon.
- The Obama administration took a hard look at the Federal Columbia River Power System (FCRPS) Biological Opinion (BiOp) after taking office in 2009. The administration put their scientific and political stamp of approval on the plan in 2010, which includes the current approach to the Snake River dams. The administration added particular triggers, like studying dam breaching, if particular fish runs start to decline. The Obama administration recognizes that breaching the Snake River dams is an extreme and risky measure, and one only to be pursued if current actions are not working. Rather than declining, most runs are instead showing record results.
- 2015 adult returns past McNary dam are the highest returns recorded since the dam was completed in 1957.

Orcas (Killer Whales)

- The Southern Resident Killer Whale (SRKW) population is currently estimated at about 80 whales, a decline from its estimated historical level of about 200 during the late 1800s.
- Beginning in the late 1960s, the live-capture fishery for oceanarium display removed an estimated 47 whales. The orcas were penned, hauled out of the ocean, and taken to aquariums. This caused an immediate decline in Southern Resident numbers. Washington became the first state in the nation to stop this practice in the mid-1970's, but not before SRKW population was reduced by one third. The population fell to about 67 whales by 1971.
- By 2003, the population increased to 83 whales. Due to its small population size, this segment of the population was listed as endangered under the Endangered Species Act (ESA) in 2005 and designated critical habitat in 2006.²²
- Over the last 28 years there has been an average 0.4 percent increase per year for the population. In 1982 there were 78 whales and in 2010 86 whales were counted in the summer census.²³
- Fraser River Chinook salmon make up the bulk of the whales' summer diet while they are in the Salish Sea. They also consume Chinook from the Columbia, Sacramento, Klamath, and other coastal river systems.²⁴

²² [NOAA National Marine Fisheries Service](#)

²³ [2010 Southern Resident Killer Whales 5-year Review: Summary and Evaluation, NMFS](#)

²⁴ [2014 Southern Resident Killer Whales 5-year Review: Summary and Evaluation, NMFS](#)

Orcas (Killer Whales) *(continued)*

- Their range during the spring, summer, and fall includes the inland waterways of Washington state and the transboundary waters between the United States and Canada. Relatively little is known about the winter movements and range of the Southern Resident stock. However, in recent years, they have been regularly spotted as far south as central California during the winter months and as far north as Southeast Alaska, through our Northwest Fisheries Science Center's satellite tagging work.²⁵

Methane

- Methane production in water occurs naturally, but requires a specific environment that doesn't exist in the Snake River reservoirs.
- Methane is produced in bodies of still, warm water that support high levels of dense water vegetation. Deep bodies of water with a large difference between surface and bottom temperature are also necessary. When the vegetation dies and sinks to the bottom of the reservoir its decomposition can reduce the oxygen in the water. This is known as an "anoxic" environment and will produce methane.
- Vegetation and algae growth in the Snake River reservoirs is not high enough to produce the necessary plant matter for decomposition because the water is not warm enough to support either large growth or the necessary decomposition environment.
- While it may not seem fast to casual observers, the current through each reservoir is more than enough to mix the water, circulate oxygen and prevent a large temperature gradient from forming.
- Because the Snake River dams do not form large, still, deep reservoirs, they produce very little methane.