



# How Spill Can Help Salmon

Without spill, salmon populations in the Pacific Northwest must run a dangerous gauntlet through power turbines to make it through their traditional migration and spawning patterns. Many are killed or injured in the process, and because of this, populations are now well below historical averages. Efforts to use spill to let young salmon travel over dams, rather than through them, have a proven record of success. But spill levels still aren't high enough, and more is needed for salmon populations to recover.

## The Situation

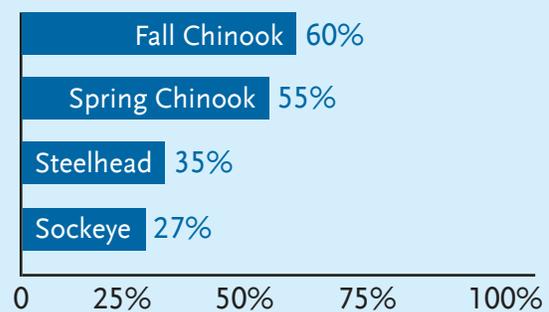
It's no secret that salmon populations in the Pacific Northwest are on the decline. In 2017, a coastal survey by the National Oceanic and Atmospheric Administration found the lowest count of juvenile salmon in any of the past 20 years. And across the board, [adult fish counts at Bonneville Dam are all well below the 10-year average](#).

The crux of the problem is that dams on the Snake River can block or impede migration, and young Chinook salmon often get injured or killed when they travel through turbines. Dams also alter the rate of flow of rivers, sometimes flooding spawning habitat or creating pools where predators to salmon can thrive.

When young salmon and steelhead travel from Idaho, they must pass through eight dams on the Columbia and Snake rivers. And each dam they pass through does more damage to the fish.

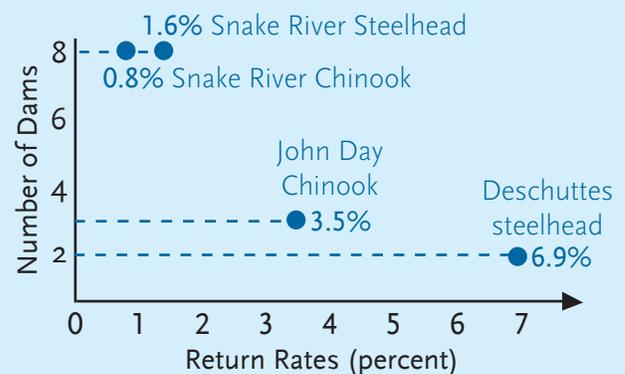
A survey by the Northwest Sportfishing Industry Association found that [the more dams fish pass through, the lower the rate of adult return](#). In that

**Declining Populations**  
2017 adult fish counts at Bonneville Dam as percentage of 10 year average



study, Deschutes River wild steelhead, who pass two dams, have a return rate of 6.9%. John Day River wild Chinook, who pass three dams, have a return rate of 3.5%. And Snake River wild steelhead and Chinook who pass through all eight dams have a return rate of 1.6 and 0.8%, respectively.

**The Compound Effect**  
More dams equals lower rate of adult return



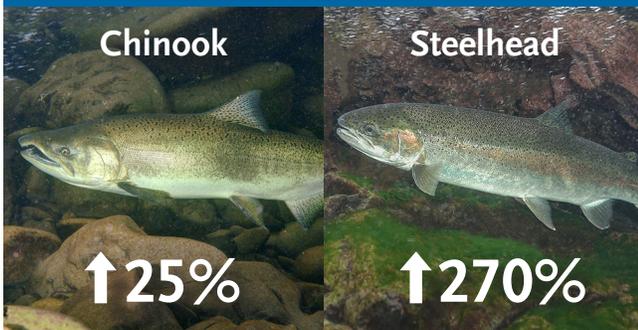
## What's Needed

The easiest solution to the problem is spill, which is the term for allowing salmon to travel over a dam by spilling water over the top, rather than through the turbines. It's a practice that keeps baby salmon out of danger so the adults can return in abundance.

In 2006, federal courts ordered the Army Corps of Engineers to spill water over the Lower Snake River dams in the spring and summer months, when young fish are migrating to sea. But the amount of spill allowed at those dams has run into complications with state water laws, and more spill is needed to truly help salmon populations return.

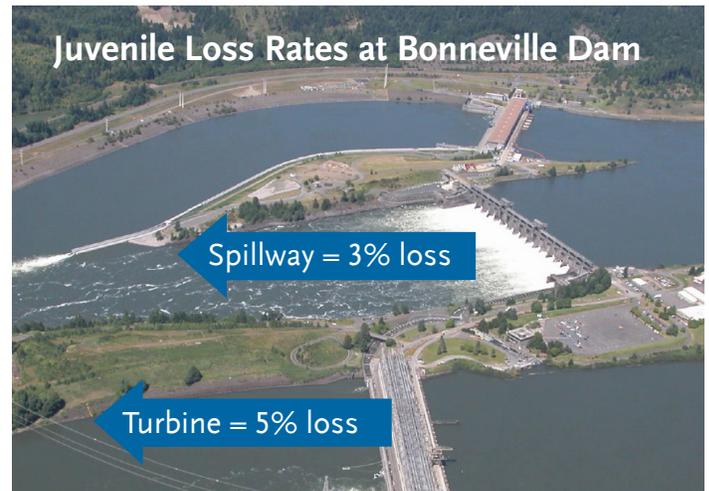
Yet even with the smaller water increases, fish populations have shown improvement, *especially in drought years*. If you compare populations from the 2001 Pacific Northwest drought with the 2015 drought, after the court ordered spill was introduced, **25% more yearling Chinook and more than 100% more steelhead survived in drought years.**

Juvenile survival increased significantly in drought years with aid of increased spill



Efforts have also run into opposition from the Bonneville Power Administration (BPA) and other groups because spill causes a small dip in power generation and could potentially raise power rates for customers. But **in 8 out of 10 years BPA has had a power surplus in spring.**

In 2017, U.S. District Court Judge Michael Simon ordered dam managers to develop a plan to spill more water on the Columbia and Snake rivers - as much as the law allows. And the Army Corps of Engineers has submitted its plan and will spill more water through the dams starting in **April 2018.**



## Why Spill?

- ♦ Increasing spill to the right levels could double returns of spring Chinook, sockeye and steelhead, which **benefits local tourism and fishing industries.**
- ♦ Spill works. Juvenile fish that pass over spillways on the Snake and Columbia river have **higher smolt to adult return rates** than those that pass through turbines. Fish that pass through spillways also have higher first year ocean and estuary survival.
- ♦ Southern resident orcas off the mouth of the Columbia river, which were listed as endangered in 2005, also feed off the salmon. So increasing salmon populations can **improve and help orca populations.**
- ♦ Spill requires no extra water from farmers or cities. It gets fish to the ocean faster. It's safe for baby salmon. And it has **minimal impacts to the regional power supply and ratepayers.** BPA also has the ability to declare a power emergency, if problems occur, to provide some flexibility in the system.
- ♦ Increasing spill is key to any recovery effort that doesn't include breaching dams on the snake river. **Without spill, recovery of fish populations will not be possible.**