



Removable Spillway Weirs

A Removable Spillway Weir (RSW) is a dam passage improvement that allows migrating salmon to enter a dam's spillway close to the surface of the water and exit by way of a gradually slowing discharge chute. This process does not subject the salmon to the potentially fatal high pressures, rapid pressure changes and high velocities they typically face when they have to dive 50 feet or more beneath the surface of the water to reach conventional dam passage entrances.

they are more prone to predation. The RSW's superior ability to attract salmon further augments salmon survival by decreasing the amount of time that salmon spend figuring out how to navigate a dam. This strengthened salmon survival is achieved with about one-seventh of the water used in traditional spill methods. The RSWs at Ice Harbor (installed in 2005) and Lower Granite dams are expected to save BPA a combined \$25 million annually by using water more efficiently. This reduced spill is also



Water flowing at the top of the wier.



Looking down the wier from the side.



Looking directly down the wier.

The RSW is 70 feet wide by 105 feet high. It weighs almost 2 million pounds and costs \$20 million. It is "removable" because it can be lowered during flood conditions to keep areas downstream from flooding.

In 2001, an RSW was installed at Lower Granite Dam. Tests involving chinook salmon found that fish passing via the RSW had a 98 percent survival probability, whereas fish that passed through the spillway had only a 93.1 percent survival probability. Because diving to reach conventional spillways is contrary to the natural preference of migrating salmon, they often spend extra time "backed up" behind a dam where

advantageous for salmon because it lowers the amount of total dissolved gas in the water. All of these benefits make the RSW a win-win for salmon sustainability and low energy rates for Northwest ratepayers.

McNary and John Day dams are future candidates for RSWs as is, potentially, every federal dam in the Columbia River Basin as future tests are undertaken to determine precisely how much RSWs aid salmon migration.

