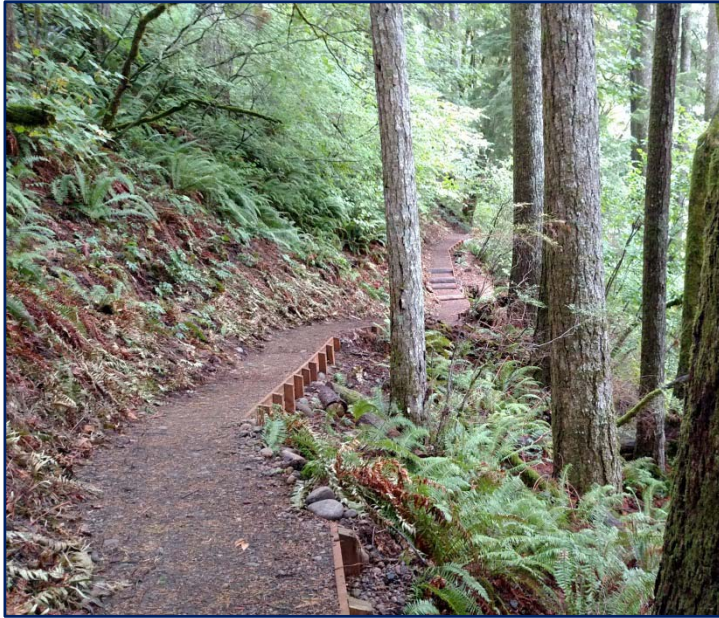




**Project Updates
LRC Meeting
Oct. 21, 2015**

Beaver Bay to Cougar Trail



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Swift Day Use Facilities



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Yale Bridge Boat Access Site



Yale Bridge Boat Access Site



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Reservation System Change



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IP Road Trail Project



I&E Signage

Chinook Salmon

Chinook salmon are the largest species of salmon. Starting out as tiny eggs, they can grow to be over 3 feet long and weigh over 40 pounds!



Salmon Reintroduction Project

Big (and small) things are happening to restore historic salmon runs to the upper Lewis River Basin.



Habitat restoration and transporting fish past dams have gone a long way to help reintroduce salmon to the Lewis River. The reintroduction project completes a cycle that was interrupted in the 1930s with the construction of the Lewis River dams and reservoirs.

The Lewis River salmon reintroduction project begins at Merwin Dam. Returning adult fish are collected at an upstream trap and transported by truck to Swift Reservoir where they can access their historic spawning and rearing habitat in the river's tributaries and upper reaches.

The juvenile salmon produced in these tributaries are captured at the Swift Floating Surface Collector in Swift Reservoir, trucked downstream and released on the lower Lewis River, near Woodland, where they have a clear path to migrate to the Pacific Ocean down the Columbia River.

After Mount St. Helens

The US Forest Service has completed several aquatic habitat restoration projects, funded by PacificCorp, in the Upper Lewis River watershed. Stream regulation has been implemented throughout the watershed and structures composed of large woody material have been strategically placed along the waterways to provide cover and nesting habitat for fish. These projects have helped to restore sections of the Lewis River and tributaries that were damaged by the Mount St. Helens eruption in 1980. Floods and include an opening side channels. Side channels are important for the rearing of young salmon and provide spawning areas that otherwise have been reduced by vegetation and flooding.



Photo credits top to bottom: Andrew York and Smith (2017); Tracy Allen in stream and releasing trout; Greg Smith, Joe Borch, Ltd., Jeff Ankeny (in pool); PacificCorp (fish in net and carrying truck); PacificCorp releasing smolts; (2017); photo of fish and carrying holder; PacificCorp, unknown; (2017).

- Fish reintroduction is a cooperative effort involving these partners:
- PacificCorp Energy
 - US Forest Service, Central Pacific National Forest
 - Lewis River Aquatic Coordination Committee (WRAC), Idaho Native, Coastal Native Trout, Lewis and Clark
 - Fish Recovery Act, US Fish and Wildlife Service, Idaho Native Trout, Fish
 - Trout, steelhead, city and county, Washington, and Canada (PAC).

Many Descendants

A returning female Chinook salmon can carry more than 4,000 eggs.

There's No Scent Like Home

Transporting fish around the dams along the Lewis River is just part of the efforts to restore salmon to their native runs.

Acclimation ponds help to imprint juvenile salmon with the smells and tastes of their native waters so they can find their way home and return to spawn.

A key component in reintroducing salmon to the Lewis River is ensuring that hatchery reared juveniles (also known as smolts) survive transport from the hatchery to the river and imprint on the natural environment rather than the hatchery where they began. Instead of placing them directly in the river, studies have shown that slowly acclimating the smolts to local water conditions increases survival rates and ensures that when they return as adults the upper river will feel like home.

In all, three acclimation ponds have been constructed upstream from Swift Reservoir. Each year 100,000 Chinook smolts will be held in the acclimation ponds for two to six weeks before being released into the headwaters of the Lewis River.

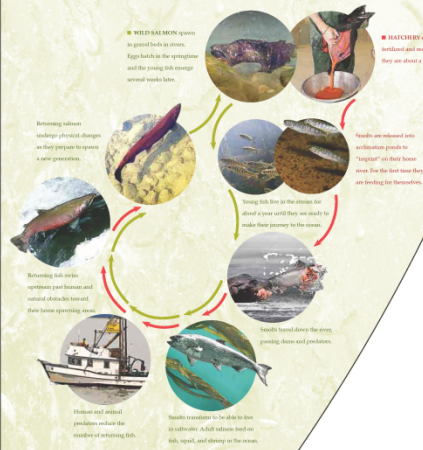


Acclimation ponds allow juveniles time to "imprint" on some of the most productive habitats in the Lewis system.



Acclimation Ponds

Acclimation Ponds are important tools for reintroducing salmonids to the Lewis River because they create a safe and sheltered place for salmon parr to get used to life in the river. Lined with natural rock formations and log structures, these temporary ponds create cover for the parr and—because they make good homes for insects—provide additional food resources. Acclimation ponds also have the added benefit of providing cover and shade for other aquatic animals.



I&E Signage



Merwin Dam

Harnessing the energy of the Lewis river to power the Northwest



Arches: Efficiency in design

Merwin is a combination Arch-gravity dam. Arch dams are curved with the top of the curve facing into the reservoir. The arch helps to resist the massive force of the water that rests against the structure by distributing the load along the entire arch and into the rock foundations along the bottom and into the abutments in the sides of the dam. Arch dams are used because they require substantially less construction material.

Photo credits top to bottom: Merwin Dam: Cory Schott, Sea Reach Ltd.; CFL bulb: cc flickr sundazed; Merwin Dam diagram: Michael Warner. Sea Reach Ltd.; Electrical substation: Merwin Dam spillway: Pacificorp; Merwin Dam aerial: columbian.com




Merwin Hydroelectric Dam

Finished in 1931, Merwin Dam is a gravity arch dam that stands 313 feet high and can generate 136 megawatts of energy, which is enough energy to power over 100,000 homes. **But how does it work?**

The Merwin hydroelectric dam harnesses the power of water moving from the Merwin Reservoir to the river below to create electricity. Water stored in the Merwin Reservoir enters into an intake pipe called a penstock. Each of the three penstocks convey water to a generating unit and spins a bladed wheel called a turbine. The force of the spinning turbine turns a large shaft that is connected to a series of huge electro-magnets. When the magnets move they pass across stationary copper coils to produce electricity! After the water passes through the turbine it is discharged into the river.

Merwin Dam's spillway gates help prevent damage downstream and to the dam itself during periods of high water flow. Five massive gates, each 35 feet tall, regulate the amount of water that is allowed out of the reservoir and into the Lewis River below the dam. Periodically, the reservoir's water level is lowered to allow for inspection and repairs to the spillgates.



Saddle Dam Park Improvements



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Cedar Creek Boat Launch



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Maintenance Project