SALMON IN THE CLASSROOM

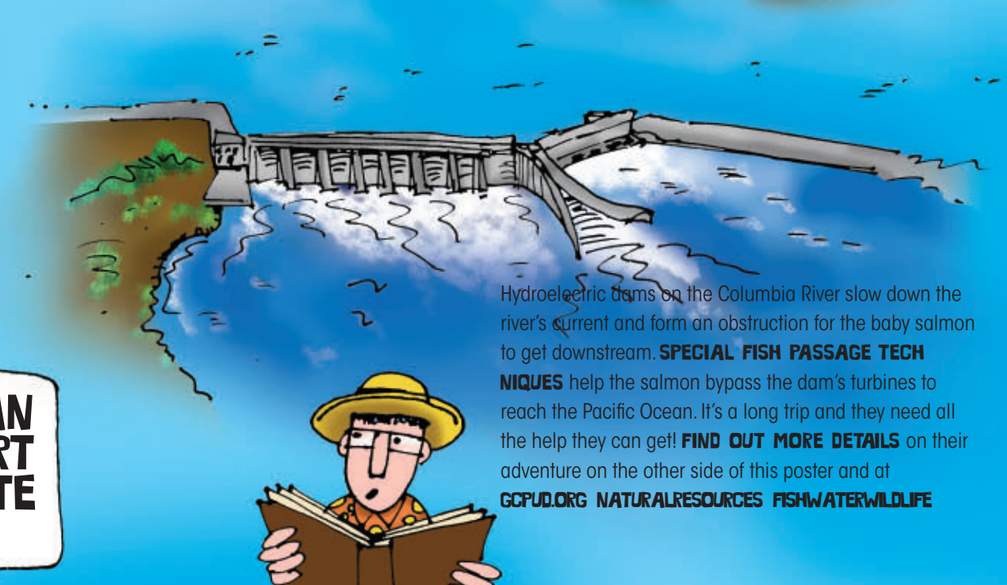
THE LIFE OF A COLUMBIA RIVER SALMON

Grant County PUBLIC UTILITY DISTRICT

Hatching from eggs, baby salmon are called **ALEVINS**. As they grow, they turn into **FRY** and then **FINGERLINGS**... which are about the size of your finger!

As the fingerlings head downstream, they imprint smells of different water bodies to help them return to their home 3-5 years later. On its way to the ocean, many birds (including Caspian Terns) and predator fish (including northern pikeminow) **TRY TO EAT THE YOUNG SALMON**. The fingerlings travel at night to avoid these predators. It's not easy being a baby Chinook!

FOLLOW THE LIFECYCLE OF A CHINOOK SALMON AS IT MAKES ITS WAY TO THE OCEAN AND BACK. JUMP ON IN!



Hydroelectric dams on the Columbia River slow down the river's current and form an obstruction for the baby salmon to get downstream. **SPECIAL FISH PASSAGE TECHNIQUES** help the salmon bypass the dam's turbines to reach the Pacific Ocean. It's a long trip and they need all the help they can get! **FIND OUT MORE DETAILS** on their adventure on the other side of this poster and at **GCPUD.ORG NATURALRESOURCES FISHWATERWILDLIFE**

SALMON IN THE CLASSROOM EDUCATION

THE COLUMBIA RIVER IS LEGENDARY FOR PRODUCING SALMON. SALMON ARE CALLED "ANADROMOUS FISH" GO AHEAD. SOUND IT OUT. WE'LL WAIT... BECAUSE THEY MIGRATE FROM FRESH WATER TO THE OCEAN WHERE THEY MATURE AND THEN RETURN TO FRESH WATER TO SPAWN THE NEXT GENERATION OF SALMON.

What does the life cycle of a Chinook salmon look like?

Spawning takes place in late summer and fall each year. A female Chinook salmon lays up to 4,500 eggs (tell your mom she's lucky she's not a salmon) in a gravel nest called a redd. After the dad salmon fertilizes the eggs, the mom covers the redd with gravel. Doesn't sound too comfortable, does it?

Adult salmon returning to spawn.

The egg hatches into a tiny larvae called an alevin. The alevin has a large, orange yolk sac below its belly which contains a balanced diet of protein, sugars, vitamins and minerals. Kind of like a bowl of cereal that they carry with them. The yoke sac gets eaten while the alevin changes to a tiny fish called a fry, less than an inch long. The fry then begins to look for food on its own. In about 6 months, the fry will have grown to about the length of an adult human's finger and they are called fingerlings (duh) and begin to swim downstream to the ocean.

Salmon eggs hatch into baby fish called alevins.

Salmon fry begin their journey to the ocean.

As the baby Chinook salmon moves downstream, it imprints the smells of the stream where it hatched as well as different water bodies on its journey to the ocean. This homing skill will guide the Chinook salmon back home after it spends 3-5 years growing in the ocean. As the fingerling gets closer to the ocean's salt water, it makes significant physiological changes to become a smolt.

The salmon's journey to the ocean is full of obstacles for these young fish. Only about 1 in 1,000 survive the journey.

Ducks, herons, kingfishers, other birds and wildlife eat young salmon. Other fish like northern pikeminnow like to live in the waters surrounding the hydroelectric dams and feed on the small salmon as well. The smart, young salmon travel at night to avoid these natural predators.

The fish must also navigate their way past hydroelectric projects on the Columbia River which can be difficult for them.

Baby salmon pass Grant PUD dams through a fish bypass.

Once they reach the Pacific Ocean, young salmon feed on zoo-plankton, shrimp, crustaceans, anchovies and herring as well as other fish. In 3-5 years Chinook salmon can grow and in 2-3 years can grow to weigh over 20 pounds.

Every salmon has its own time to return to the fresh water and its birth stream to spawn. Once that cycle is complete, the male and female salmon die (and your parents think THEY make sacrifices for their kids!) The mom and dad salmon's bodies decay in the streams and provide food for all kinds of other animals. Hey, that's just the circle of life.

Fish Survival

Over time, wild salmon populations have dropped and many salmon species in the Northwest are now listed as either threatened or endangered under the U. S. Endangered Species Act. The fall Chinook salmon eggs used in your Salmon in the Classroom project come from the very healthy Hanford Reach fall Chinook salmon stock and are not at risk. That's good news!

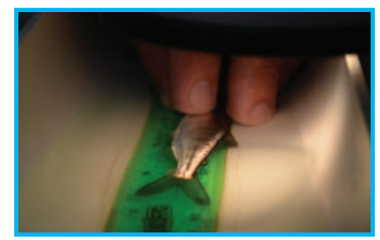
Helping the Salmon: Our Fishy Responsibility

Grant PUD, the people that supply electricity to the homes, schools and businesses around here, are working hard to protect salmon while still trying to produce renewable and affordable hydropower to fuel our local and regional economy.

Grant PUD works hard to protect fish by doing research and starting fish protection programs to preserve Northwest fish populations.

The PUD does stuff like:

Operate a hatchery at Priest Rapids Dam that releases nearly 7 million fall Chinook salmon each year. Since implementing protection programs and improving the hatchery, the number of salmon returning to the hatchery has increased significantly. At hatcheries, technicians fertilize and care for salmon eggs and baby salmon until they are ready to make their way downstream.



Some baby salmon receive microchips to help track their survival rate and progress.

Grant PUD surgically puts miniature computer chips into baby salmon (no kidding!) and uses a helicopter to place these baby salmon above and below the dams in order to test the effectiveness of fish passage solutions that improve the survival of salmon heading to the ocean.

At Wanapum Dam,

a fish bypass that looks like a giant water slide was installed in 2008 to help young salmon safely past the dam on their way to the ocean. A fish bypass will be installed at Priest Rapids Dam for use in 2014.

The Wanapum Hydroelectric Dam on the Columbia River.

On the upstream journey, adult salmon returning from the ocean to spawn are helped past the dams with fish ladders– watery stairways that guide the salmon through the dam to the water behind it, because there is no way fish could ever jump over the face of the dam!

Salmon Trivia:

- Orca whales can eat up to 500 pounds of salmon a day. That's about 20 adult salmon. Sorry Charlie!
- Chinook salmon can swim upstream about 15 miles a day. It takes about a month for an adult salmon to get to its spawning stream from the ocean.
- At age 4 Chinook salmon average 21 pounds and 30 inches long. That's about the height of an average 3 year old kid.
- It's essential that a healthy wild salmon habitat have cool, clean water. Logging, irrigation, mining, grazing, road construction and agricultural and urban development can harm river habitats and make it difficult for salmon to survive.

Grant County Public Utility District

Grant County Public Utility District (PUD) began electric service in 1942. We generate, deliver and sell electricity to Grant County residents and millions of customers throughout Central Washington and the Pacific Northwest. Priest Rapids and Wanapum dams on the Columbia River, produce enough clean, reliable electricity to supply energy needs for nearly 800,000 homes.

We serve about 85,000 residents within the 2,777 square miles of Grant County, the fourth largest county in Washington state.

What is Public Power?

Public power utilities are operated by local governments to provide communities with not-for-profit electric service. There are more than 2,000 public power utilities in the United States serving over 46 million people, or about 15 percent of the nation's electricity consumers.

What is a PUD?

Public Utility Districts (PUDs) are nonprofit, community-owned and governed utilities. They may offer a combination of electricity, water, wholesale telecommunications, sewer and other services, depending on local needs. The Washington State Grange sponsored the PUD initiative that was approved by voters in 1930. At that time, private power companies refused to bring electric service to farms and small communities. Today, 28 PUDs serve more than 1.7 million citizens across Washington state.