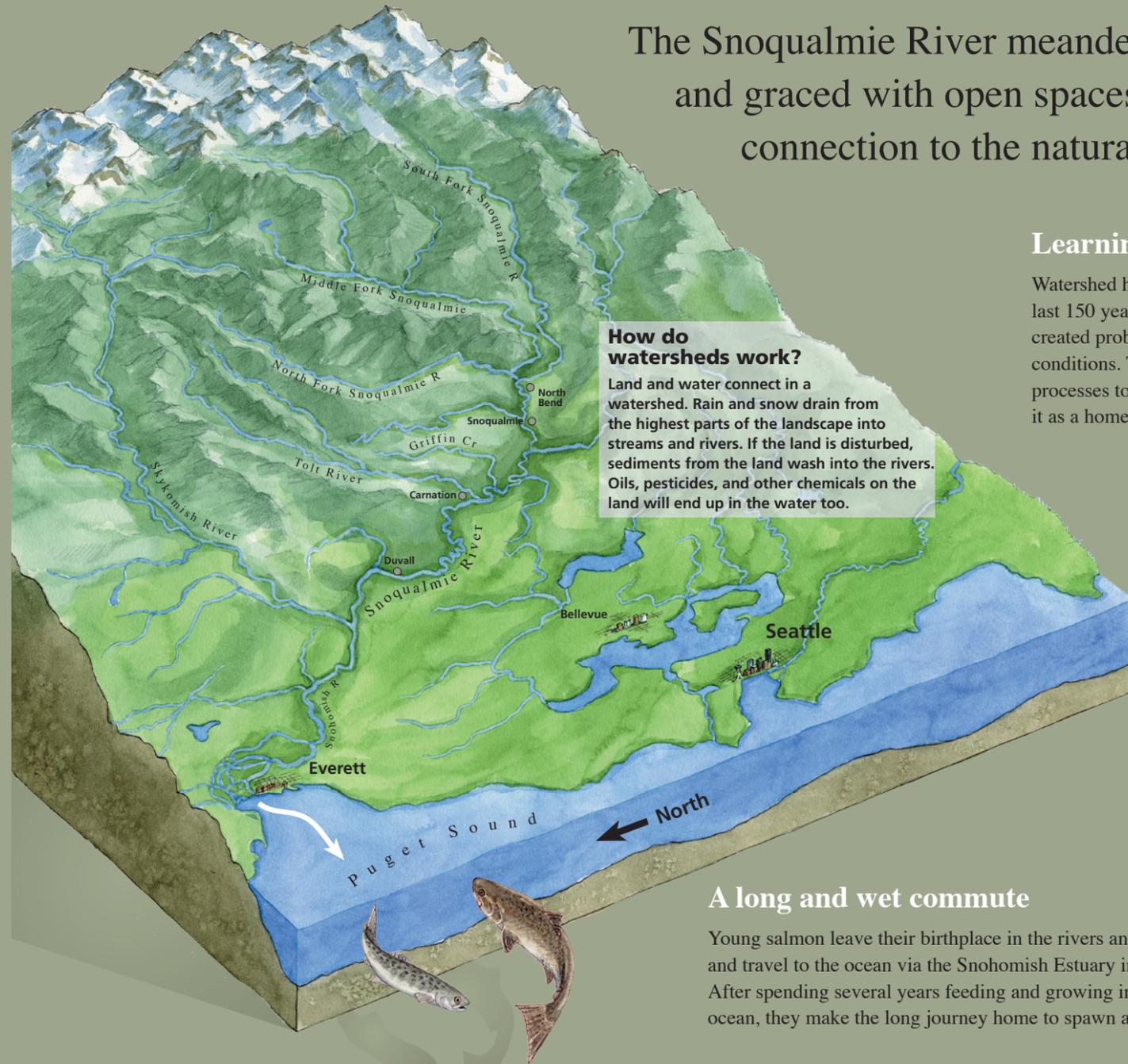


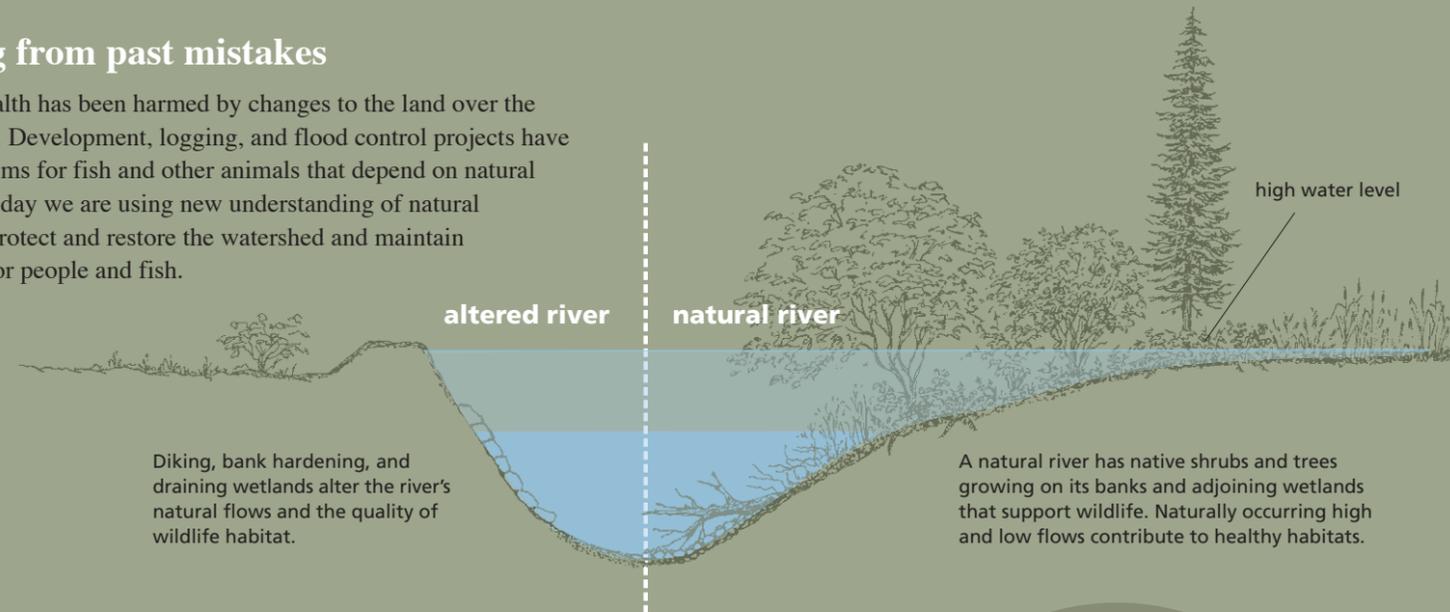
The Snoqualmie River Watershed is a very special place

The Snoqualmie River meanders through a beautiful valley dotted with farms and small towns and graced with open spaces, wetlands, and forests. The people who live here share a strong connection to the natural world, our cultural history, and our hope for the future.



Learning from past mistakes

Watershed health has been harmed by changes to the land over the last 150 years. Development, logging, and flood control projects have created problems for fish and other animals that depend on natural conditions. Today we are using new understanding of natural processes to protect and restore the watershed and maintain it as a home for people and fish.



A long and wet commute

Young salmon leave their birthplace in the rivers and streams and travel to the ocean via the Snohomish Estuary in Everett. After spending several years feeding and growing in the ocean, they make the long journey home to spawn and die.

Our choices matter!

From the Cascades to Puget Sound, every action has an effect on the whole watershed. At home we can conserve water, use natural fertilizers and pest control, and use native plants to help the Snoqualmie Watershed.



These signs were developed by the Snoqualmie Watershed Forum, a partnership between:

- Duvall
- Carnation
- Snoqualmie
- North Bend
- King County

The Snoqualmie Watershed Forum is committed to keeping the Snoqualmie Watershed a vibrant and healthy place for today and future generations.

Funding for the signs was provided by the Snoqualmie Watershed Forum and the King Conservation District.



Salmon in the Snoqualmie... forever *(with a little help from their friends)*

The Snoqualmie River system can only support vibrant runs of fish if it is clean and healthy. If future generations are to enjoy salmon as part of their natural heritage, we must work together to preserve salmon habitat today.



chinook



chum

Born to be wild

The Snoqualmie River has something special...wild runs of many different types of salmon, including one of the largest wild runs of coho in the Northwest. Spawning naturally in streams and rivers rather than hatcheries, wild runs are important because they preserve genetic diversity. Over thousands of years, wild fish have learned how to best survive in their own native river system... the Snoqualmie.



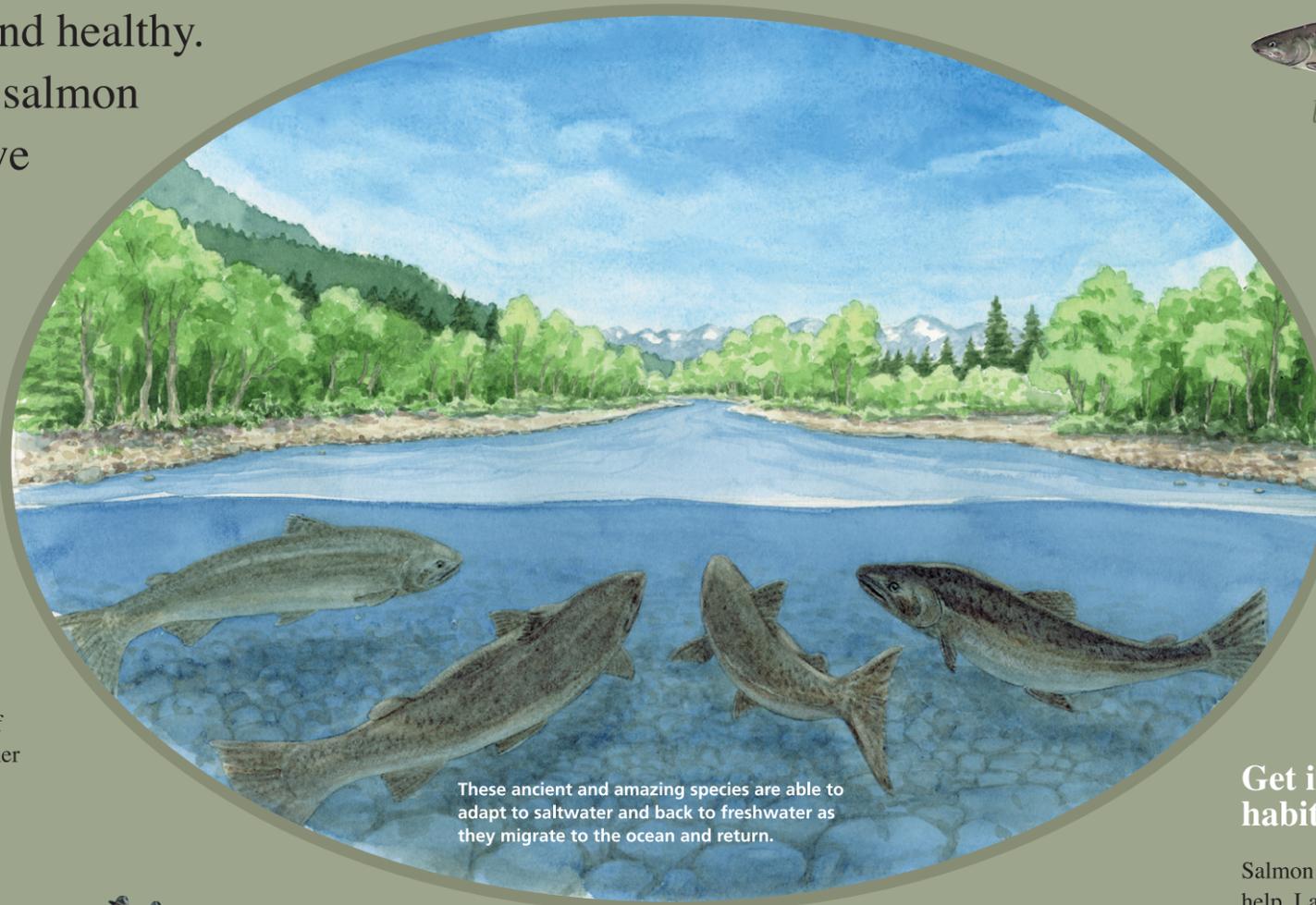
coho



pink



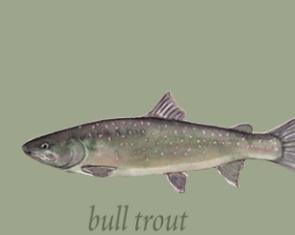
Museum of History and Industry



These ancient and amazing species are able to adapt to saltwater and back to freshwater as they migrate to the ocean and return.

Forever in our hearts... and bellies

Improving the environment for salmon is our gift to future generations. Salmon are part of our cultural heritage and are central to the lives of Native American tribes. Wild fish provide good food, a livelihood, and recreation, and symbolize the Pacific Northwest.



bull trout



cutthroat



steelhead

Why do salmon need help?

Chinook are threatened with extinction. Historically, 30,000 chinook returned every year to spawn in the Snoqualmie Watershed. Today, their numbers have dropped to only about 2,000 a year. Human changes to the river and landscape over time have destroyed the food sources, spawning areas, and rearing habitat that salmon need. Other species of salmon have also declined. When salmon decline, the whole ecosystem suffers.

Get in the habitat habit!

Salmon can recover, with your help. Landowners, organizations, and government agencies are all working to restore vital salmon habitat. Get involved in local efforts to restore habitat for salmon, wildlife, and future generations by calling your local government or non-profit.



To help salmon:

- preserve and restore native trees along the river and stream banks
- protect open spaces, forests, and wetlands
- replace bank rip-rap and rubble with more natural materials
- replace culverts that block fish access
- use natural fertilizers and pest control



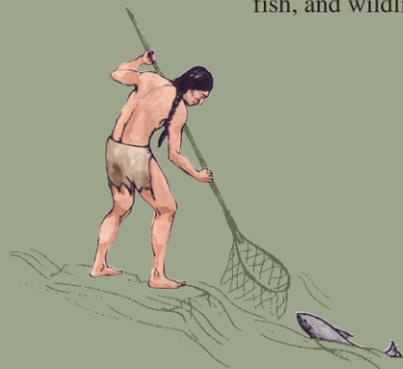
King County

The Snoqualmie Valley works for all of us!

The Snoqualmie Valley is a productive, working landscape that supports many types of living creatures. Some walk on two legs, some on four, others swim or fly! With a little effort, we can continue to live and prosper together in this special place.

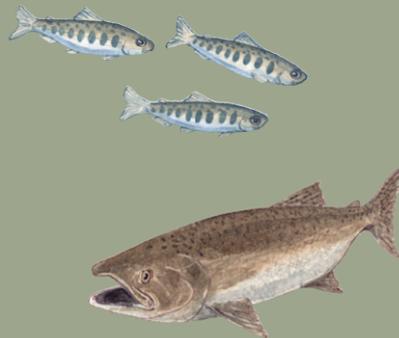
The river provides

The Snoqualmie River has shaped this valley, both physically and culturally. Native Americans fished and hunted in the thick forests and extensive marshes that dominated this area in earlier times. Later, settlers farmed the fertile soil of the valley, deposited by the river over thousands of years. This valley continues to be an important and productive area for agriculture, fish, and wildlife.



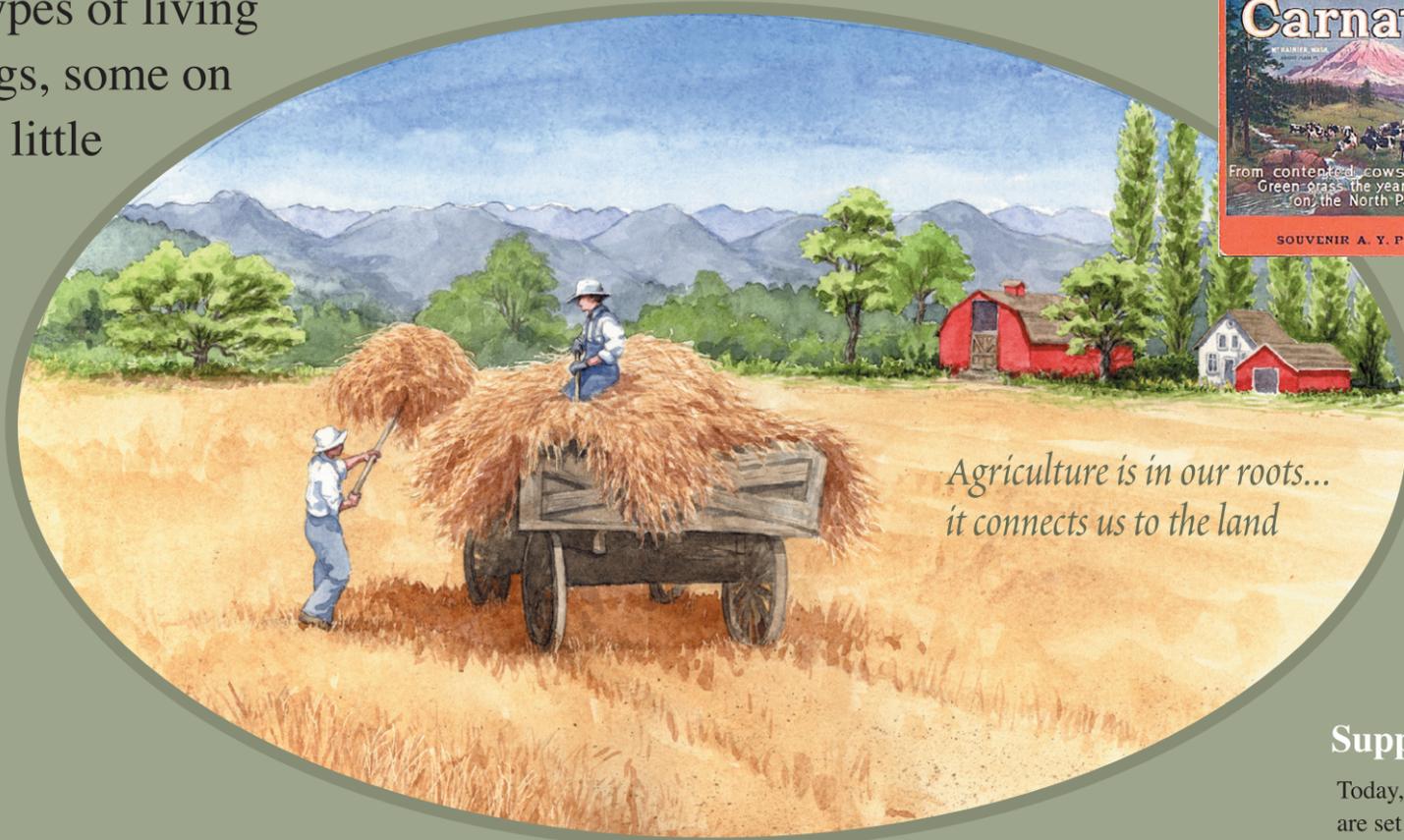
Boonies and Burbs?

The rural character of the valley has been changing as more houses are built. People who live here value the current balance of small towns and working rural landscapes. The land use choices we make today can preserve the special qualities of the Snoqualmie.

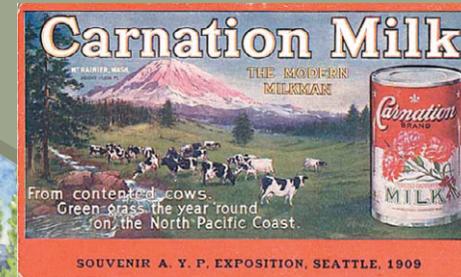


Let's increase traffic!

Not of cars...of fish! The thousands of salmon that make this watershed home pass this point on their upstream and downstream migration. To have sustainable populations we need to increase the number of fish living and traveling this water "highway."



*Agriculture is in our roots...
it connects us to the land*

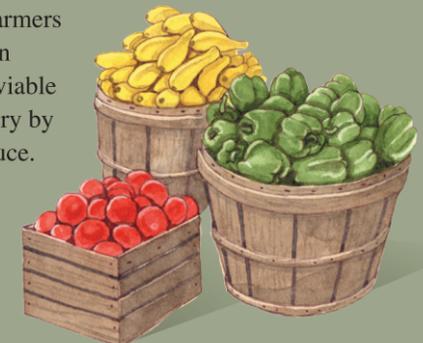


Happiness is a contented cow

The valley gained worldwide fame from the Carnation Dairy, begun in 1910 by Elbridge Amos Stuart with a bull and 86 cows. One cow, "Possum Sweetheart", produced 37,000 pounds of milk in a year, setting a world record.

Support your local farms!

Today, more than 14,000 acres in the Valley are set aside for agriculture. Most of the riverbank is farmland, so farmers are a critical link for salmon recovery. You can support viable farming and salmon recovery by buying locally grown produce.



To help the environment, farms can:

- fence livestock out of waterways
- manage manure
- rotate crops
- use cover crops
- restore habitat

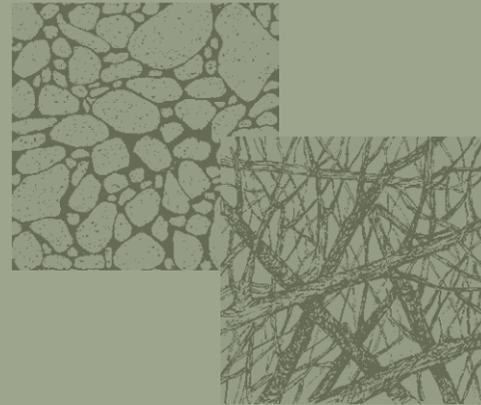
For information on local produce, contact Puget Sound Fresh



King County

The Tolt River... gravelly, woody, wonderful!

Before it joins the Snoqualmie, the Tolt gathers huge volumes of gravel, logs and branches from the forests it flows through. Moving at just the right speed, the Tolt deposits its cargo where salmon use it most. Adult salmon use gravel for spawning. Woody debris creates places of refuge for juvenile salmon.



Naturally good - where it's natural

The Tolt River provides excellent habitat for wild salmon. It is one of the top spawning spots in the watershed for fall chinook, and pink and chum salmon are more numerous here than in any other Snoqualmie tributary. Although at first glance it may look completely natural, this stretch of river has been altered for flood control. Our challenge now is to enhance the river's ability to support salmon.



Spawning season:
You may be able to see these wild salmon spawning here -
Late September - January

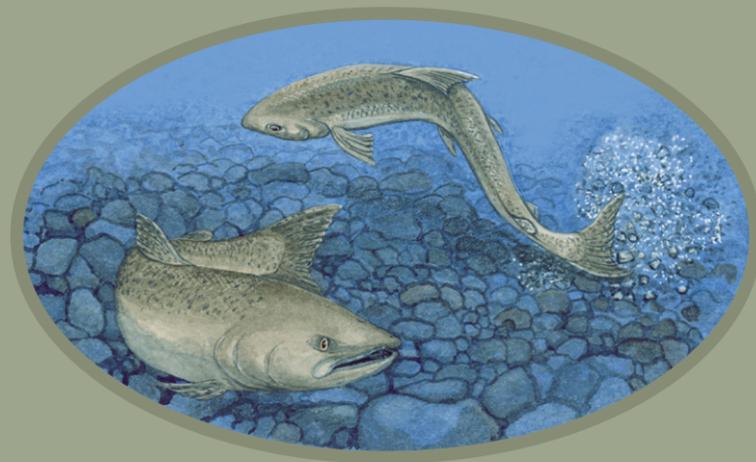
- chinook
- chum
- coho
- pink

February - April
• steelhead

Keep children and pets out of the river during spawning season.

It's the Gravel—

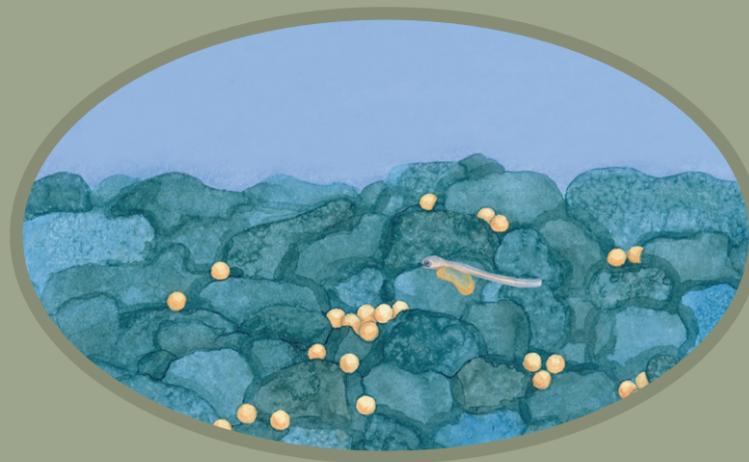
The Tolt delivers **7,000 tons of rocks** to the Snoqualmie annually. Carried as far as 4 miles downstream, this gravel provides critical spawning beds.



The redd - a gravel bed for eggs

Female salmon cannot spawn just anywhere. To dig the redd, the gravel depression that will shelter her eggs, she must find a site with gravel the right size. Too large, and she can't dig it with her tail. Too small or compacted, and her eggs could be smothered by fine sediment.

The water temperature must be right (50-57°F), the flow not too fast or slow, and she must be able to defend her space from other competing females.



Tiny alevin develop from the eggs

If all goes well, the eggs develop as they lie sheltered in the gravel. They are nourished with oxygen by the mixing of cool, clean water with air bubbles as it flows over rocks and boulders in the streambed.



Alert! Juveniles at risk!

The shape of the river bank is vitally important for juvenile salmon. Smooth edges stabilized with riprap leave young fish with no place to hide. They need logs, overhanging branches, rocks, and roots to shelter and cover them from predators. Lack of juvenile rearing areas is a significant factor in salmon declines in this watershed.



Streamside plants attract insects, which provide food for young fish.

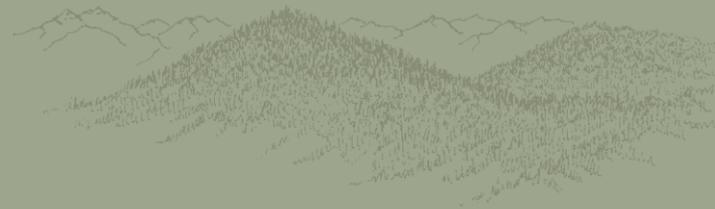


Do salmon grow on trees?

Yes! They depend on fallen trees and on standing forests too. Forested headwaters are a major reason that Griffin Creek is such excellent salmon habitat.



Griffin Creek is one of the best coho spawning areas in Puget Sound. The creek also supports chinook, chum, and pink salmon, and cutthroat and steelhead trout.



You can't see them from here, but the headwaters of Griffin Creek lie mostly within private forestland. Sensitive logging practices can produce timber and provide wildlife habitat.



Environmentally sound timber practices:

- leave a buffer zone of uncut trees and shrubs near streams and rivers
- leave standing trees on steep slopes to minimize erosion and sediment flows into streams

You can support environmentally sound timber practices by asking for certified wood at your local lumber yard.

Additional funding for signs at this site was provided by Washington Fly Fishing Club.



Trees keep flows clear

Rivers and streams flowing through forests are great for salmon. Roots stabilize soil and slow the erosion of sediment that can smother fish eggs. Trees help the soil absorb water during heavy rains, slowing runoff that can wash away eggs or young fish.



Trees provide safe feeding places

Fallen trees and branches in a stream –*large woody debris* – create pools where young salmon rear. They also create places where fish hide from predators. Streamside plants attract insects, a favorite fish food.

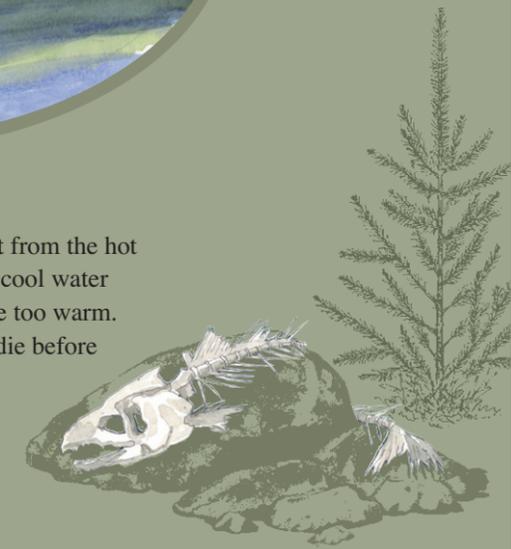


Trees cool water for fish

Trees and shrubs next to the water shade it from the hot sun. A salmon ready to spawn is drawn to cool water (50 - 57°F), and will avoid streams that are too warm. If the temperature gets too high, fish will die before they have a chance to spawn.

What do salmon do for forests?

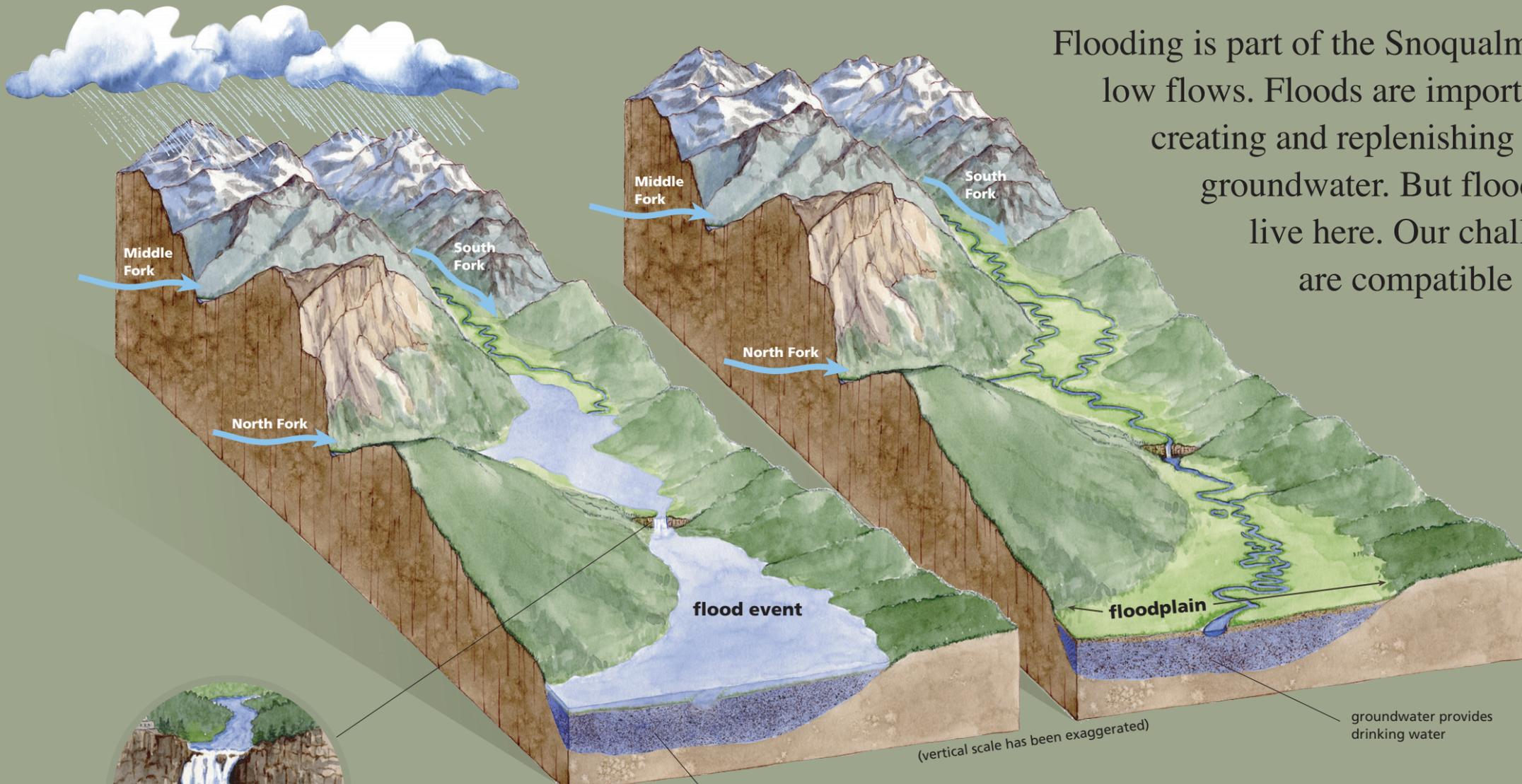
Carcasses decay, enriching the entire food web and supporting healthy forests.



The highs and lows of the Snoqualmie River



Flooding is part of the Snoqualmie River's natural cycle of high and low flows. Floods are important for improving soil conditions, creating and replenishing wetlands and oxbows, and recharging groundwater. But floods can be a real threat to those who live here. Our challenge is to learn to live in ways that are compatible with the natural cycles of the river.



Go with the flow

Some of our settlement patterns and changes to the river have proven harmful to salmon and other wildlife. The Snoqualmie River floods the valley wall-to-wall on a regular basis. Recent approaches to flood hazard reduction include voluntary home buyouts or elevations for frequently flooded homes.

To protect water quality and groundwater supplies:

- keep trees and forests
- preserve wetlands
- reduce pavement and hard surfaces
- protect open space in flood prone areas



Snoqualmie Falls

During the November 1990 flood, enough water flowed over the falls in 18 minutes to fill Safeco Field!

water seeps into the ground during floods

Upper fish and lower fish

Ocean-going salmon cannot jump the falls, but the upper watershed provides clean water and moderates flows for salmon downstream. Trout live in the vast waterways above the falls, providing some of the best fishing spots in the region.



Wetlands for wildlife

You are standing in front of an oxbow pond, Meadowbrook Slough. Listen quietly for a moment. You can probably hear sounds of wild creatures. Wetlands are critical for wildlife from the massive elk to the tiny tree frog. Wetlands also help reduce runoff by soaking up water and releasing it slowly to the river.

