

# BEST PRACTICES



## Chum Salmon: A Hero's Journey

It's late winter in McLane Creek, and water temperatures are beginning to warm. A baby salmon fry pushes up out of the gravel nursery where her mother laid her to incubate as an Alevin, sheltered and oxygenated, for several months in the bed of the stream. Her yolk sac has dissolved, and she has developed vertical markings and the tell-tale shape of a salmon. The open ocean calls her deepest instinct and is her destiny. As she heads downstream, under the cover of night to protect her from predators, her nutrient-filled yolk sac dissolves and stream bug larvae nourish her rapidly maturing body. For protection, she groups up with other young chum, all of them sensing their way toward Eld Inlet at the southernmost reach of Puget Sound.



After about 8 weeks, her body begins to prepare for life in saltwater in a process called smoltification; her dark scales turn silver, her gills and kidneys adapt to regulate the salt, her muscles grow rapidly, and her immune system becomes more robust to protect herself from the additional stressors in a marine environment. She enters Eld Inlet as a smolt, first spending several weeks near the shore before venturing further out into the estuary that is Puget Sound.

Small fish, plankton, and other marine organisms nourish her and give her the strength she needs to prepare for ocean life. The 6-20 pounds of muscle she gains will keep her going. The first leg of her migration is complete; she will now spend the next 2-5 years of adult life in the "marine phase" of her journey. For this brave juvenile salmon, this means swimming north, the entire length of Puget Sound, past Tacoma, up around Seattle, all the way to the Strait of Juan De Fuca, where she will head west toward the great expanse of the Pacific Ocean and end up in the Gulf of Alaska. She must avoid many threats, including predators, nets, pollution, and marine traffic before successfully returning home to spawn. By the time she reaches sexual maturity and starts the long swim back to her natal grounds, she will likely have traveled over 1,000 miles!

Sexually mature and now full of eggs, our hero feels the pull to return home to spawn. Her remarkable homing instinct guides the way. If she is lucky enough to survive the journey home...the most challenging leg is still ahead. The upstream obstacle course will require every bit of energy and willpower she has. She will face strong currents, hungry predators, low or high-water flows, floods, droughts, fisher-people and other threats to her dwindling life.

She undergoes her final and most significant transformation as she reenters freshwater. Her kidneys and gills readjust to the lack of salt; her silver scales turn dark again and a vibrant purple or red stripe develops on both sides of her body. This color will rapidly fade as she deteriorates. Her male counterparts develop hooked jaws. She stops eating and must rely solely on fat stored during the marine phase. Her instinct is now 100% focused on reproducing.

Looking a little worse for wear, and still fighting for her life, she reaches her spawning grounds where she had been an egg many years ago! Surrounded by 1 or several males (often aggressively competing for an opportunity to fertilize her eggs), she uses her tail to create a gravelly nest called a redd by digging a depression in the riverbed. She swims over the redd and releases several hundred to several thousand eggs while simultaneously using her body movements to distribute the eggs evenly. The dominant male moves in quickly and releases his sperm, or milt, into the water column, where it drifts down and covers the eggs. Her eggs are now fertilized, and our hero uses what tail strength she has remaining to cover the eggs with gravel. She has protected her babies from predators in one of her final acts.

She can now rest after fulfilling her reproductive purpose and her final sacrifice. She will die near her birth location, providing invaluable nutrients to the ecosystem as her body decomposes.

*Source: Stream Team News, Fall 2023*