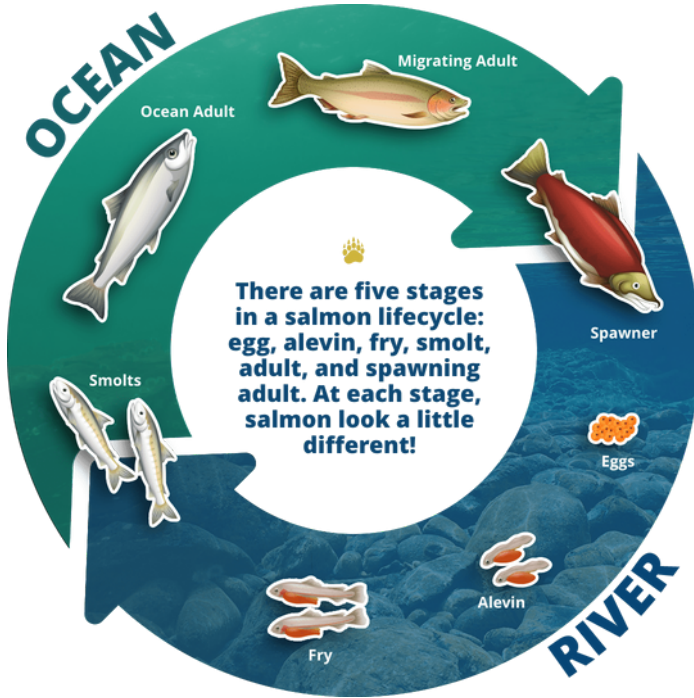


SALMON SCIENCE: FROM THE RIVER TO THE SEA



Salmon are coldwater anadromous fish that are born in rivers with cool, clean water. Juvenile salmon, known as smolts, migrate up to hundreds of miles downstream to the ocean. Then, as adults, they return to their birthplace to spawn and die. In a natural cycle, millions of carcasses and eggs fuel both the aquatic and terrestrial ecosystem, feeding orcas, bears, eagles, and even the next generation of smolts.

The spawning grounds in Idaho's Snake River Basin are 900 river miles from the Pacific Coast and more than a mile high. It's the longest and highest salmon migration in the world. Today, only a small percentage of adult salmon make it past the eight dams on the Columbia and Snake rivers to reach their spawning grounds.

CLIMATE CHANGE: A REAL AND GROWING THREAT

Salmon need clean, cold water to thrive, grow, and reproduce. Warm water stresses the fish, requires them to expend more energy, and in some cases, can be lethal. The Snake River basin offers the coldest and most undisturbed habitat in the Pacific Northwest. As the waters in the region warm as a result of climate change, it will be even more important for salmon to access this cold water to survive and thrive. By 2080, the Snake Basin is predicted to have 45% of the coldwater habitat, possibly making it the last stronghold for salmon and steelhead in the lower U.S.

THE JOURNEY TO THE OCEAN

Before dams blocked the river, salmon rode the current passively downriver to the Pacific Ocean. Now they must swim through 325 miles of warm, slow moving water in reservoirs, using energy that ought to be devoted to physical preparation for saltwater and ocean predators. The result is that they arrive at the Columbia's mouth undersized and unprepared for the ocean's rigors.

Ocean conditions are increasingly stressful with climate change, but science shows that the dams are the primary driver of Snake River salmon mortality. Increasing their abundance and improving their condition will help their weather the ocean and take advantage of the good years.

RIVER RUNNING

The Snake River Basin's surviving salmon and steelhead swim some 900 miles and through a gauntlet of dams to reach spawning grounds in Idaho, eastern Oregon, and eastern Washington. They expend more energy, have less food, and fewer places to hide, and are exposed to predators. The journey dramatically increases juvenile mortality and delays migration up to ten times, creating mismatched timing for saltwater entry.



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