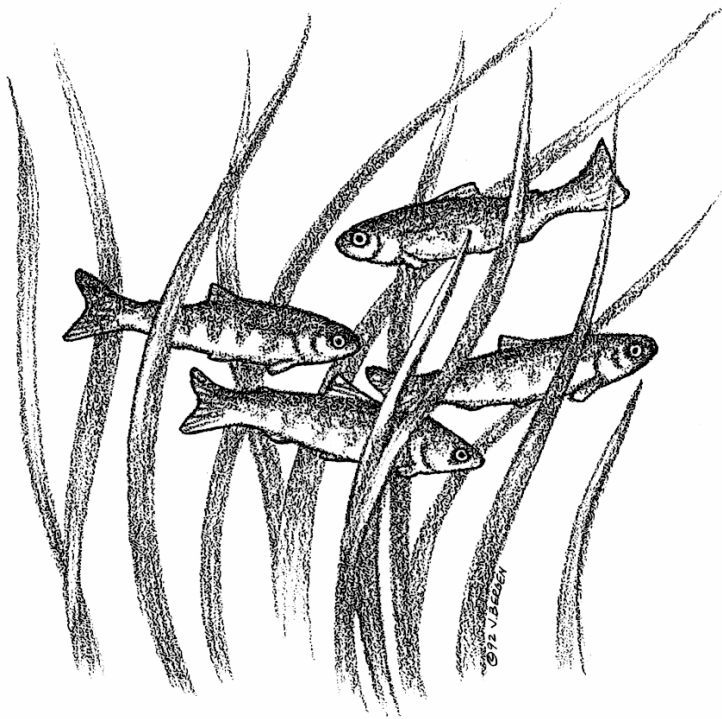


# Salmon in the Estuary

by Kenn Oberrecht



*In the Pacific Northwest, salmon are the most important of all commercial and sport fishes, yet we seem to have tried our best to place every conceivable obstruction in the path of their survival. We've destroyed their habitat, built barriers to their migration, polluted their waters, and overfished them. Oregon author Anthony Netboy has called salmon the world's most harassed fish.*

*All Pacific salmon are anadromous, meaning that they spend most of their lives in the ocean but return to fresh water to spawn and die.*

Of the six species of Pacific salmon, five occur along the Pacific Northwest coast: pink, chum, sockeye, coho, and chinook. Of those, coho and chinook are the most plentiful in Oregon waters, but chum salmon use several of our coastal rivers. Sockeye seldom appear south of the Columbia River, and there the runs have been all but wiped out. Pink salmon don't spawn in Oregon but are sometimes part of the offshore catch.

All Pacific salmon are anadromous, meaning that they spend most of their lives in the ocean but return to fresh water to spawn and die. In as much as estuaries are the lower reaches of coastal rivers, where salt and fresh water mix, all Pacific salmon use the estuaries to some extent. They must pass through them on their way to spawning grounds. The migrating young, known as smolt, must also move through the estuary on their way to the sea. Many use the estuaries in other ways as well.

Although some generalities apply to each species of Pacific salmon, certain stocks or races within a species might differ considerably in one or several habits. For example, we say generally that all Pacific salmon

spawn in fresh water, but some races of chum salmon actually spawn in estuaries, in tidal areas near upwellings of ground water. Most other chum salmon spawn only a short distance from the estuary, and their young spend about three months feeding in the tidal marshes and eelgrass beds before migrating to the ocean.

Sockeye fry normally migrate into freshwater lakes where they spend one to three years feeding before heading for the ocean. Some stocks, however, instead of moving into the so-called nursery lakes, head downstream to the brackish sloughs and backwaters of estuaries, where they gorge on abundant food for months prior to their seaward migration.

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Coho fry remain in their birth streams until they undergo the transformation that will enable them to adapt to salt water. Then as smolts they descend to the estuary. Most linger there for a few weeks, foraging and growing rapidly, but some may stay for as long as a year.

Like the coho, chinook fry remain in fresh water until they become smolt and head for the estuary. Fall chinook might spend only a few weeks or months in the estuary, while spring chinook generally remain as long as 18 months before migrating to sea.

Pink salmon probably spend the least time in the estuary on their seaward migration. But they and others, studies have shown, spend at least two weeks feeding and growing in the rich estuarine waters. Perhaps one of the greatest values of the estuary to these young salmon is the abundant food that enables them to double or even triple in size before migrating to sea. Size is one of the best defenses against predation. So estuaries are essential to the very survival of these fishes.

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