

## SALTWATER HABITAT

To survive at sea, young salmon must find abundant sources of food. The zooplankton and baitfish they feed on require a narrow range of ocean temperatures and salinity to thrive. When

ocean surface temperatures are more than a few degrees above normal, zooplankton production is reduced and salmon survival may decline dramatically.



## MIGRATION

After years at sea, the adult salmon return to spawn in the streams of their birth. They stop feeding and lose their shiny, silver color. Males develop a pronounced hooked nose, large canine teeth and may display vivid body colors. Females develop darker, subsided color patterns. The journey upstream is often long and difficult. Many fish are lost to natural hazards before reaching the spawning grounds.

## OCEAN PHASE

In late spring, the juvenile salmon move offshore into the open ocean. Most turn north, following the coast of British Columbia to Alaska and far into the North Pacific. For two to five years, they feed on zooplankton and small fish. They must grow rapidly and gain strength for the long journey that lies ahead.

## FRESHWATER HABITAT

Each species of salmon fry has its own unique habitat requirements.

- Coho fry are found in small streams that flow year-round. They like shaded pools with over-hanging trees and shrubs.
- Chinook fry live near gravel bars and in side channels of larger streams. They need stable stream flows and well-vegetated streambanks.

Pink and chum fry migrate downstream after only a few days in freshwater. They form large schools that move along the sheltered beaches of bays and inlets.

Sockeye fry live in large lakes for one to two years before migrating to sea.

## ESTUARY HABITAT

Estuaries are formed when sea water and freshwater streams meet. This mixing creates a unique and productive aquatic habitat. Many species of wildlife and fish, including salmon, depend on estuaries to survive.

salmon may spend several days or weeks in the estuary feeding and adjusting their body chemistry to the salt-water environment. Adult salmon, returning from the ocean, also pause in estuaries to allow their bodies to adjust to freshwater before moving upstream to spawn.

Ocean bound juvenile

## FRESHWATER PHASE

Salmon fry are only about 1 inch long when they emerge from the gravel. Chinook and coho fry are dark in color



and have large spots. This helps them blend in with the streambed and hide from predators. Pink, chum and sockeye fry immediately migrate downstream to the ocean or a lake. They have few or no spots and are silver in color.

Salmon adults are young fish ready to migrate to the ocean. Changes in body color and physical form prepare them for life at sea.

## REARING

Only about 20 out of every 100 eggs laid by the female salmon survive to become fry.

Once they emerge from the gravel, the fry must find a place in the stream that will provide food and shelter. These special places are called "habitat." Only about 10 out of every 100 fry find adequate habitat ... the others do not survive. When streams are straightened, diked or stripped of vegetation, rearing habitat is lost.

## SPAWNING

On the spawning grounds, the female salmon builds a gravel nest called a "redd." One or more large males join her and fertilize each group of eggs she deposits. When spawning is complete, the exhausted adult salmon die.

The eggs hatch after about 60 days and a small larva, called an "alevin," is born (see inset). The alevins continue to develop within the redd until spring when they emerge from the gravel as fry.



# PACIFIC SALMON LIFECYCLE

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