Central Valley Spring-run Chinook Salmon

Spring-run Chinook salmon (spring-run) were once abundant throughout rivers and creeks in California's Central Valley. Roughly one million of these fish returned from the ocean to the Central Valley to spawn each year, providing food for native people and settlers, prey for killer whales along the coast, and marine nutrients for the Sierra Nevada Mountains.

The mid-1800s dramatically changed the landscape. Gold mining, dam construction, water

Spring-run **Chinook Salmon** Life Cycle

High river flows from spring rainstorms and snow melt help spring-run migrate to high-elevation, cold, deep river pools where they remain throughout the hot summer before spawning. They typically spawn in late summer and fall, peaking in September.

They die shortly after spawning. Their decaying bodies supply important nourishment to other animals and nutrients to the forests.

Spring-run remain in the ocean for one to three years before returning to their native rivers and streams to spawn.

and hydropower management, and other land uses blocked spring-run from much of their habitat, and their numbers began to decline. In 1998, spring-run were listed as threatened under the Endangered Species Act. Today, wild spring-run spawn and rear in only a small fraction of their historic habitat and only number in the hundreds to low-thousands.

Spring-run are important to California's heritage. Collective action is needed to recover this iconic species for future generations.

Eggs hatch within 40 to 60 days and alevins gravel for four to six weeks. remain in the 🦧

> Alevins emerge as fry in winter and early spring.

Some juveniles migrate to the ocean within a few months of hatching, while others stay in freshwater to rear for up to a year.

This strategy, where some fish migrate to the ocean while others wait, is unique to spring-run and likely gives them some protection from changing river and ocean conditions.

Key Threats to Central Valley Spring-run Chinook Salmon



Dams currently block spring-run from 80-90 percent of their historic spawning habitat.

Levees that block access to roughly 95

percent of the Central Valley's floodplains, resulting in reduced growth and survival of juveniles.



Water diversions at the Jones and Banks Pumping Plants in the Sacramento-San Joaquin River Delta that lower and alter river flows, and decrease fish abundance.



Water diversions in Mill. Deer, Antelope, and Butte Creeks that lower flows, raise water temperatures, and reduce migration success.

Warm water low spring

flows in the Sacramento and San Joaquin Rivers that reduce juvenile survival.

Predation by abundant populations of non-native fish species, including striped bass,



channel catfish, and largemouth bass.

Spawning with hatchery-origin Chinook salmon that stray into streams with wild spring-run can lead to reduced genetic viability.

Climate change reduces the quantity and quality of freshwater and ocean habitat.

Incidental catch in fisheries targeting other abundant salmon species.



Recovery Actions for Spring-run Chinook Salmon



Map Key

Dam

City

- - Reintroduction in progress
 - Spring-run Chinook salmon current habitat
 - Spring-run Chinook salmon historical habitat

A suite of recovery actions were identified by NOAA Fisheries in collaboration with state, Federal, tribal, and other partners. Implementation must happen across jurisdictions to successfully recover springrun. These will also support other salmonids in the Central Valley.

- Reintroducing spring-run to the Upper Yuba River, McCloud River, and other high elevation and historic habitat.
- Completing the San Joaquin River Restoration Program will help re-establish spring-run in its historic habitat.
- Increasing access to floodplain habitat to reconnect these fish with important juvenile rearing habitat.
- Restoring flows throughout the Sacramento and San Joaquin River watersheds and the Delta.
- Reducing biological impacts of exporting water through Jones and Banks Pumping Plants.
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