

California Central Valley Steelhead

Key Threats to Central Valley Steelhead

What everyone should know about California Central Valley (CCV) steelhead:

- CCV steelhead are a distinct population segment of the species *Oncorhynchus mykiss*, which exist throughout the West Coast.
- Steelhead love cold water!
- Anglers love them because they are elusive and legendary fighters when hooked.
- They can swim faster and jump higher than their larger cousins, Chinook salmon, allowing them to move further upstream.
- Like other salmonids, CCV steelhead have an internal drive to migrate to the ocean- even those trapped behind existing dams.
- Adult CCV steelhead return to freshwater from the ocean in the winter.

Steelhead vs. Rainbow Trout

Did you know steelhead and rainbow trout are considered to be the same species? But they are different in many key ways:

Steelhead	Rainbow Trout
Twice as large as rainbow trout (24 inches on average)	Smaller than steelhead (12 inches on average)
Adult fish are silver with dark blue backs	Adult fish have green backs with prominent spots and red bands
Migrates to the ocean as a juvenile and returns to streams and rivers to lay eggs	Spends entire life in freshwater rivers and streams
Lays about 6,000 eggs the first time and 9,000 eggs in the following years	Lays about 800 eggs

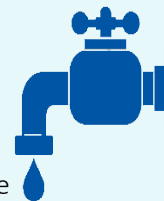
Before dams and levees altered and blocked Central Valley streams and rivers, 81 independent CCV steelhead populations lived throughout the Sacramento and San Joaquin River Basins and high into the cold waters of the Sierra Nevada mountains. Now, the species is listed as threatened under the Endangered Species Act. The few remaining populations are confined to areas downstream of dams and undammed creeks, and they rely heavily on hatcheries to maintain their abundance which can affect the health of the wild populations.

Dams block steelhead from over 80 percent of their historical habitat, including nearly all historical spawning and rearing habitat.



Levees block access to 95 percent of the Central Valley's floodplains, an important rearing habitat for juveniles, resulting in reduced growth and survival of young fish.

Water diversions and low flows throughout the Sacramento and San

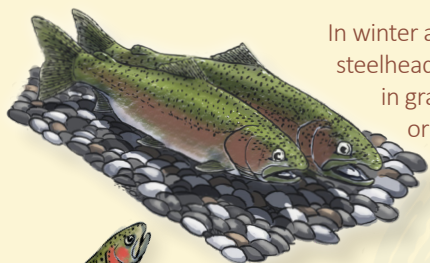
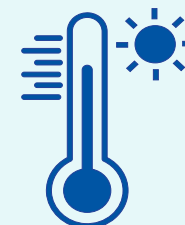


Joaquin Rivers decrease available habitat, increase water temperatures, and reduce juvenile survival.



Hatchery-origin steelhead can breed with wild steelhead, decreasing the genetic fitness of wild fish populations.

Climate change reduces the quantity and quality of freshwater and ocean habitats and is creating uncertainty in water storage.



In winter and spring, CCV steelhead lay their eggs in gravel nests, or 'redds'



Eggs hatch 3-4 weeks later and the larval fish (alevins) remain in the gravel for another 4-6 weeks



After emerging from the gravel, juveniles (parr) then rear in freshwater for a few months up to 2 years

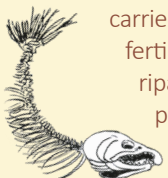
Central Valley Steelhead Life Cycle

Juveniles that migrate to the ocean (smolts) are steelhead and fish that remain in freshwater throughout their entire life cycle are rainbow trout

Steelhead feed in the ocean for 1 to 3 years before returning to their native rivers to spawn as mature adults



Decaying steelhead carcasses release marine-derived nutrients carried from the ocean, fertilizing the stream and riparian habitat, and providing food for the next generation



Illustrations: Blane Bellerud

Central Valley Steelhead Habitat



Historically, CCV steelhead were more widely distributed in the Central Valley than any other salmon, steelhead, or trout. Now, dams and levees alter and block many Central Valley streams and rivers.

- Key**
- Dam
 - City
 - Current Habitat
 - Historical Habitat

Recovery Actions for Central Valley Steelhead

NOAA Fisheries identified a suite of recovery actions in collaboration with state, Federal, tribal, and other partners to bring CCV steelhead back from the brink of extinction.

- Reintroduce CCV steelhead into their historical habitat like the McCloud River and the headwaters of the Yuba River, Stanislaus River, Tuolumne River, and the Merced River.
- Monitor steelhead to better understand details of their life cycle and behavior.
- Restore and re-connect floodplain habitat that provides areas for juveniles to rear.
- Reduce the impacts of water diversions by increasing river flows and decreasing water temperatures throughout the Sacramento and San Joaquin River watersheds.

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Learn more about the work to conserve this species under the Endangered Species Act.

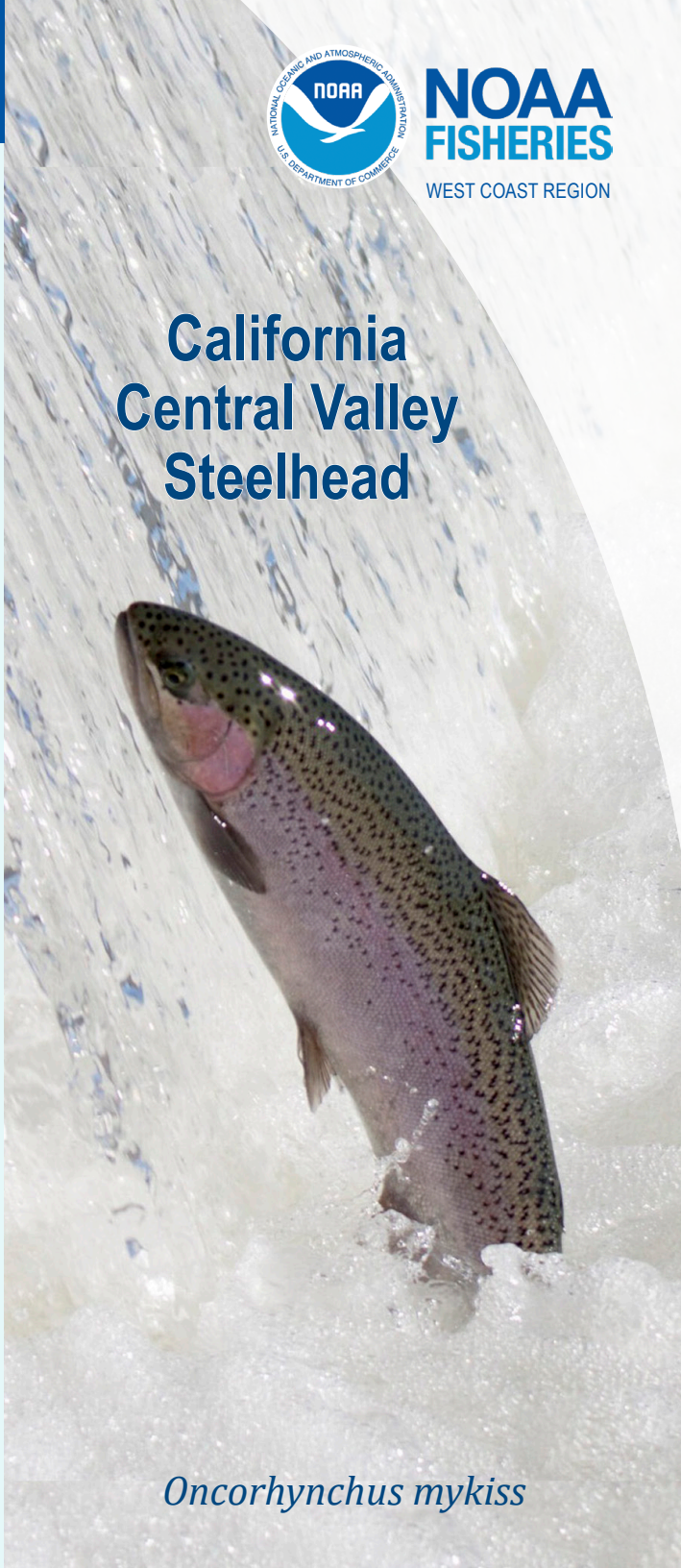
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Oncorhynchus mykiss