

Big Chico Creek Breakthrough

Fish Passage Restoration from a Broader Ecological Perspective

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BACKGROUND

Fish passage through Iron Canyon, a bedrock gorge in Upper Bidwell Park, has been blocked by an old and defunct fish ladder for decades. Once restored, salmon, steelhead and other native fishes will once again be able to access 8.5 miles of coldwater habitat critical for spawning, juvenile rearing, and adult overwintering.



IRON CANYON FISH LADDER

California Trout's Iron Canyon Fish Passage Project is currently underway, with plans to remove old fish ladder components and reconfigure the channel to nature-like step pools passable by salmonids across a range of flows. CalTrout and partners, including FISHBIO, are following an ecosystem-based approach to restoration, which implements multiple years of pre- and post-restoration monitoring to measure project impacts across the aquatic community, including salmonids, other native fishes, benthic macroinvertebrates (BMIs), and freshwater mussels.

PRE-RESTORATION MONITORING AND EVALUATIONS

2023 - 2024

- Evaluated spawning habitat suitability and capacity
- Quantified available spawning substrate in upper Big Chico Creek
- Evaluated stranding potential in the flood control bypass
- Quantified number of stranding pools in Lindo Channel

2023 - 2025

- Connectivity and temperature evaluation
 - HOBO data loggers (9 temperature, 3 water level) operated continuously for over two years to evaluate spatiotemporal water temperature suitability for salmonids and to evaluate lower Big Chico Creek's connectivity to the Sacramento River.
- Fish and BMI community monitoring
 - Annual snorkeling surveys conducted in Big Chico Creek Ecological Reserve (BCCER) and index reaches up- and downstream of Iron Canyon to estimate salmonid abundance and document general fish assemblage in upper Big Chico Creek
 - Annual eDNA sampling up- and downstream of Iron Canyon (9 sites)
 - Annual BMI surveys conducted upstream of Iron Canyon at two sites (SWAMP methods, RWB) to document pre-restoration BMI communities upstream of the fish barrier



LINDO CHANNEL FLOOD CONTROL BYPASS
 When flows are high, water is diverted from Big Chico Creek into Lindo Channel.



ENVIRONMENTAL DNA SAMPLES
 eDNA was collected at nine locations to provide complimentary documentation of aquatic fauna present in the creek.



SUMMER SNORKEL SURVEYS
 Snorkel surveys were used to assess salmonid abundance and fish community composition.



BENTHIC MACROINVERTEBRATE (BMI) SURVEYS
 SWAMP surveys consist of BMI sample collection as well as documentation of in-stream and riparian habitat and water quality measurements.



Ecological Reserve



IRON CANYON FISH LADDER
 Restoration work is slated to start in summer of 2026.

NEXT STEPS

- Construction in Iron Canyon will be closely modeled after CalTrout's Eagle Canyon Restoration Project in Battle Creek (completed 2021)
- Post-restoration ecosystem monitoring will continue after restoration is completed in 2027
- Restoration efforts will allow threatened spring-run Chinook salmon and steelhead to reach the habitat they require to complete their life cycle, improving resilience of these vulnerable populations while benefitting the broader native stream ecosystem



TEMPERATURE DATA LOGGERS
 Nine temperature loggers were installed in Big Chico Creek to evaluate habitat suitability and potential temperature limitations in the creek.



SPRING-RUN CHINOOK SALMON IN SALMON HOLE
 (ONCORHYNCHUS TSHAWYTSCHA)

Sacramento River

Lindo Channel

CHICO, CA

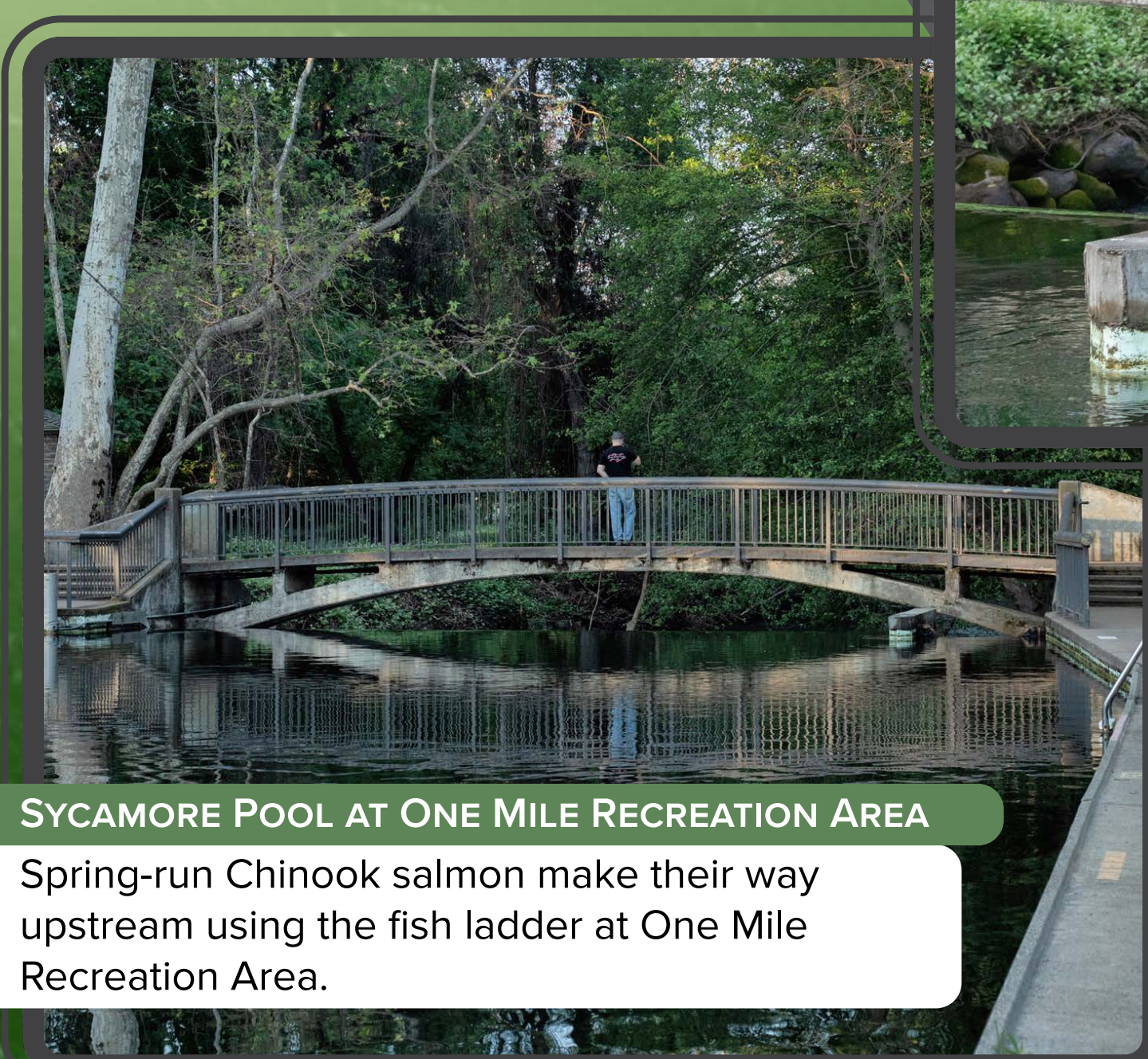
Highway 99

Bidwell Park

Big Chico Creek



WATER-LEVEL DATA LOGGERS
 Water-level loggers were installed to evaluate seasonal drying patterns in lower Big Chico Creek in relation to salmonid migration timing.



SYCAMORE POOL AT ONE MILE RECREATION AREA
 Spring-run Chinook salmon make their way upstream using the fish ladder at One Mile Recreation Area.

THANK YOU, PROJECT PARTNERS!

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LAND ACKNOWLEDGEMENTS

The project site is located in Ótakim Sewi (Big Chico Creek), a subsistence fishing source for the Mechoopda Tribe, which flows through ancestral Mechoopda Maidu land.

