

Field Activity Advisory

Rotary Screw Trap Monitoring to Estimate Juvenile Spring-Run Chinook Salmon Production, Survival and Emigration in the San Joaquin River Restoration Area November 2024 – June 2025

The Bureau of Reclamation's Fisheries and Wildlife Resources Group and the California Department of Fish and Wildlife, as part of the San Joaquin River Restoration Program (SJRRP), will perform monitoring for juvenile spring-run Chinook salmon (*Oncorhynchus tshawytscha*; Figure 1) in Reaches 1–2 of the Restoration Area from November 2024 through June 2025. This effort will estimate production, distinguish strategies for juvenile salmon emigration, estimate survival rates and spatial distribution of mortality, and determine behavioral responses of juvenile emigrants to flow management strategies (e.g., pulse flows). In addition, tissue samples collected from this effort will be further processed for genetic analyses, permitting identification of juvenile parentage and individual adult spawning success. Data collected for this multi-year study will inform SJRRP fisheries, flow management decisions, and habitat rehabilitation efforts that aim to increase Chinook salmon abundance by reducing juvenile mortality/losses in a highly modified river system.



Figure 1. Juvenile Chinook salmon captured during rotary screw trap monitoring in the San Joaquin River, California.

Who: Bureau of Reclamation and California Department of Fish and Wildlife



Figure 2. Rotary screw trap used to capture juvenile Chinook salmon in the San Joaquin River, California.

What: Rotary screw traps (RST; Figure 2) are a common tool used to passively capture downstream moving fishes and will be used to monitor emigrating juvenile Chinook salmon in the SJRRP Restoration Area. RST has a single conical opening that splits into four large chambers funneling contents to a perforated catch box. This permits the capture and maintenance of fish without causing injury or excessive stress. Traps will be checked at least once per day. Captured juvenile Chinook salmon will be measured for length and weight, assessed for life-stage and condition, and a tissue sample will be collected for DNA analyses. All other fish species will be enumerated and measured. Captured fishes will be released immediately downstream of capture locations. To derive accurate abundance estimates of salmon at each trap, it will be necessary to estimate RST efficiency at each site.

Mark-recapture trials with tagged hatchery juvenile Chinook salmon will be performed to estimate trap efficiency at all sites. Trap efficiency evaluations are used to measure changes associated with variation in fish behavior (e.g., developmental changes) and environmental conditions (e.g., water quality and flow).

Where: Rotary screw traps will be deployed throughout Reach 1 and 2 of the SJRRP Restoration Area, between Mendota Dam and Friant Dam, and will be checked at least once daily. Ample boat passage will be made available, and orange buoys and flashing amber caution lights will alert river users to in-river equipment.

When: Rotary screw traps will be installed in November 2024 and will be operated continuously through June 2025 if environmental conditions are adequate.

Considerations: Access to the locations will occur from the public right-of-way or where private landowners have granted access.

Questions about this activity should be directed to the study's agency points-of-contact provided below.

Zak Sutphin

Fisheries Biologist
Bureau of Reclamation
Phone: (303) 445-2141
Email: zsutphin@usbr.gov

Jennifer Giannetta

Senior Environmental Scientist, Supervisor
California Dept Fish and Wildlife
Phone: (559) 417-0516
Email: Jennifer.Giannetta@wildlife.ca.gov

Questions about the SJRRP should be directed to the Public Affairs Specialist listed below. Questions about SJRRP field activities on public and private land should be directed to the Landowner Coordinator listed below.

Josh Newcom, Public Affairs Specialist

Office: 916-978-5508
Mobile: 916-208-6862
Email: snewcom@usbr.gov

Craig Moyle, Landowner Coordinator

Office (direct line): 916-418-8248
Mobile: 916-642-6383
Email: craig.moyle@mwhglobal.com

Contact the SJRRP Hotline, 916-978-4398, or email RestorationFlows@restoresjr.net if you see any problems or have any concerns.

**For more information, please visit the SJRRP Web site at www.restoresjr.net
Field Advisories for activities are available at
<https://www.restoresjr.net/get-involved/field-advisories/>**