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Environmental Mitigation and Monitoring Unit

Fish Team

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Fish in FAHCE Streams



Steelhead (*Onchorhynchus mykiss*)


- Federally Threatened
- Found in all FAHCE Streams
- Adult migration occurs December through April
- Juveniles are present in the system year round



Chinook Salmon (*Onchorhynchus tshawytscha*)


- California Species of Special Concern
- Found in the Guadalupe Watershed and Coyote Creek
- Adult migration occurs October through January
- Juveniles rear January to June
- Chinook salmon are not present during the summer months

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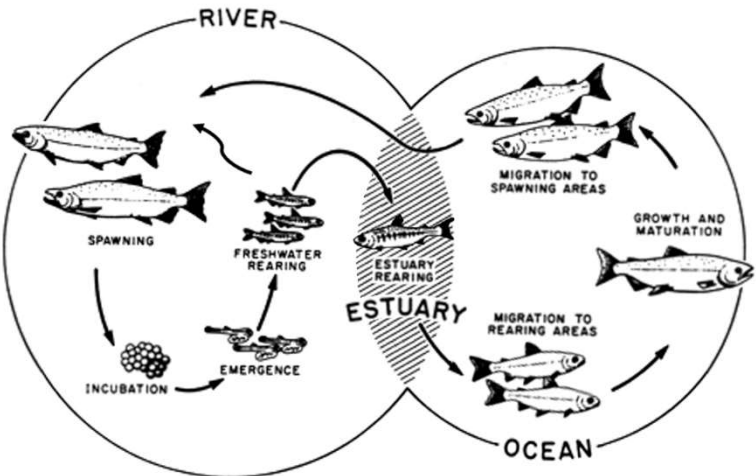


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Salmonid Life History



- Adults Spawn in Freshwater
- Eggs hatch and rear in freshwater
- Juveniles emigrate to the ocean
- Salmonids mature in the ocean and return to freshwater to spawn.
- Steelhead have a “resident” life history



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Other Species Present In Our Creeks



Riffle sculpin*



Southern Coastal roach*



Pacific lamprey*



Sacramento Sucker



Sacramento Hitch*



Prickly sculpin



Three-Spined Stickleback

* Indicates California Species of Special Concern

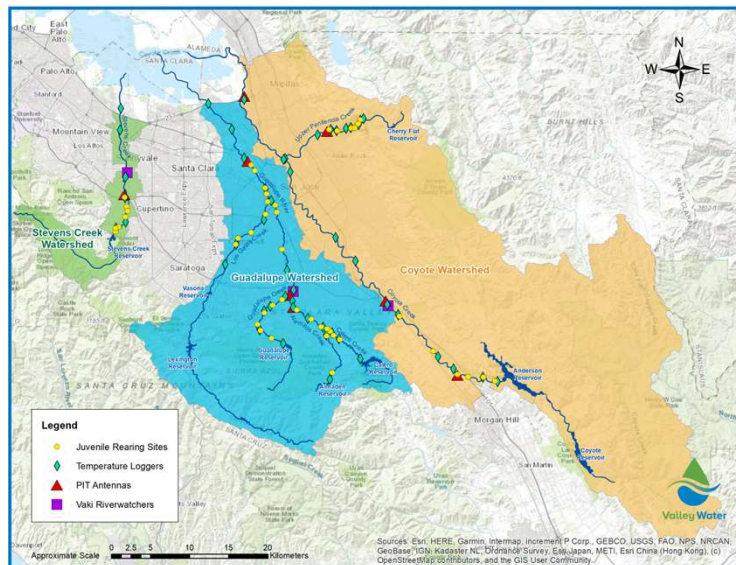


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Fish Monitoring Program Overview

- A. Stream temperature
- B. Transect validation monitoring
- C. Fish assemblage monitoring
- D. Migration monitoring
 - PIT tracking
 - Vaki Riverwatcher



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Temperature Validation Monitoring



- 48 temperature loggers in 8 FAHCE creeks.
- Year-round monitoring
- Validate FAHCE Cold Water Management Zone
- Suitability for salmonids and other native species

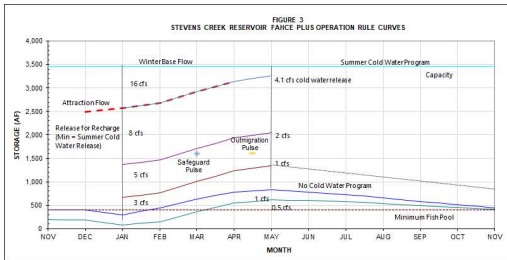


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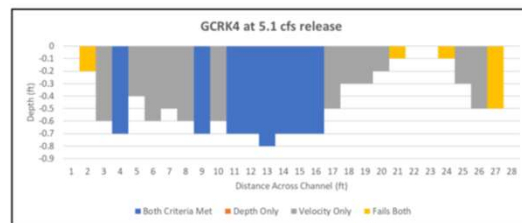


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Transect Flow Validation Monitoring



- Currently occurring as part of the FAHCE Pilot
- Validate effectiveness of FAHCE winter base flows and pulse flows
- Fixed repeatable transects perpendicular to flow
- Evaluates Depth and velocity for spawning
- Evaluates depth for passage at critical riffles



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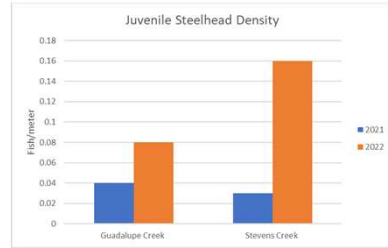
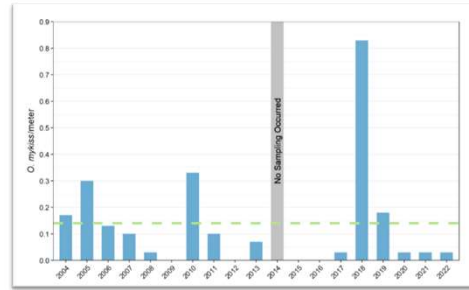


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Juvenile Rearing



- Multi-pass electrofish in index reaches
- Enumerate all species captured
- Measure and weigh O. mykiss
- PIT tag/collect genetic samples



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Juvenile Rearing – Measuring/Tagging



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PIT Tracking

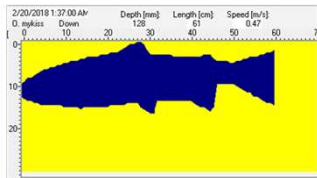
- 9 antennas throughout the three creeks.
- Tags are read when fish swim past antennas (Fastrack for fish).
- Unique ID that allows biologist to track the time and date when individual fish pass by an antenna and understand growth and movement when captured.



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Vaki Riverwatcher - Adult Salmonid Migration



- One unit deployed in each of the Three Creeks.
- Passive fish counting device
- Records a silhouette and a video for each detection
- Date/time, direction, and size.
- Allows data to be collected on adult run timing, response to pulse flows and size of fish

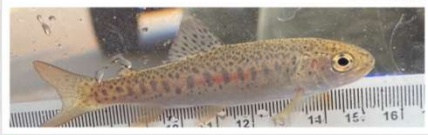


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Summary of Program Objectives

- Assess effectiveness of flow releases
- Develop an overall better understanding of our watershed
- Assess trends in fish densities, condition, migration patterns, and distributions
- Inform the AMT to direct management decisions to protect these important species



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