

Item 10: Draft Monitoring and Mitigation Plan for Water Extraction on the Carmel River

Meeting Date: January 26, 2026



Environmental Resource Division
Thomas Christensen (ERD Manager)
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Strategic Goals and Objectives

2025

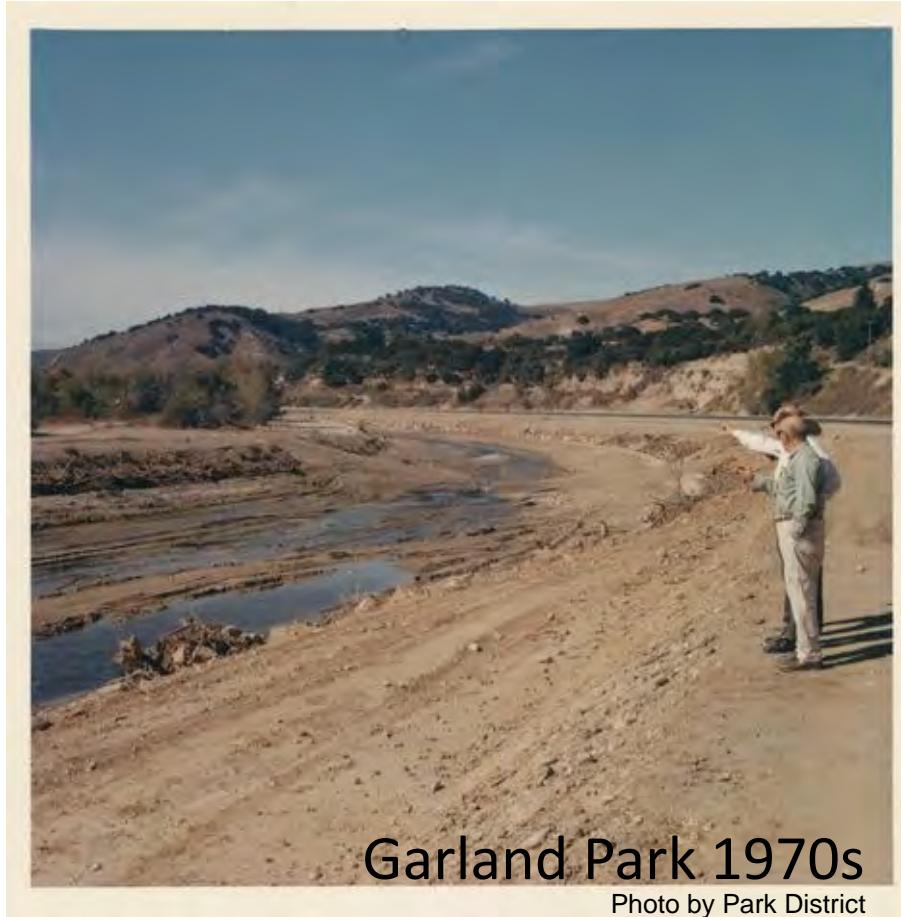
- Goal 6: Review Carmel River Mitigation Program

Objectives

- Identify Carmel River mitigation activities required by regulatory conditions
- Identify data monitoring needed to implement changes to Carmel River mitigation program requirements
- Add climate change/climate action to Carmel River planning functions

Origins of MPWMD's Mitigation Program

- Observed degradation of the Carmel River (1970s)



Mid-Valley looking at Robinson Canyon Bridge (June 23, 1987)



Downstream of Schulte Bridge 1995



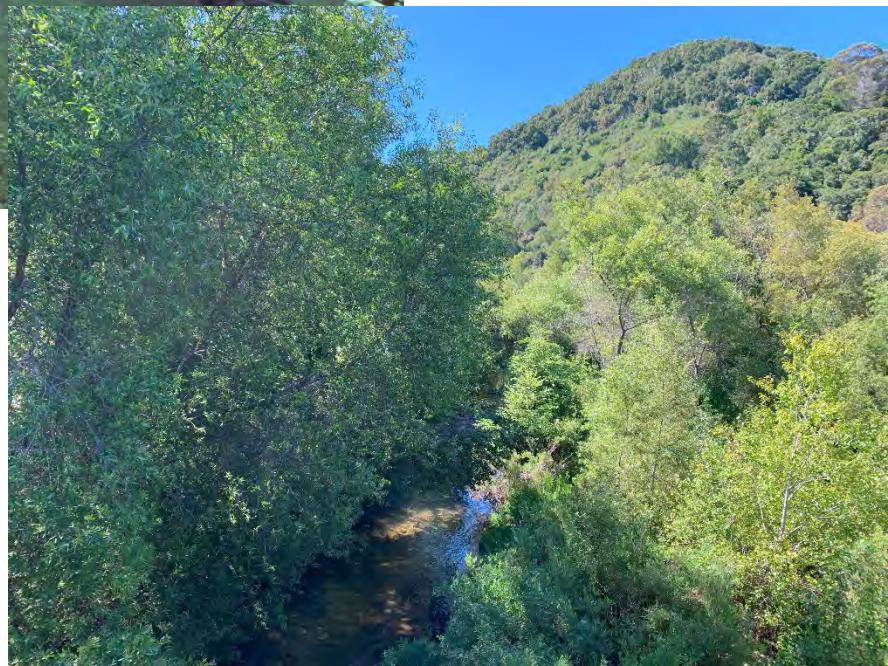
1980s



1988



2024



Carmel River Upstream
of Schulte Bridge

Mitigation Program History

- Carmel River Management Plan (1984) and the Interim Relief Plan (1988)
- 1990 Water Allocation Environmental Impact Report (included findings requiring mitigation)
 - Option V 16,744 acre-feet per year (Cal-Am)
- State Water Resources Board Order 95-10
- Mitigation and Permit Requirements for Aquifer Storage and Recovery

Mitigation Measures from 1990

Water Allocation EIR

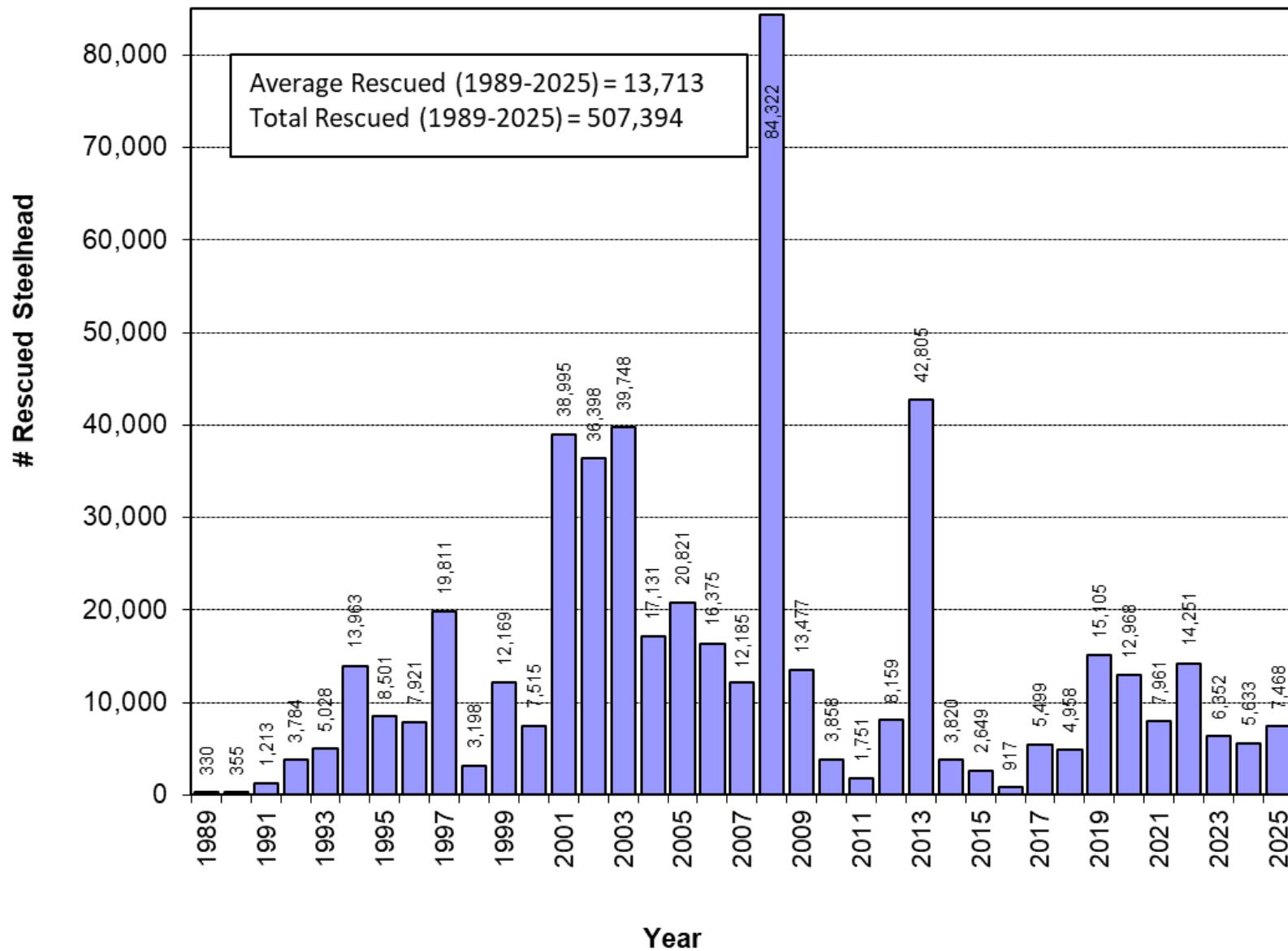
- Fisheries
 - Continue existing programs (1988 Interim Relief Plan)
 - Capture and transport emigrating smolts in spring
 - Prevent stranding of fall/winter juvenile migrants
 - Rescue juveniles downstream of Robles del Rio in summer
 - Modify spillway and transport smolts around Los Padres Dam

Steelhead Fish Rescue

(up to 9 miles of the river can go dry)



ANNUAL NUMBER OF STEELHEAD RESCUED BY MPWMD CARMEL RIVER BASIN (1989-2025)



Mitigation Measures from 1990 Water Allocation EIR

- Riparian Vegetation and Wildlife
 - Continue existing programs (1988 Interim Relief Plan)
 - Conservation and water distribution management
 - Prepare and oversee riparian corridor management plan
 - Implement riparian corridor management program
 - Expand monitoring program for soil moisture and vegetative stress

Picture of Stressed Riparian Vegetation



Mitigation Measures from 1990 Water Allocation EIR

- Lagoon Vegetation and Wildlife
 - Continue existing programs (1988 Interim Relief Plan)
 - Assist with lagoon enhancement plan investigations
 - Expand long term lagoon monitoring program
 - Identify feasible alternatives to maintain adequate lagoon volume

Mitigation Measures from Final Phase 1 Aquifer Storage and Recovery Project EIR

- EIR Mitigations
 - Aquatic Resources (AR) -1
 - Conduct annual survey of critical riffles below river mile 5.5 and monitor river flow Jan.-June
 - Aquatic Resources (AR)-2
 - Cooperate to help develop a project to maintain recover or increase storage in Los Padres Reservoir
 - Continue funding program to rescue steelhead and rear isolated juveniles

Permit Conditions for Diversion and Use of Water Right Permit 20808A and 20808C

- 20808 A and C
 - Permittees shall implement riparian corridor management program outlined in 1990 Water Allocation EIR
 - Maintain insofar as possible a minimum of 5 cfs bypass flow at Sleepy Hollow Weir
 - Continue to implement Fisheries Mitigation Measure 4 (rescue of juvenile steelhead) of 1990 Water Allocation EIR
 - Determine effectiveness of fish rescue operations
 - Continue lagoon mitigation (monitoring of vegetation)
 - Maintain in good working order riparian irrigation systems

Table 1. Carmel River Mitigation Activities

- This table in the report shows the interrelationship between mitigation requirements

Tasks	Permits Required	Document	Type
Steelhead Fish Rescue	ESA Sect 10 RRMP/SCP	a,b,c,d	Fisheries
Sleepy Hollow Steelhead Rearing Facility	ESA Sect 10 RRMP/SCP	a,b,c,d	Fisheries
Fyke Trap (smolt rescue)	ESA Sect 10 RRMP/SCP	a,b,c,d	Fisheries
Redd Surveys	ESA 4D/ SCP	d	Fisheries
Water Quality Monitoring	None	a,c,d	Fisheries
Water Temperature Monitoring	None	a,c,d	Fisheries
Pop Surveys- Juvenile	ESA 4D/ SCP	a,c,d	Fisheries
Habitat- Embeddedness	None	a	Fisheries
BMI (benthic macroinvertebrates)	SCP		Fisheries
Critical Riffles Monitoring	None	a,b	Fisheries
Pit Tag Array (fish monitoring stations)	None	c,d	Fisheries
Weir (adult steelhead counting station)	ESA 4D/ SCP	c,d	Fisheries
Gravel Injection	ACE, CDFW 1602		Fisheries
Lagoon Fish Survey	ESA 4D/ SCP		Fisheries
Lagoon Monitoring- Monterey County Contract	Contract with County		Fisheries
Permits for working with Steelhead	All	a,b,c,d	Fisheries
Low Flow MOA	None	a,c	Fisheries
Quarterly Water Budget	None	e	Fisheries
Stakeholder Outreach	None		Fisheries
TAC Groups	None	a, b, d	Fisheries
Monitoring of Riparian Corridor	None	a, c	Riparian
Monitor Physical Changes along C.R.	None	a, c	Riparian
Irrigation System Operation and Maintenance	Permit by Owner Permission	g	Riparian
			Multiple
			Riparian
			Riparian
			Multiple
			Multiple
			Wetland

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Water Quality Monitoring	None	a,c,d	Fisheries
Water Temperature Monitoring	None	a,c,d	Fisheries

a = Water Allocation EIR, b = ASR EIR, c = ASR Water Rights, d = Rescue and Rearing Management Plan,

e = Ord 19 (rule 101 - quarterly water budget), f= Ordinance 10 (Rule 123,124,125 - river management),

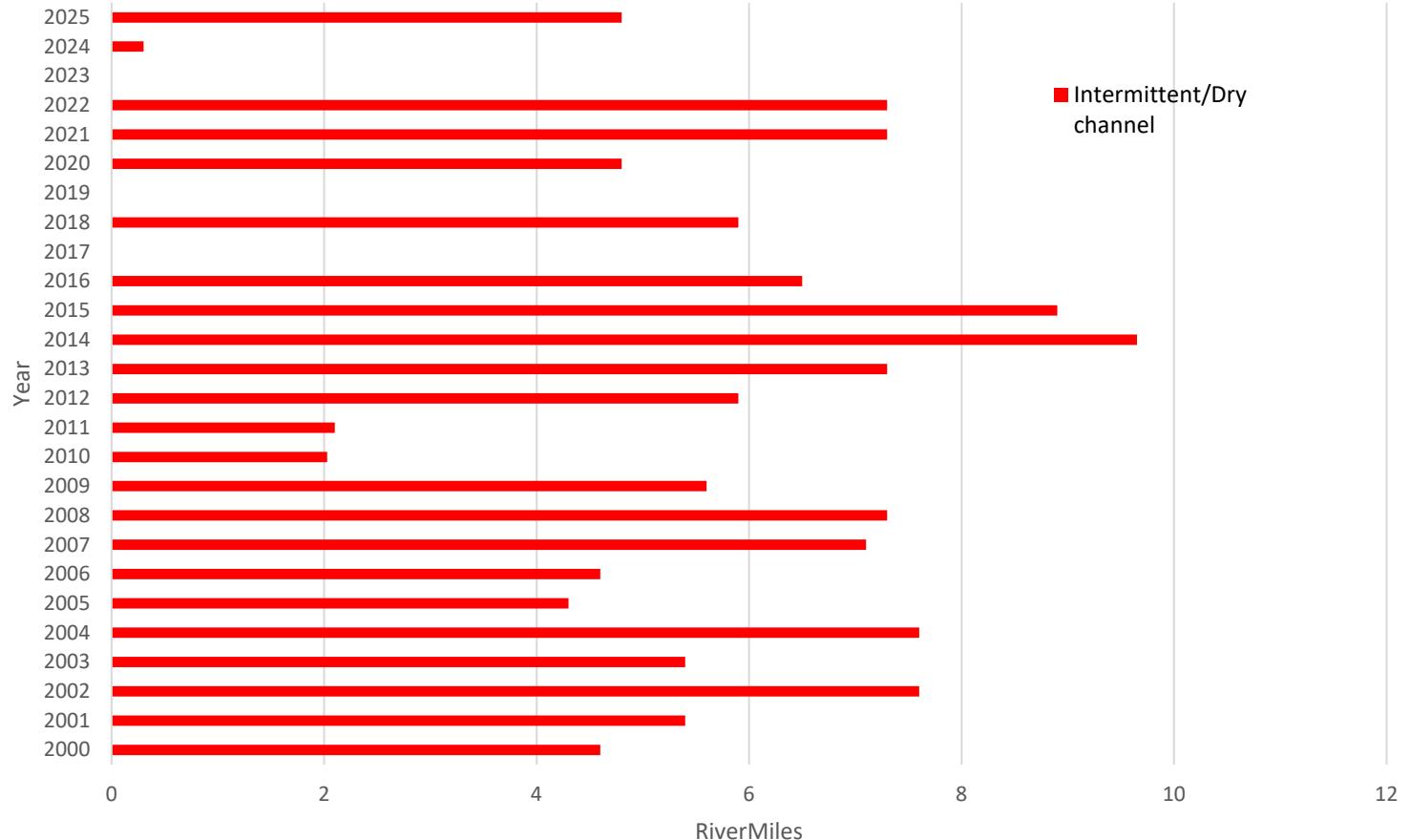
and g = Carmel River Management Plan

What's Changed

- We know that Cal-Am has reduced it pumping to 3,376 Acre-Feet Per Year along the Carmel River...plus ASR, Table 13, and Mal Paso
- We know the dry back of the river is slower and the river is more intermittent
- However, the lower Carmel River still goes dry

Carmel River Dry Back

Mainstem Carmel River Intermittent/Dry Channel
(RiverMiles Rescued)



Carmel River Mitigation Plan

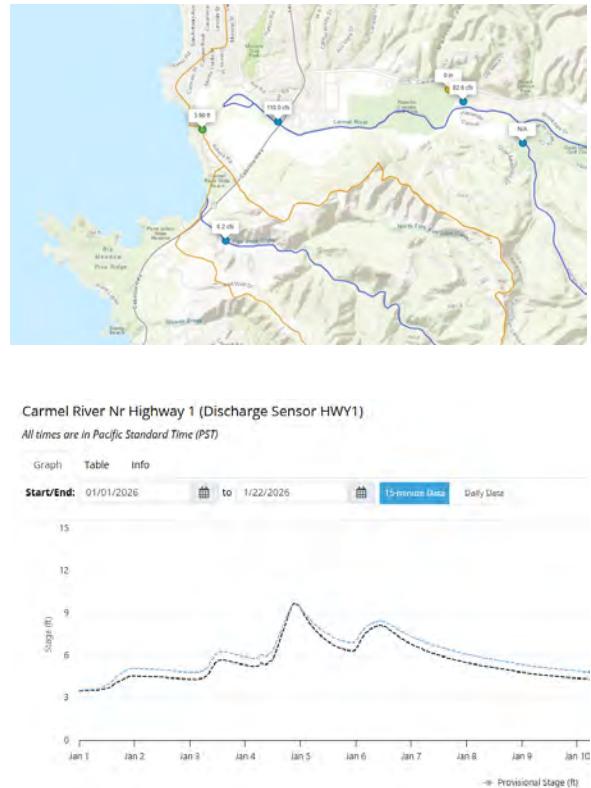
Strategies for the Future

- Hydrologic and Habitat Monitoring
- Biological Monitoring
- Riparian Monitoring
- Lagoon Monitoring
- Climate Change Monitoring
- Fish Rescue and Rearing Activities
- Irrigation Activities
- Limited Restoration Activities

With an emphasis on tracking changes related to Cal-Am's reduced pumping
10-year period

Carmel River Mitigation Program Monitoring

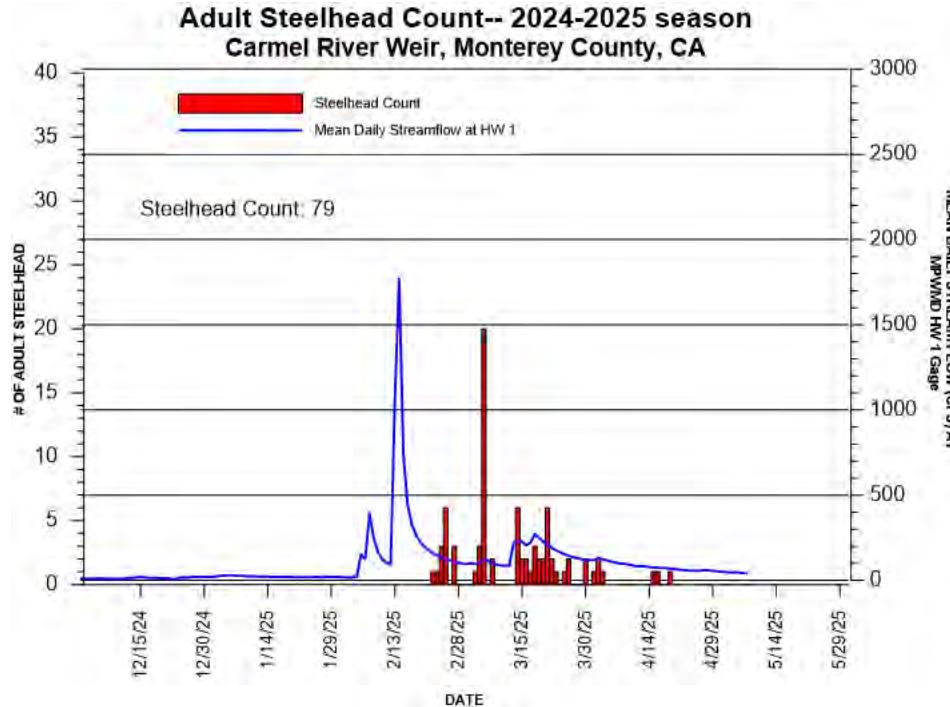
- Hydrologic and Habitat Monitoring
 - Rainfall
 - Streamflow (gaging)
 - Groundwater extraction data
 - Water quality data
 - Low-flow dry-back surveys
 - LPR sedimentation rates
 - LPR evaporation rates



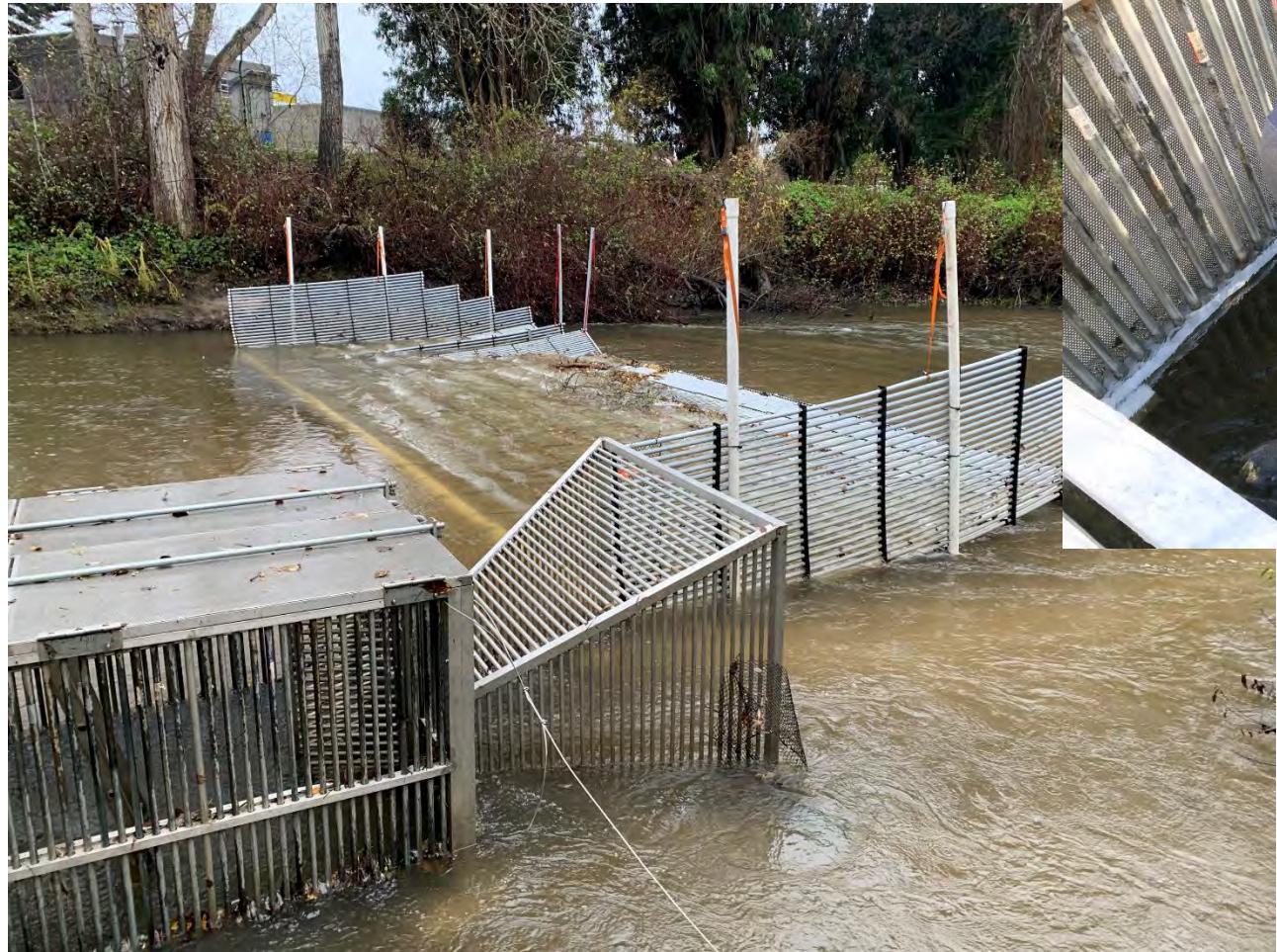
Fisheries Related Tasks

Carmel River Mitigation Program Monitoring

- Biological Monitoring
 - Juvenile steelhead population surveys
 - Migration Survival Rates (PIT Tags and Arrays)
 - Benthic Macroinvertebrates monitoring



Carmel River Resistance Board Weir (steelhead counting station)



Carmel River Mitigation Program Activities

- Steelhead Fish Rescue and Rearing



Sleepy Hollow Steelhead Rearing Facility



- Over 500,000 steelhead rescued since 1989
- 254,244 steelhead raised at SHSRF since 1996



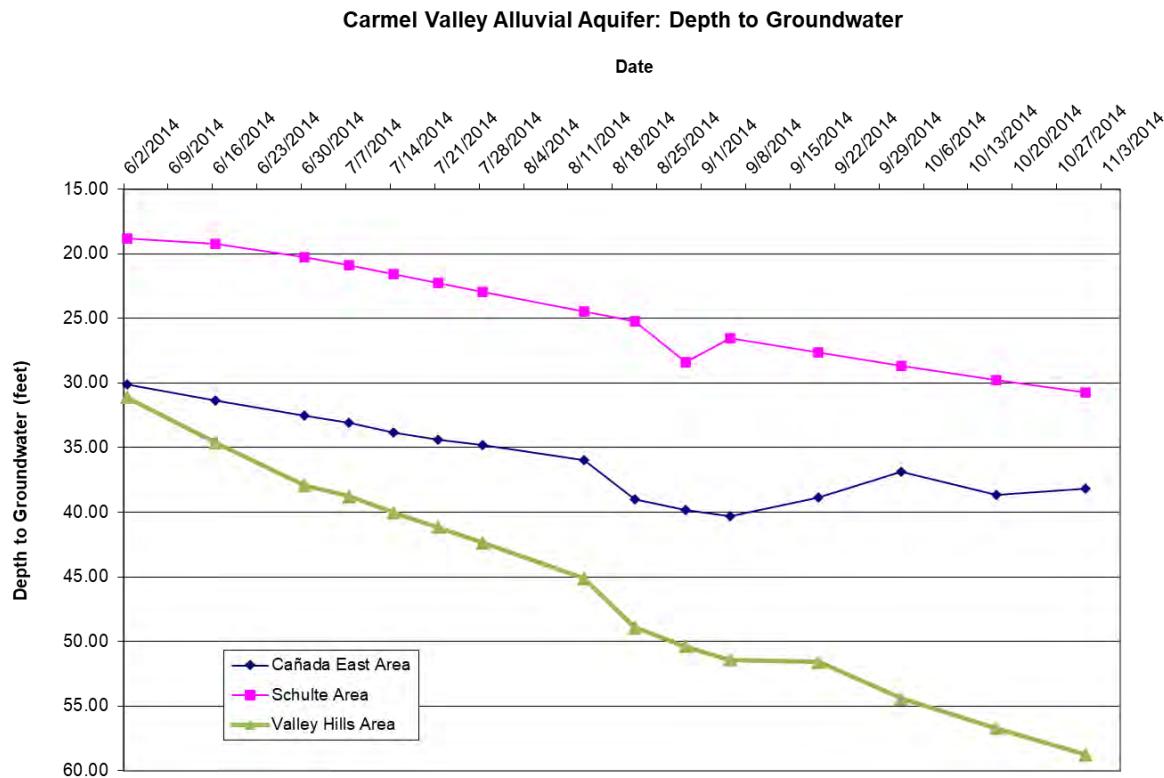
Steelhead are rescued from drying reaches of the Carmel River and transported to the Sleepy Hollow Steelhead Rearing Facility



Riparian Related Tasks

Carmel River Mitigation Program Monitoring

- Riparian Monitoring
 - Riparian Moisture Stress
 - Depth to groundwater



Carmel River Mitigation Program Activities

- Irrigation of Riparian Corridor
- Limited Restoration of Streambanks



Carmel River Management Program (restore streamside habitat)



Staff provided:

- site assessment
- manage CEQA, permit acquisition, design
- prepare, advertise, select low bid
- manage construction
- install irrigation system
- provide native vegetation
- Cost ~ \$700,000

Rancho San Carlos Bank Stabilization Project - 2018



Rancho San Carlos Project

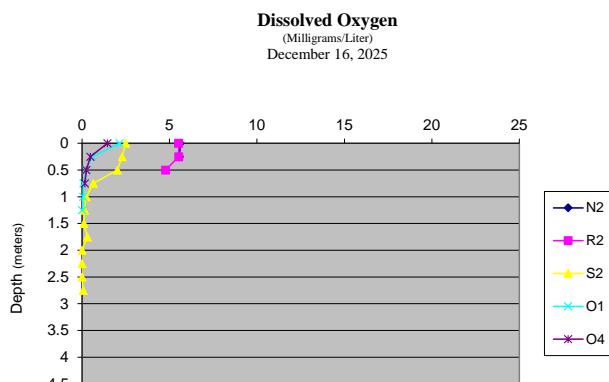
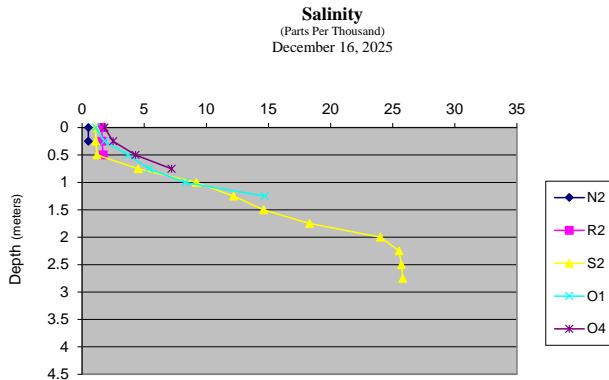
Spring 2024



Lagoon Related Tasks

Carmel River Mitigation Program Monitoring

- Lagoon Monitoring
 - Wetland vegetation monitoring
 - Water quality monitoring



Operational Changes to the Monterey Peninsula Water Resource System and Unknowns

- How do new wells and development affect flows in the Carmel River ?
- How will a Habitat Conservation Plan change groundwater pumping and what conditions will be included ?
- Will the CDO be modified and will there be new permit conditions ?
- How does Pure Water Monterey Expansion impact pumping decisions along the Carmel River ?
- What is the impact of different operational modes and subsequent changes to the Carmel Valley Alluvial Aquifer (CVAA) from both Cal-Am and private pumpers ?
- How does additional sewer connections to CAWD and subsequent loss of septic tank leach fields impact the CVAA ?
- What is the future of Los Padres Dam ?

Additional Functions Related to the Mitigation Program

- Education and Riparian Ordinance Enforcement
- District Rule 124 (no alteration of bed and banks without a permit)



Vegetation Management Carmel River



- Modification of downed trees
- Trimming of encroaching vegetation
- Breaking up of debris piles



Los Padres Low Flow MOA



Conclusion

- The Mitigation Program has lessened environmental impacts on the Carmel River from community water use
- The legally mandated program is related to the provision of water and is intertwined with ASR water rights and the 1990 Water Allocation EIR
- Additional time is necessary to monitor and carry out mitigation under Cal-Am's legally recognized water rights to understand how the Carmel River will dry back in various water year types
- District staff recommend an additional 10 years of monitoring and mitigation to help with data driven conclusions regarding the Mitigation Program