

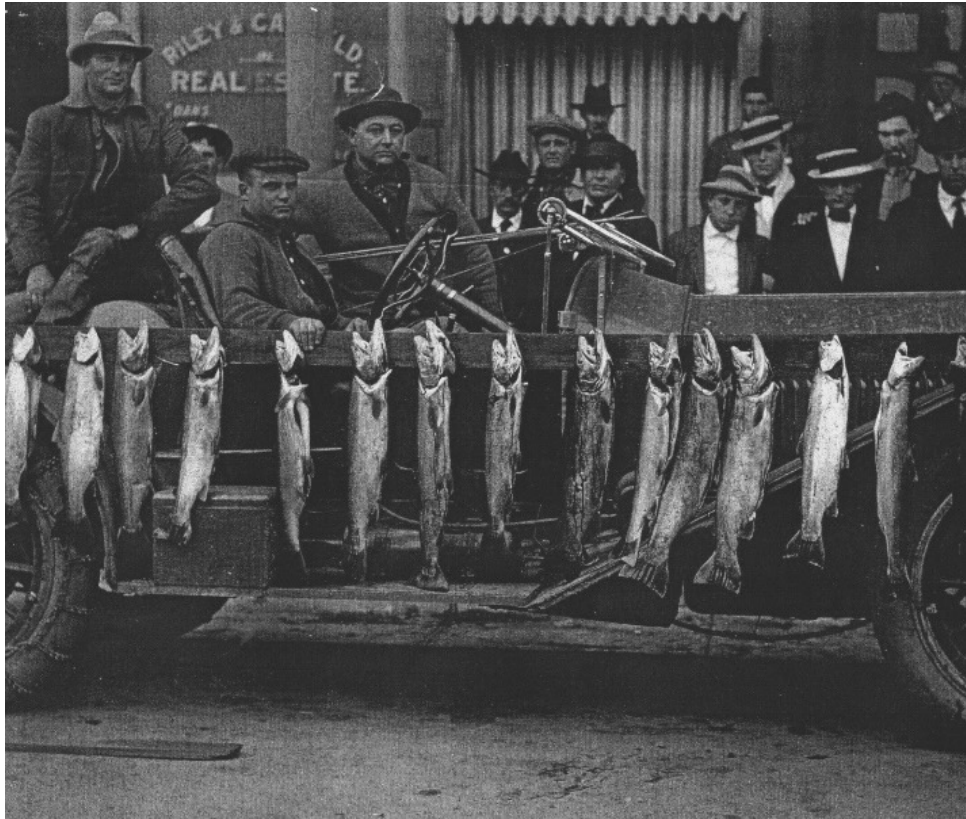


# **We Aren't Out of the Woods Yet**

## **The Threat of New Bypass Flow Recommendations to the Region**

October 26, 2023







"This order helps us take advantage of expected intense storms and increases state support for **local stormwater capture efforts.**"  
Governor Gavin Newsom

"local agencies succeed in **capturing stormwater** for recharge and bring stressed **groundwater basins into balance.**"  
State Water Board Chair Joaquin Esquivel

"California is seeing **extreme rain** and snow, so we're making it simple to redirect water to **recharge groundwater basins,**"  
Governor Gavin Newsom

"When we do these are all strategies that on groundwater, we have been using but we **accelerate them.**"  
State Water Board Chair Erik Ekdahl

"The state is capturing more water supply by **accelerating groundwater recharge** permitting and projects that mitigate the impacts of prolonged drought and support long-term sustainable groundwater management."  
DWR Director Karla Nemeth

"California is taking decisive action to **capture and store water** for when dry conditions return."  
Gov. Gavin Newsom

• **"Groundwater is really our buffer to climate change impacts in California."**  
• Juliet Christian-Smith, Senior Climate Scientist, in interview with News Deeply, "How Climate Change Will Affect the Future of California Water" December 21, 2019  
DWR Director Karla Nemeth

"The hydrology in this state has begun to change pretty significantly. We have to adapt to **our new reality and capture more of the stormwater**, capture it before it goes out through pipes and to the ocean."  
Governor Gavin Newsom





# Multi species habitat conservation plan for the Freeman Diversion

## Take Permit for Steelhead Trout





Coastal Rainbow Trout  
Scientific Name: *Oncorhynchus Mykiss*  
Resident form: Rainbow Trout  
Anadromous form: Steelhead

## First: What is a Steelhead?



Maurice Cardenas Fisheries Biologist for  
California Department of Fish and Wildlife



# Steelhead / Oncorhynchus Mykiss are on three important lists



Search N

Find A Species Fishing & Seafood Protecting Marine Life Environment

SPECIES DIRECTORY

## Steelhead Trout

Overview Conservation & Management Resources

### Steelhead Trout *Oncorhynchus mykiss*

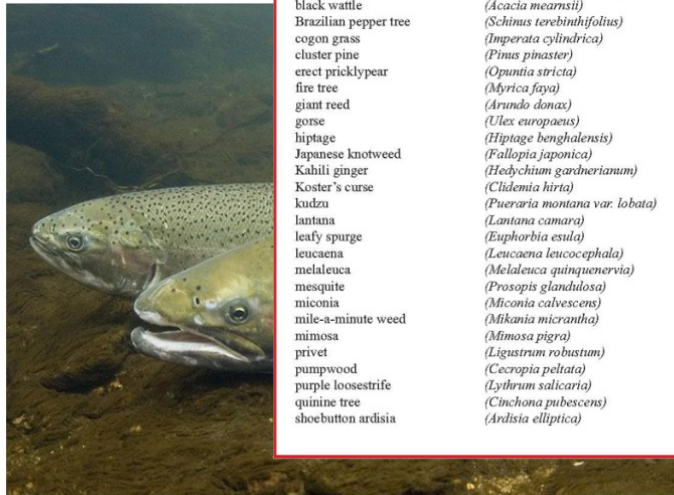


#### Protected Status

- ESA ENDANGERED  
Southern California DPS
- ESA THREATENED  
California Central Valley DPS
- ESA THREATENED  
Central California Coast DPS

#### Protected Status

- ESA ENDANGERED  
Southern California DPS  
Northern California DPS
- ESA THREATENED  
Puget Sound DPS
- ESA THREATENED



### About The Species

Steelhead trout are a unique species. Individuals develop differently depending on their environment. All steelhead trout hatch in gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. Some stay in fresh water all their lives, and are called rainbow trout. Steelhead trout that migrate to the ocean typically

## 100 OF THE WORLD'S WORST INVASIVE ALIEN SPECIES

### MICRO-ORGANISM

- avian malaria (*Plasmodium relictum*)
- banana bunchy top virus (*Banana bunchy top virus*)
- rinderpest virus (*Rinderpest virus*)

### MACRO-FUNGI

- chestnut blight (*Cryphonectria parasitica*)
- crayfish plague (*Aphanomyces astaci*)
- Dutch elm disease (*Ophiostoma ulmi*)
- frog chytrid fungus (*Batrachochytrium dendrobatidis*)
- phytophthora root rot (*Phytophthora cinnamomi*)

### AQUATIC PLANT

- caulerpa seaweed (*Caulerpa taxifolia*)
- common cord-grass (*Spartina anglica*)
- wakame seaweed (*Undaria pinnatifida*)
- water hyacinth (*Eichhornia crassipes*)

### LAND PLANT

- African tulip tree (*Spathodea campanulata*)
- black wattle (*Acacia mearnsii*)
- Brazilian pepper tree (*Schinus terebinthifolius*)
- cogon grass (*Imperata cylindrica*)
- cluster pine (*Pinus pinaster*)
- erect pricklypear (*Opuntia stricta*)
- fire tree (*Myrica faya*)
- giant reed (*Arundo donax*)
- gorse (*Ulex europaeus*)
- hiptage (*Hiptage benghalensis*)
- Japanese knotweed (*Fallopia japonica*)
- Kahili ginger (*Hedychium gardnerianum*)
- Koster's curse (*Clidemia hirta*)
- kudzu (*Pueraria montana var. lobata*)
- lantana (*Lantana camara*)
- leafy spurge (*Euphorbia esula*)
- leucaena (*Leucaena leucocephala*)
- melaleuca (*Melaleuca quinquenervia*)
- mesquite (*Prosopis glandulosa*)
- miconia (*Miconia calvescens*)
- mile-a-minute weed (*Mikania micrantha*)
- mimosa (*Mimosa pigra*)
- privet (*Ligustrum robustum*)
- pumpwood (*Cecropia peltata*)
- purple loosestrife (*Lythrum salicaria*)
- quinine tree (*Cinchona pubescens*)
- shoebutton ardisia (*Ardisia elliptica*)

### LAND PLANT (CONTINUED)

- Siam weed (*Chromolaena odorata*)
- strawberry guava (*Psidium cattleianum*)
- tamarisk (*Tamarix ramosissima*)
- wedelia (*Sphagneticola trilobata*)
- yellow Himalayan raspberry (*Rubus ellipticus*)

### AQUATIC INVERTEBRATE

- Chinese mitten crab (*Eriocheir sinensis*)
- comb jelly (*Aurelia aurita*)
- fish hook flea (*Aurelia leidy*)
- golden apple snail (*Cercopagis pengoi*)
- green crab (*Pomacea canaliculata*)
- marine clam (*Carcinus maenas*)
- Mediterranean mussel (*Potamocorbula amurensis*)
- Northern Pacific seastar (*Mytilus galloprovincialis*)
- zebra mussel (*Asterias amurensis*)

### LAND ANIMATE

- Argentine ant (*Linepithema humile*)
- Asian tiger mosquito (*Aedes albopictus*)
- Asian tiger cat (*Prionailurus bengalensis*)
- bighead carp (*Carrasius auratus*)
- common carp (*Cyprinus carpio*)
- common carp (*Cyprinus carpio*)
- crazy quail (*Turnix sibiricus*)
- cyprinid (*Cyprinus carpio*)
- flathead mullet (*Pleuronectes vetulus*)
- Formosan cockroach (*Blattella germanica*)
- giant water bug (*Belostomatidae*)
- gypsy moth (*Porthesia dispar*)
- khaki kudu (*Trichoteros*)
- little fire ant (*Wasmannia auropunctata*)
- red imported fire ant (*Solenopsis geminata*)
- rosy spine (*Diadromus amabilis*)
- sweet potato weevil (*Cylindrocopturus*)

### AMPHIBIAN

- bullfrogs (*Rana catesbeiana*)
- cane toad (*Rhinophrynus*)
- Caribbean monk seal (*Monachus tropicalis*)

### FISH

- brown hopperfish (*Leptocottus armatus*)
- carp (*Cyprinus carpio*)
- largemouth bass (*Micropterus dolomieu*)

### FISH (CONTINUED)

- Mozambique tilapia (*Oreochromis mossambicus*)
- Nile perch (*Lates niloticus*)
- rainbow trout (*Oncorhynchus mykiss*)
- walking catfish (*Clarias batrachus*)
- Western mosquito fish (*Gambusia affinis*)

### BIRD

- Indian myna bird (*Acridotheres tristis*)
- red-vented bulbul (*Pycnonotus cafer*)
- starling (*Sturnus vulgaris*)

### REPTILE

- brown tree snake (*Boiga irregularis*)
- red-eared slider (*Trachemys scripta*)

### MAMMAL

- brush-tail possum (*Trichosurus vulpecula*)



California Department of Fish and Wildlife



Online Regulations Booklets

Fishing Guide

Topics

Map

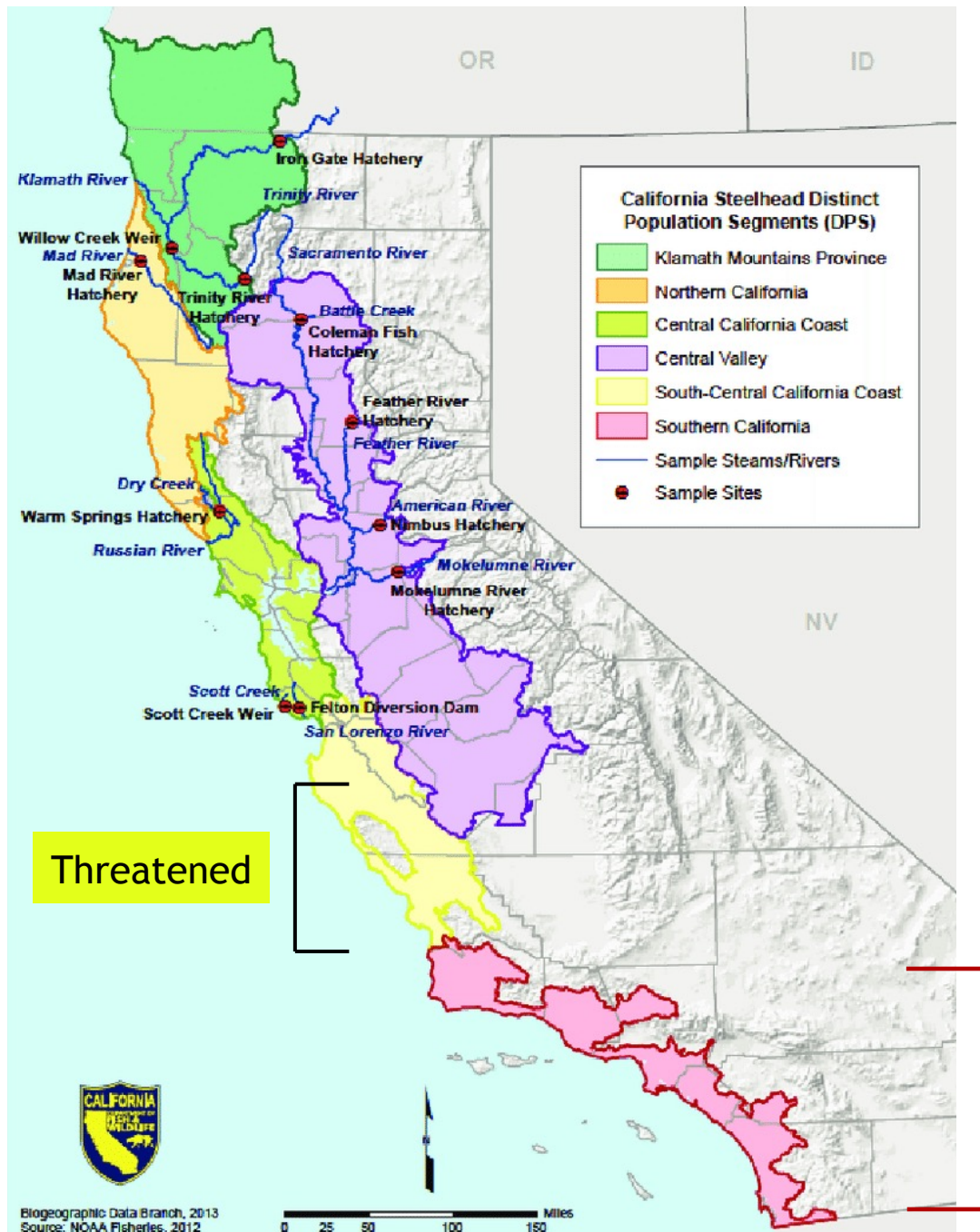
Regulations

7.50(a): General Provisions:	Open Season and Special Restrictions	Daily Bag and Possession Limit
7.50(a)(1): Every body of water listed in subsection (b) is closed to all fishing except during the open season as shown. Unless otherwise provided, waters shown as open to trout fishing in subsection (b), are open to fishing for other species. Gear restrictions listed in this section apply to the take of all species of fish unless otherwise noted.		
7.50(a)(2): Unless otherwise provided, waters closed to trout fishing are closed to fishing for all other species, except that these closures do not apply to fishing for amphibians (see Section 5.05), freshwater clams (see Section 5.20), crayfish (see Section 5.35), and lamprey (see Section 5.40), using legal fishing methods other than hook-and-line fishing, and saltwater clams, crabs, ghost shrimp, and blue mud shrimp (see Ocean Regulations Booklet sections 29.20 to 29.87). Crabs may only be taken using hoop nets or by hand, and Dungeness crab may only be taken within the North Coast District and Sonoma and Mendocino Counties.		
7.50(a)(3): Daily bag and possession limits, unless otherwise noted, mean the total number of trout.		
7.50(a)(4): Unless otherwise provided, it is unlawful to possess more than one daily bag limit.		
7.50(a)(5): These waters may also be subject to restrictions on fishing methods and gear (Sections 2.00 through 2.40), fishing hours (Section 3.00), and the use of bait (Sections 4.00 through 4.30).		
7.50(b): ALPHABETICAL LIST OF TROUT WATERS WITH SPECIAL FISHING REGULATIONS		
Body of Water	Open Season and Special Restrictions	Daily Bag and Possession Limit
7.50(b)(108): Piru Creek (Los Angeles and Ventura Cos.).		
7.50(b)(108)(A): Piru Creek and tributaries upstream of Pyramid Lake.	All year. Only artificial lures may be used.	2 trout
7.50(b)(133): Sespe Creek and tributaries above Alder Creek confluence (Ventura Co.).	All year. Only artificial lures with barbless hooks may be used.	0 trout

This website will not be accessible in remote areas of the state where there is a limited cellular data connection. The angler is responsible for knowing the regulations in the area that they are fishing.

Body of Water	questions and comments:
7.50(b)(108): Piru Creek (Los Angeles and Ventura Cos.).	EMAIL CDFW
7.50(b)(108)(A): Piru Creek and tributaries upstream of Pyramid Lake.	
7.50(b)(133): Sespe Creek and tributaries above Alder Creek confluence (Ventura Co.).	

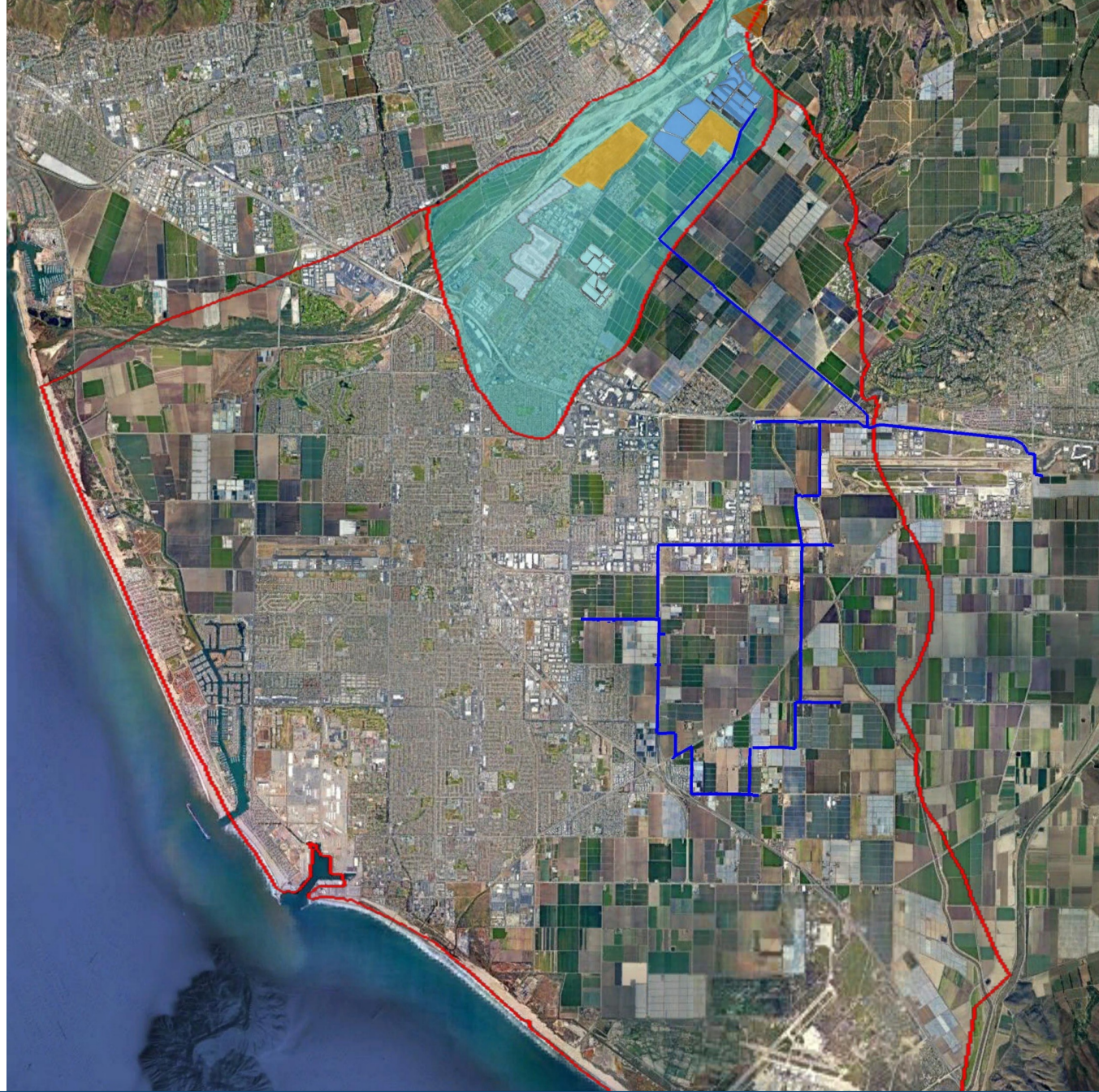




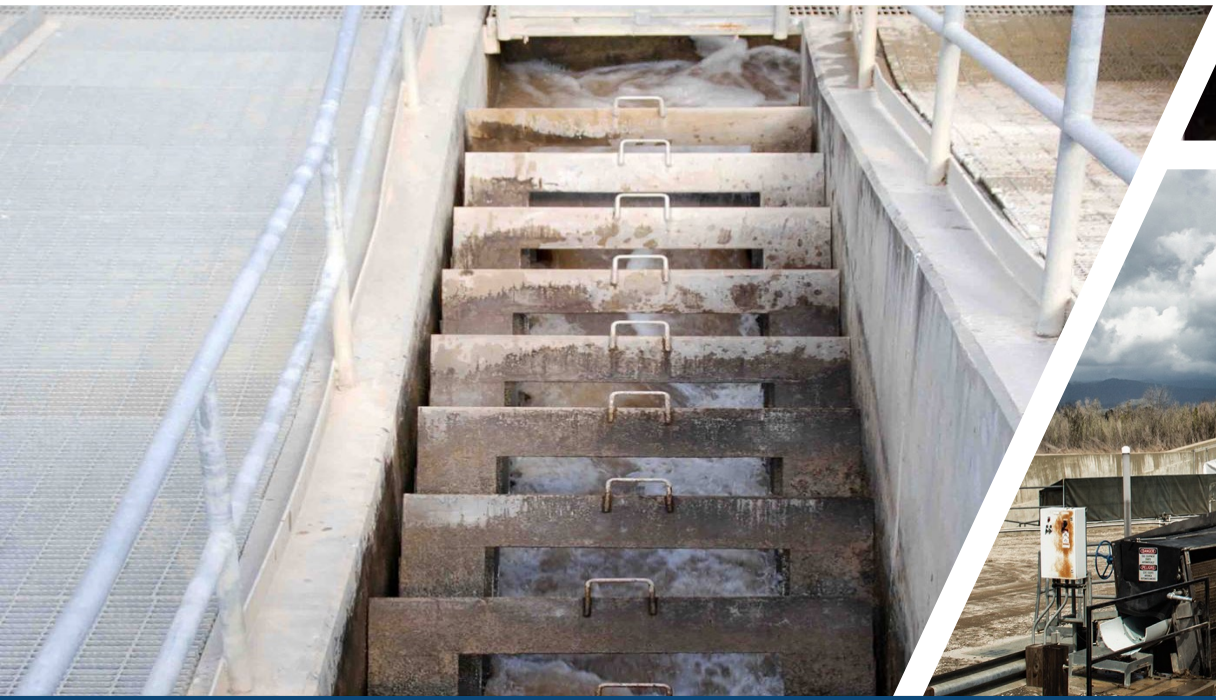
“Finally, no genetic basis was found for the division of populations from the region into two distinct biological groups, contrary to current classification under the US and California Endangered Species Acts.”

Clemento, A.J., E.C. Anderson, D. Boughton, D. Girman, J.C. Garza. 2008. Population genetic structure and ancestry of *Oncorhynchus mykiss* populations above and below dams in south-central California. *Conservation Genetics*.







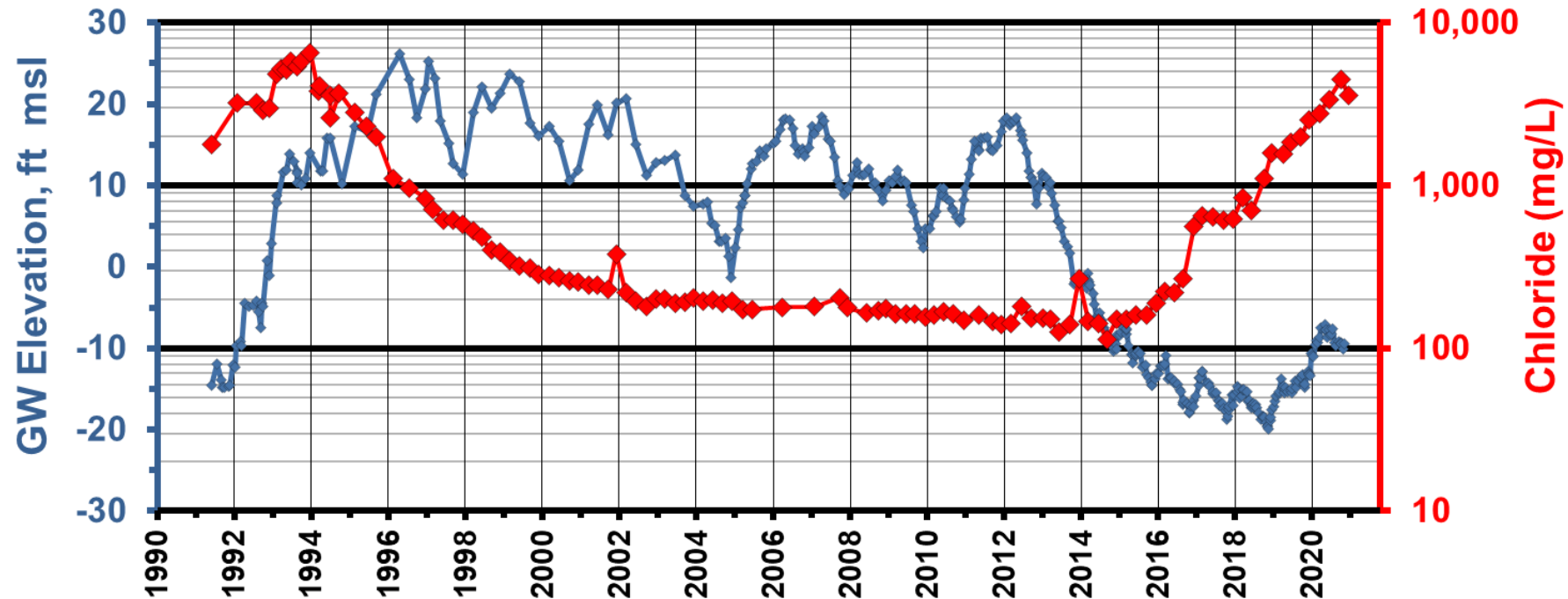
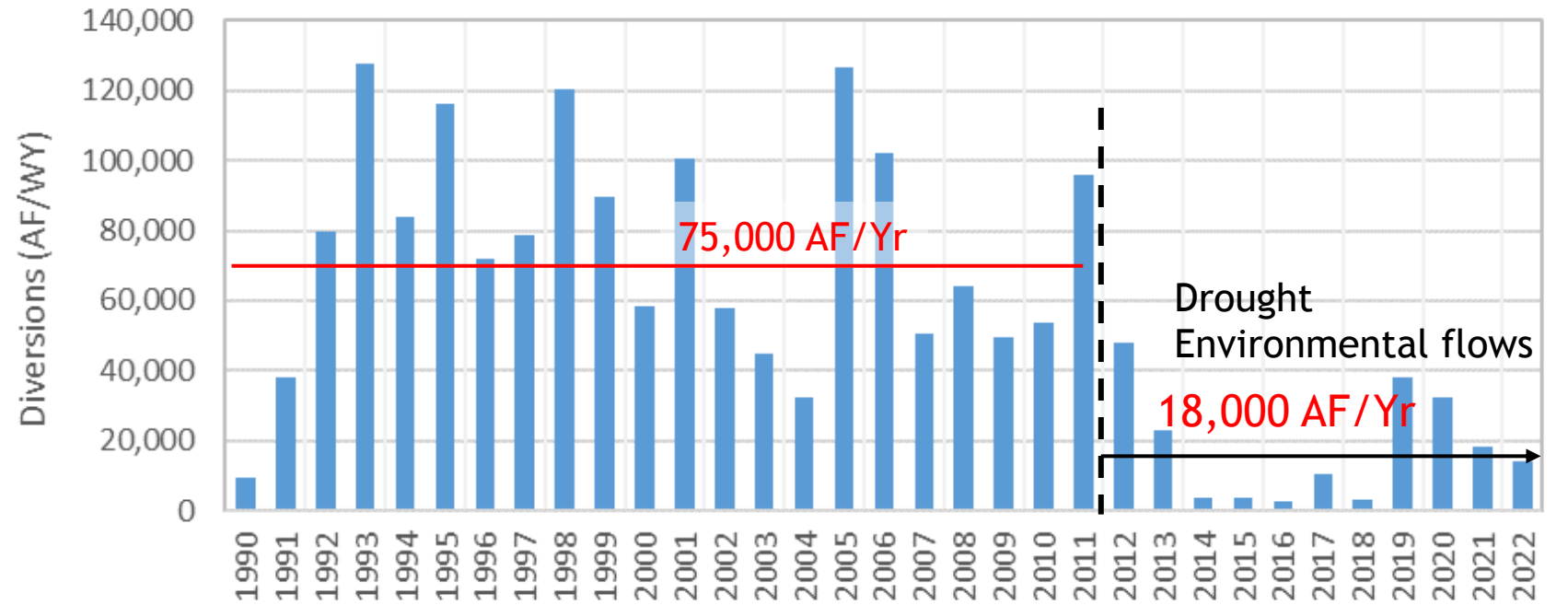








Stormwater capture/  
groundwater recharge has protected the Oxnard Plain against seawater intrusion.



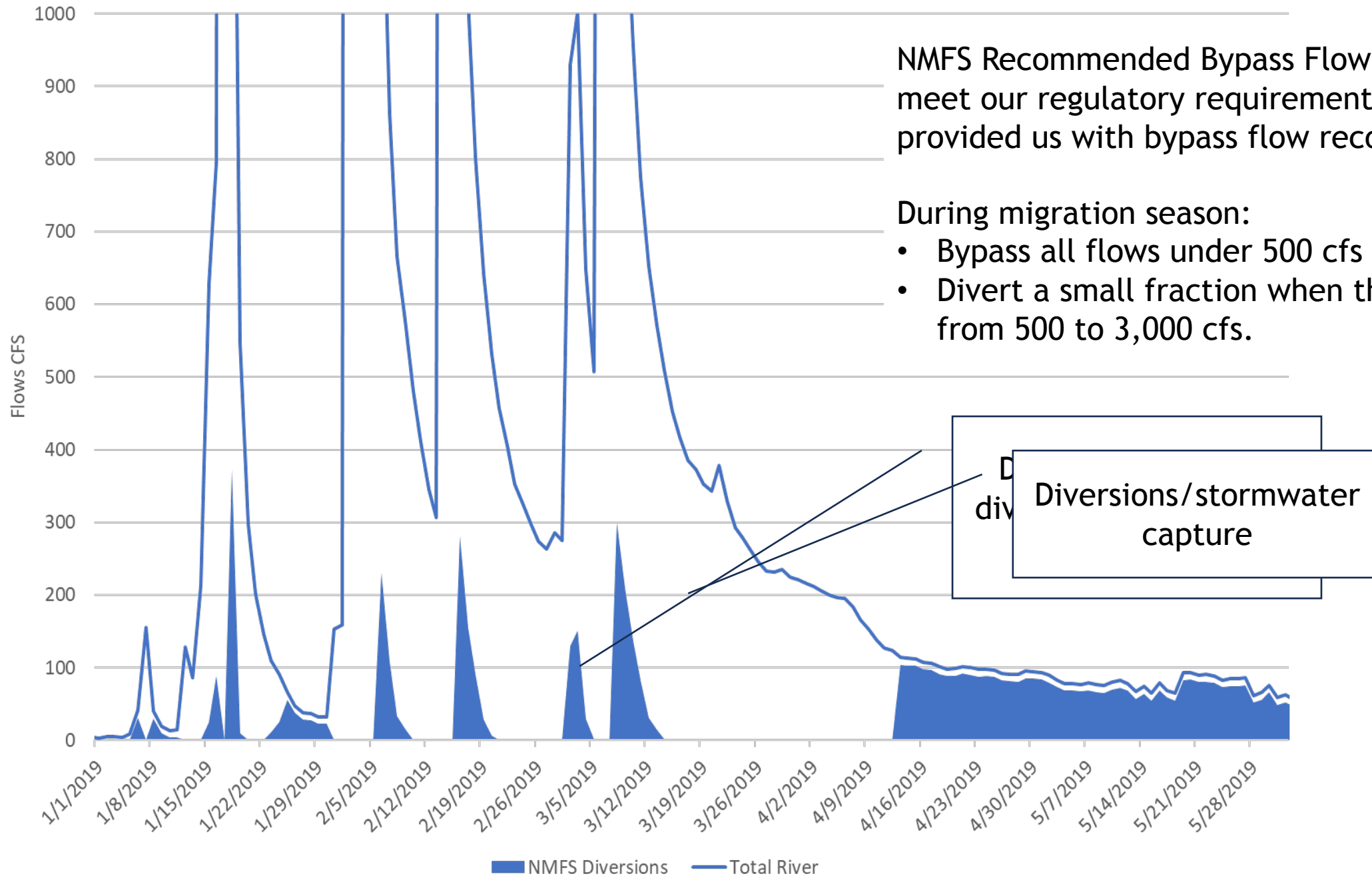


# Example year for diversions with NMFS recommended diversion limitations

NMFS Recommended Bypass Flows: In order to meet our regulatory requirements NMFS provided us with bypass flow recommendations:

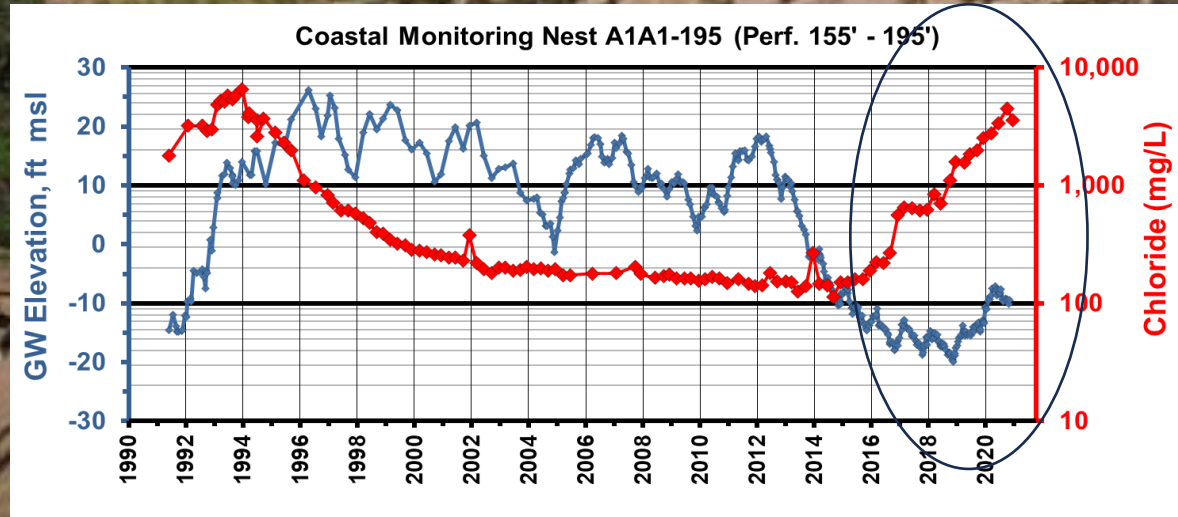
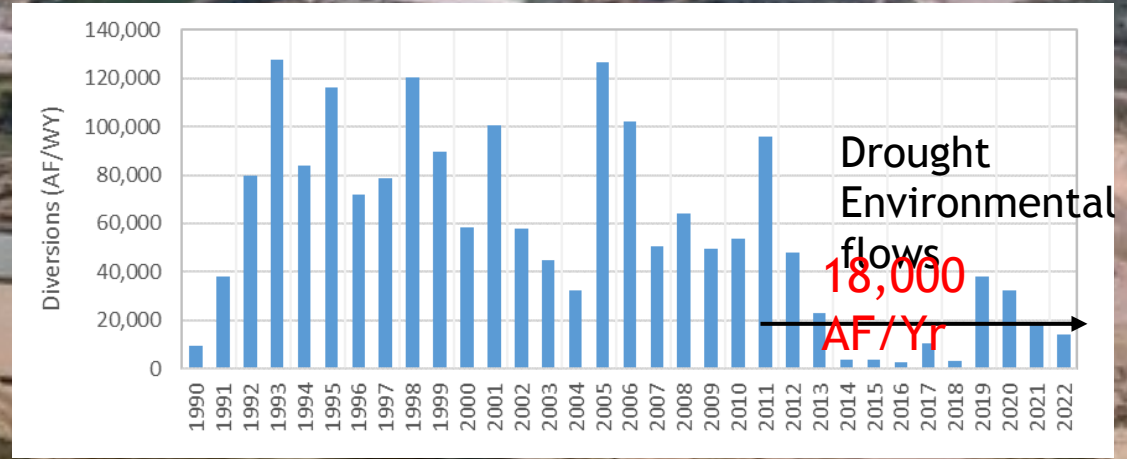
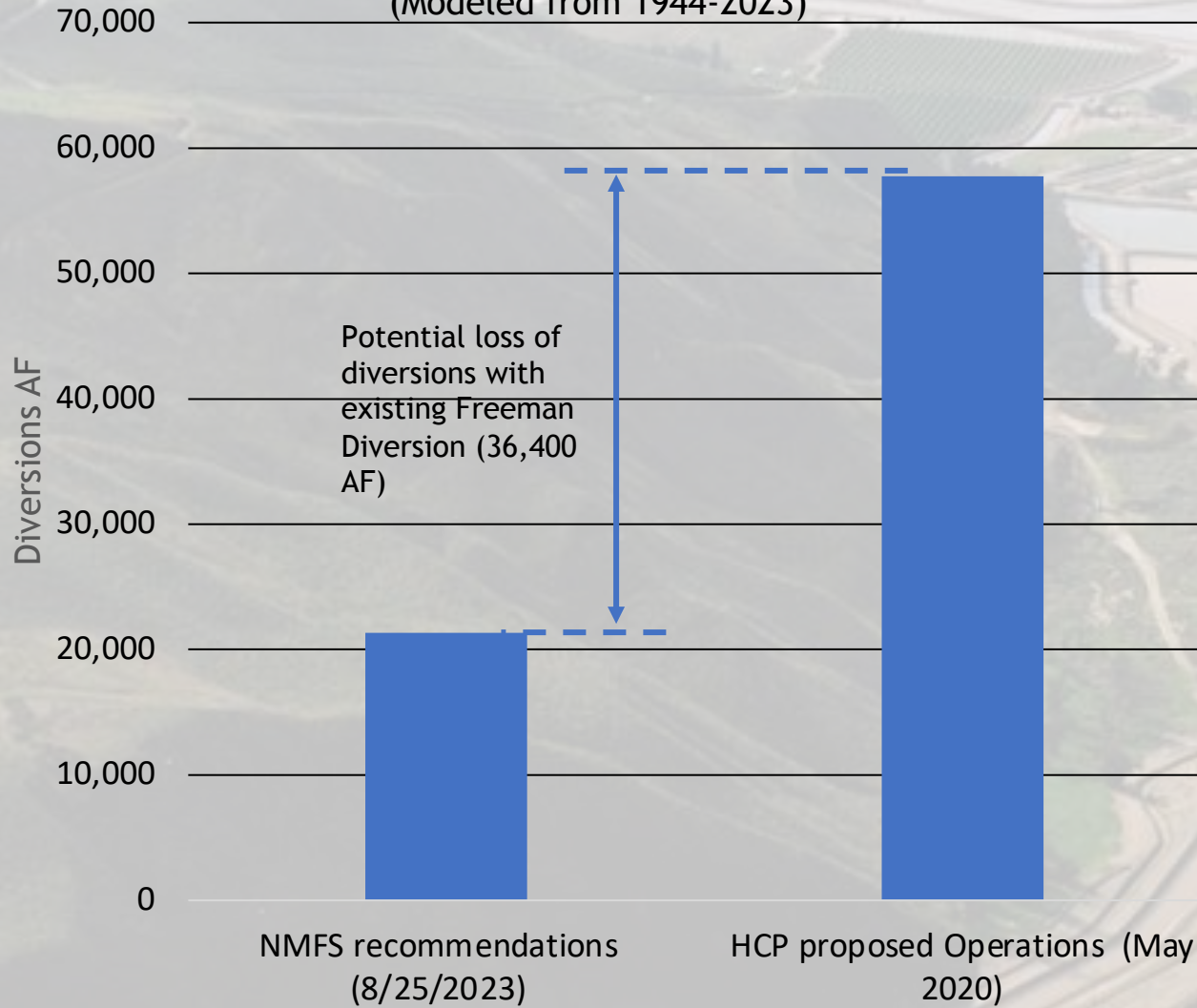
During migration season:

- Bypass all flows under 500 cfs
- Divert a small fraction when the river is from 500 to 3,000 cfs.





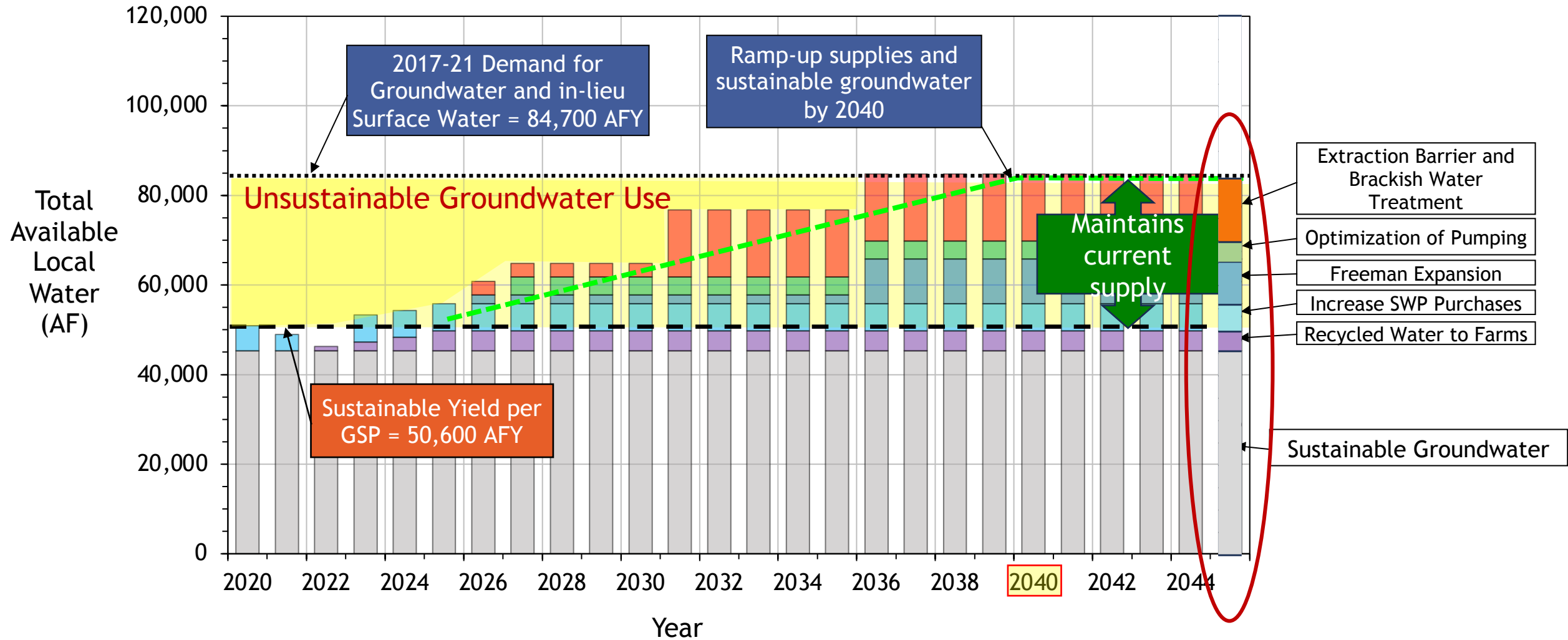
### Comparison of Expected Yield from the Freeman Diversion (Modeled from 1944-2023)



	Total Diversions (AF)
NMFS recommendations (8/25/2023)	21,334
HCP proposed Operations (May 2020)	57,731



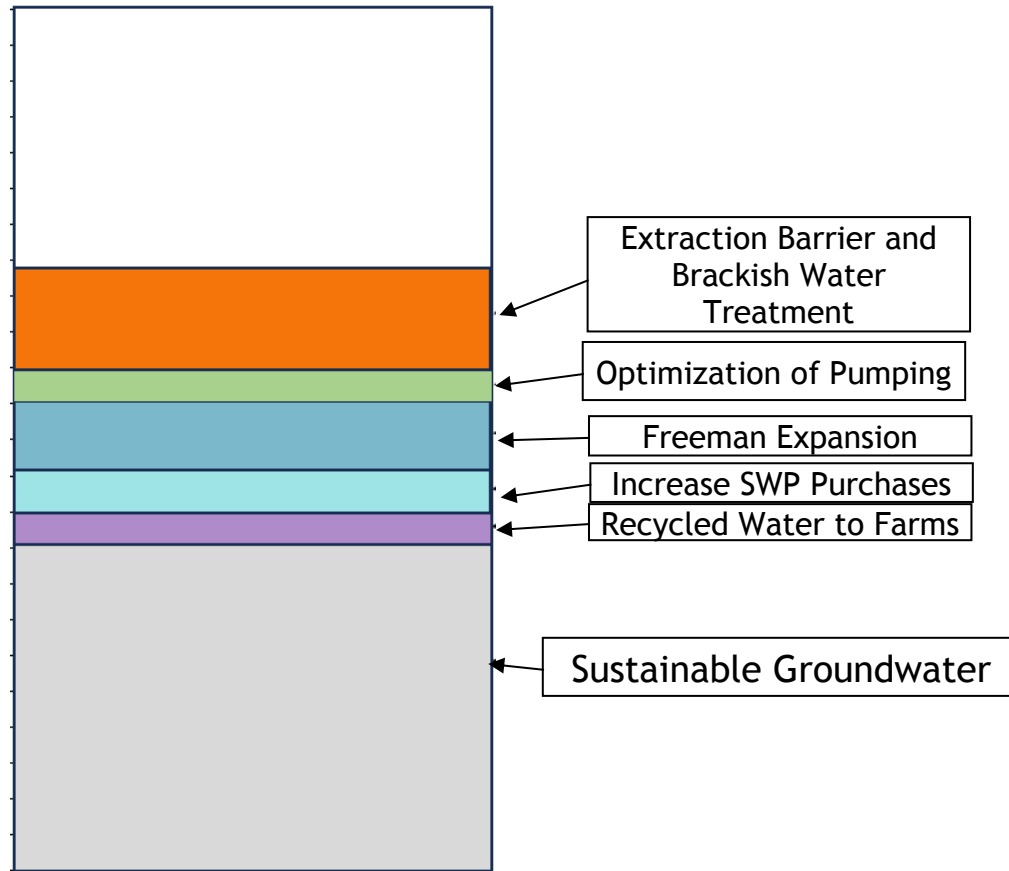
# Therefore, Several Large, Costly New Projects Added to GSPs to Avoid Devastating Reductions in Supply



Also assumes surface-water diversions from Santa Clara River would continue at historical rates.



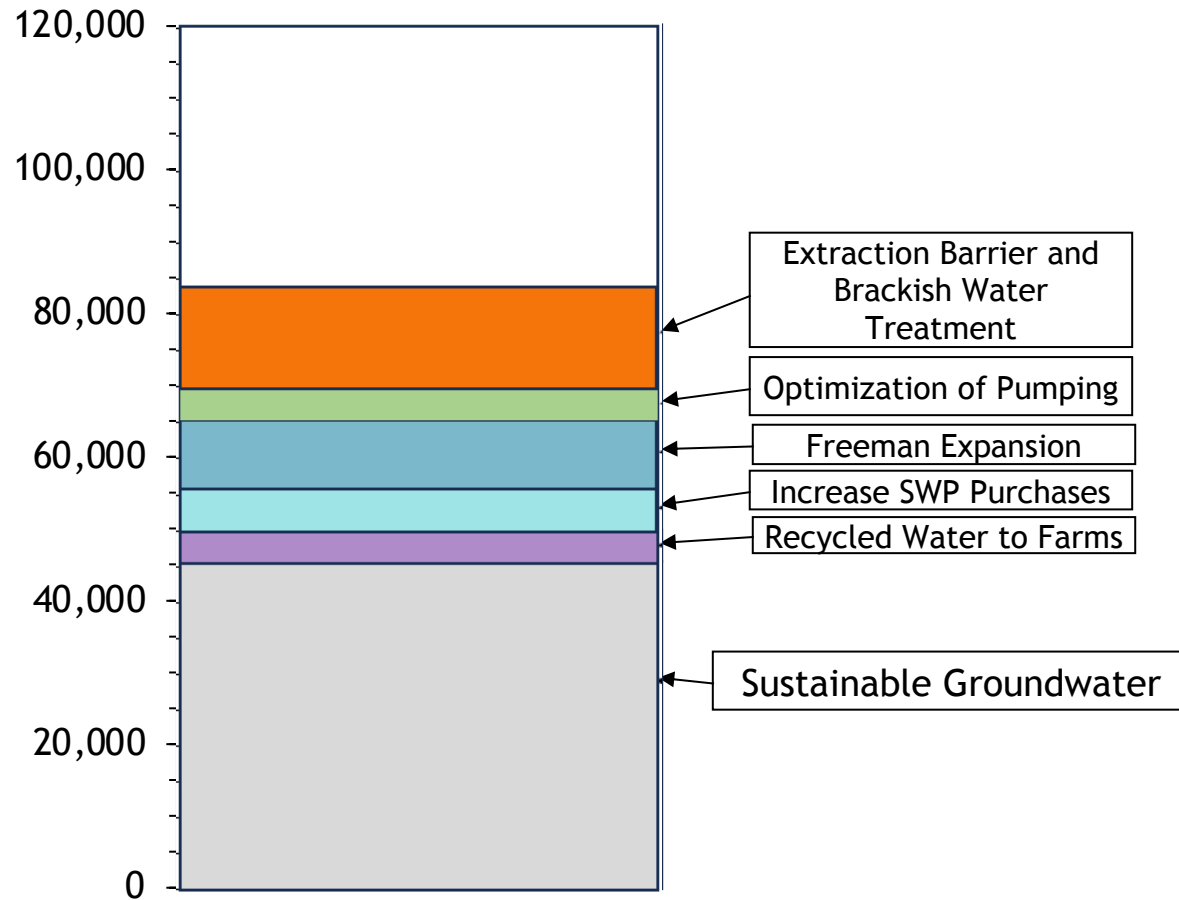
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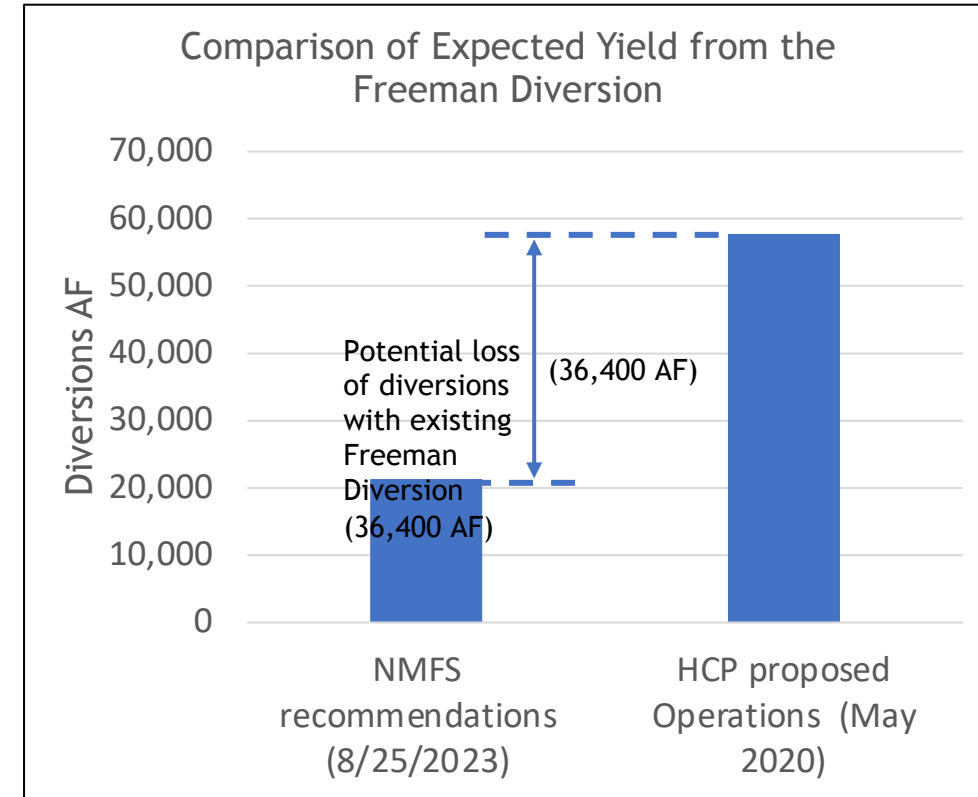
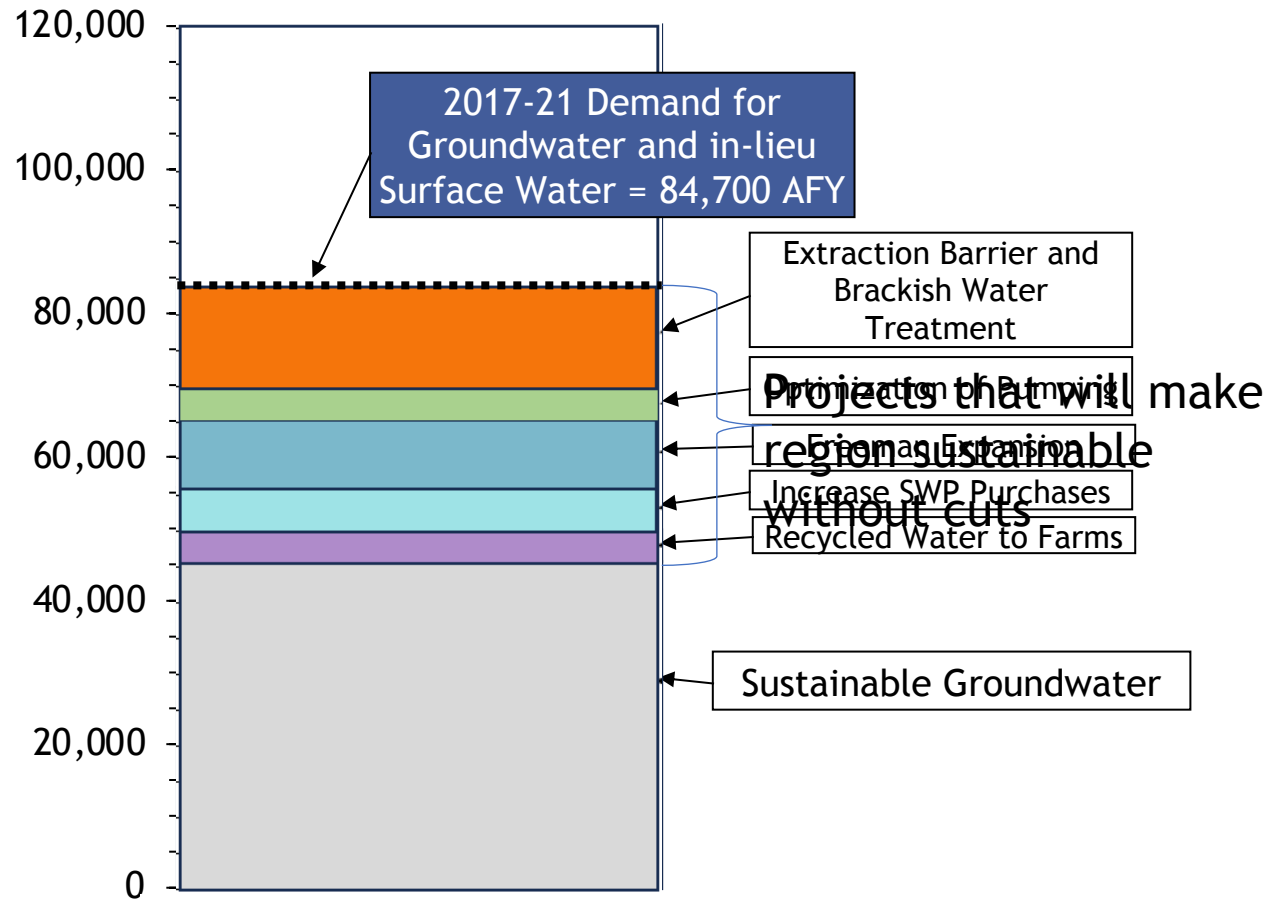
# Proposed Projects in the Oxnard Plain to remain sustainable



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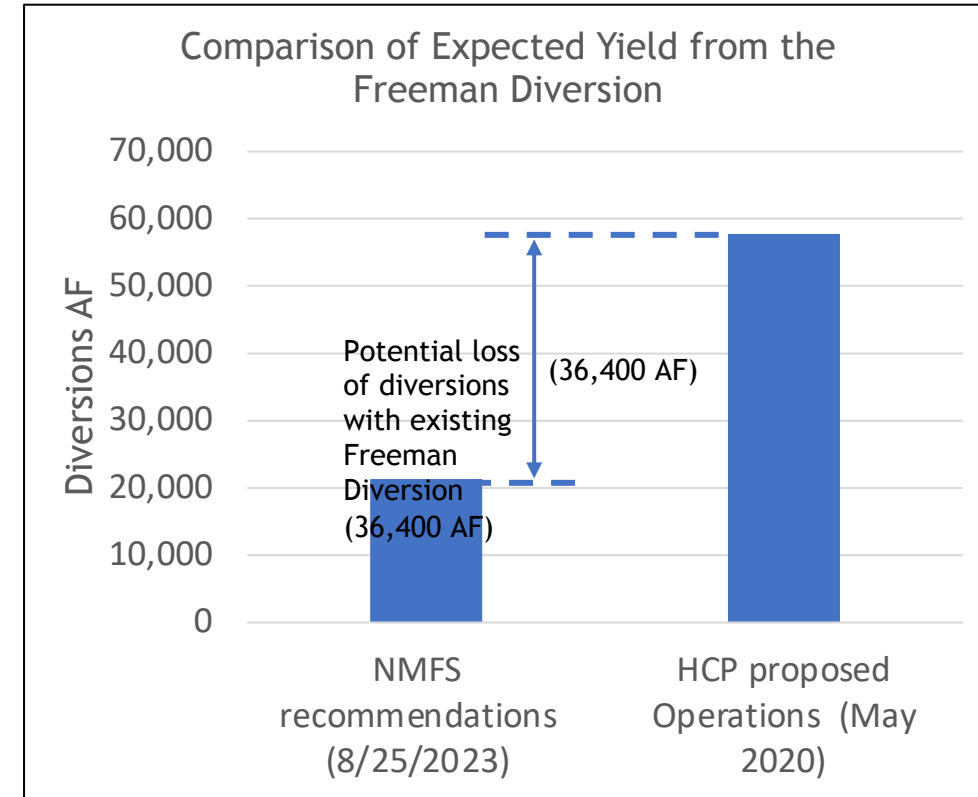
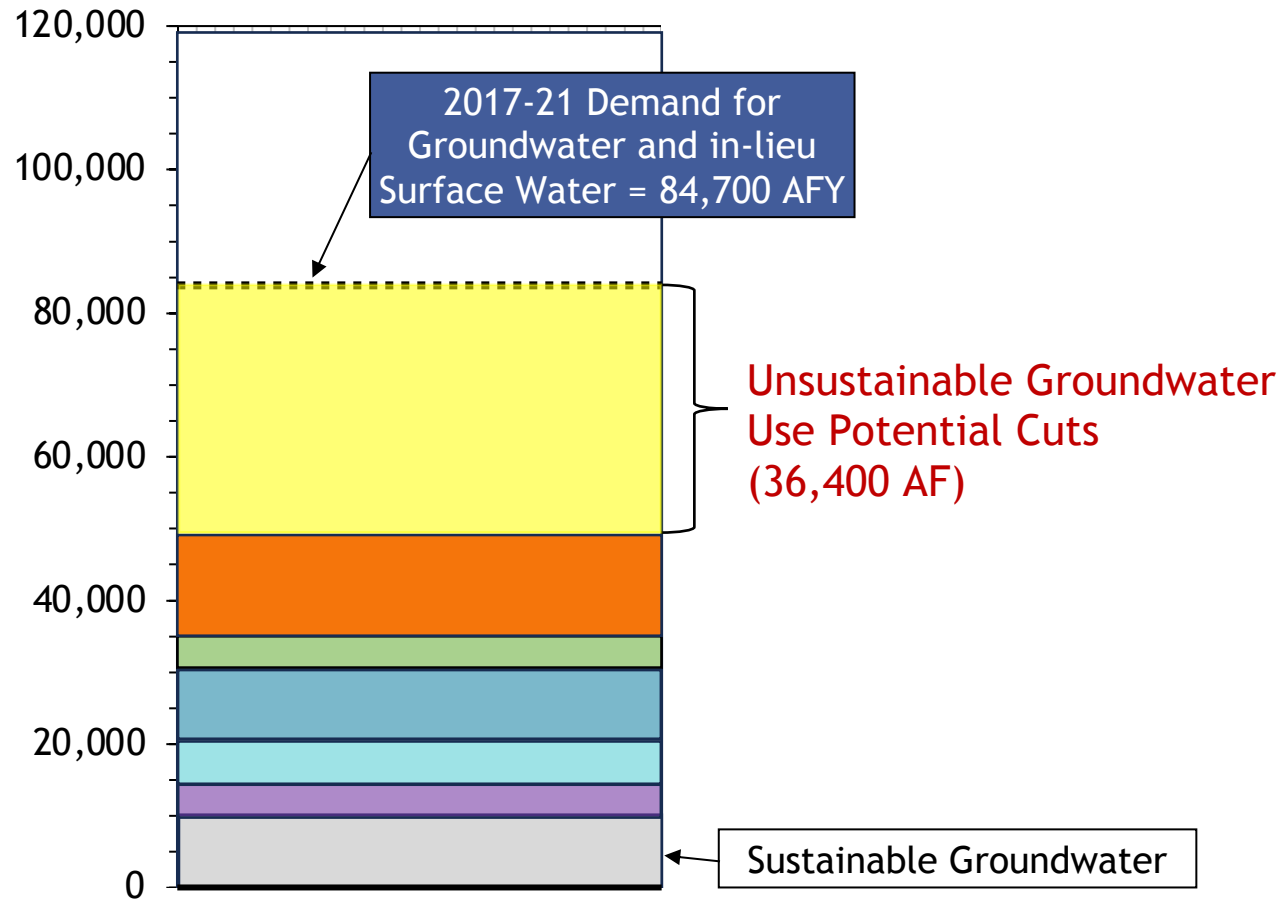
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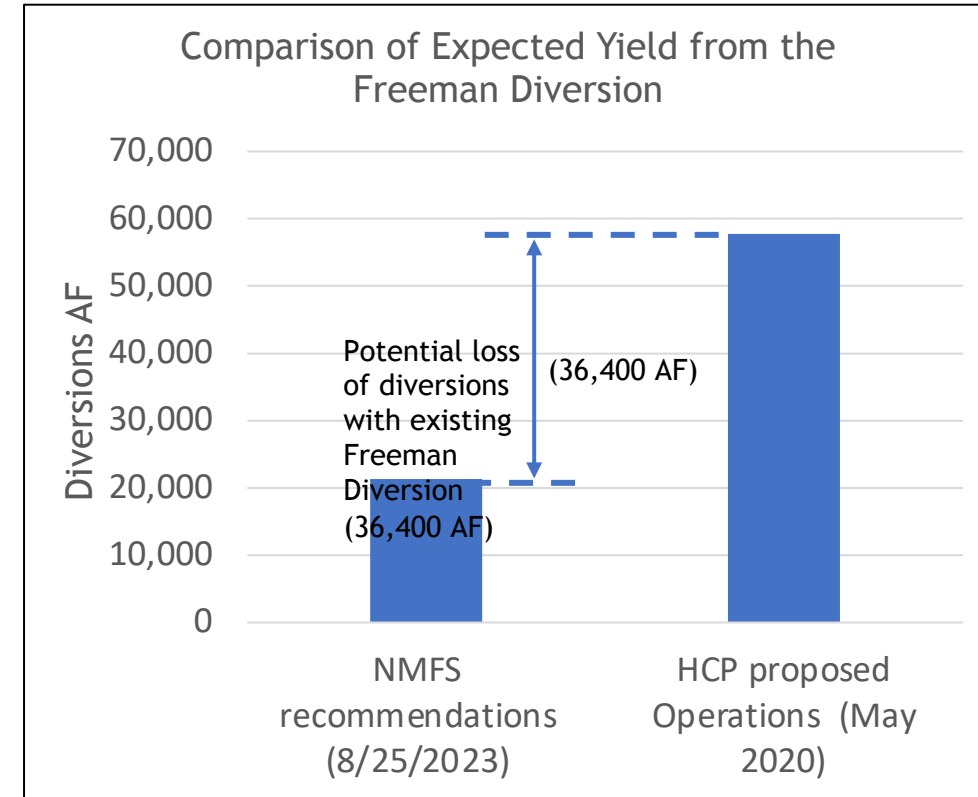
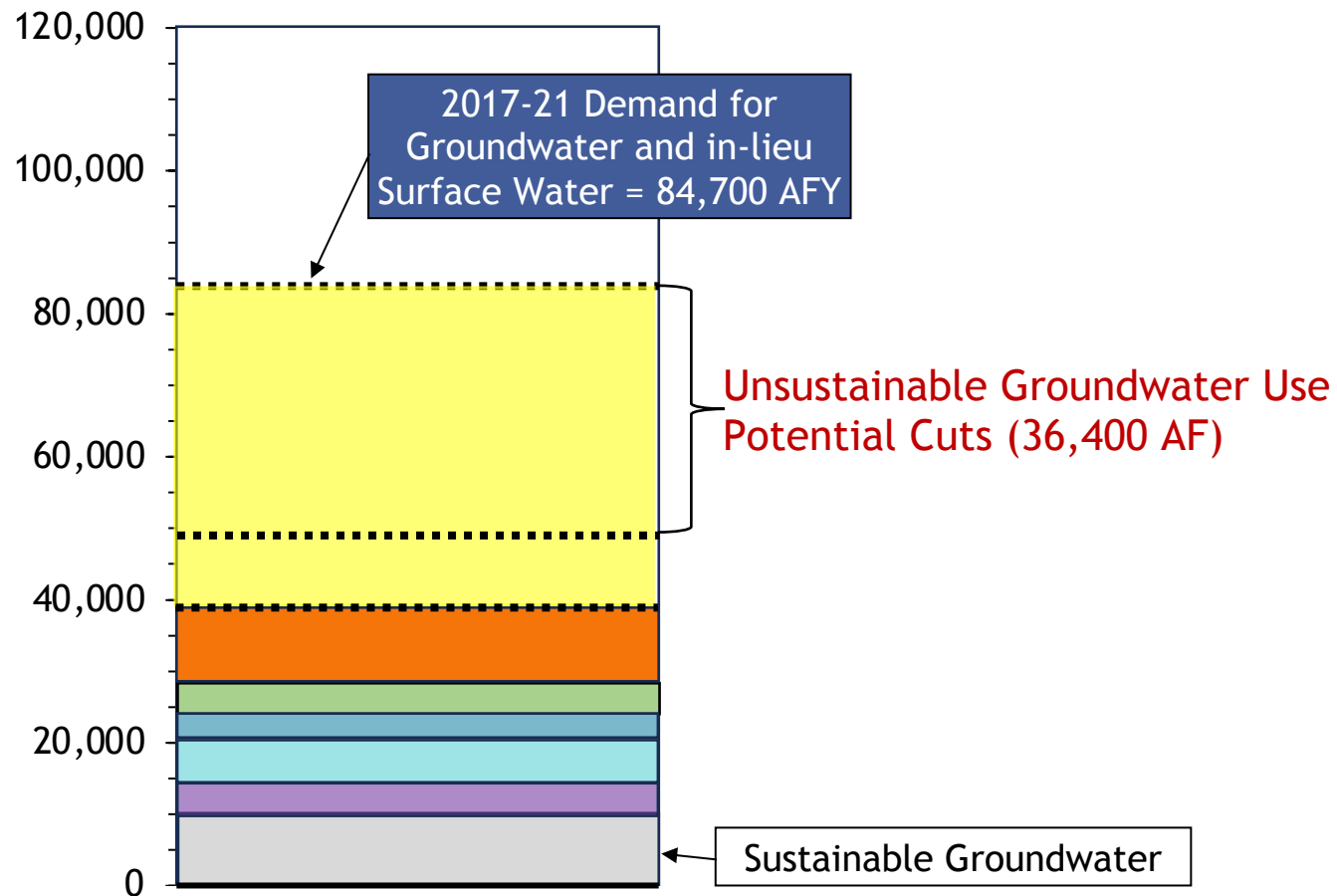
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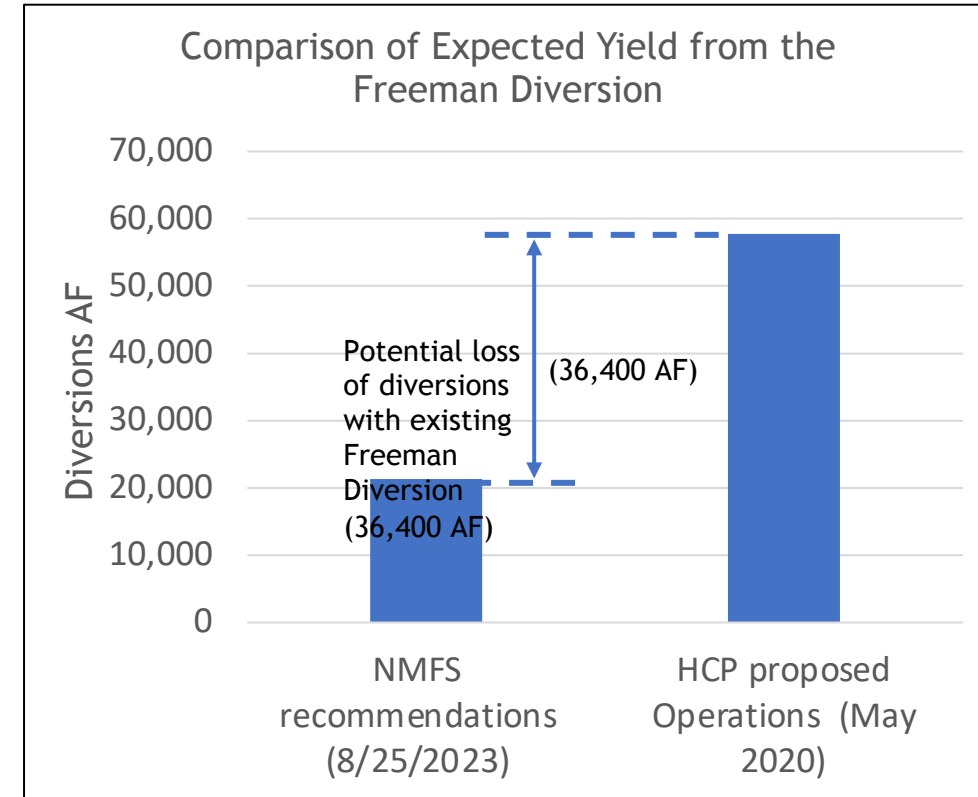
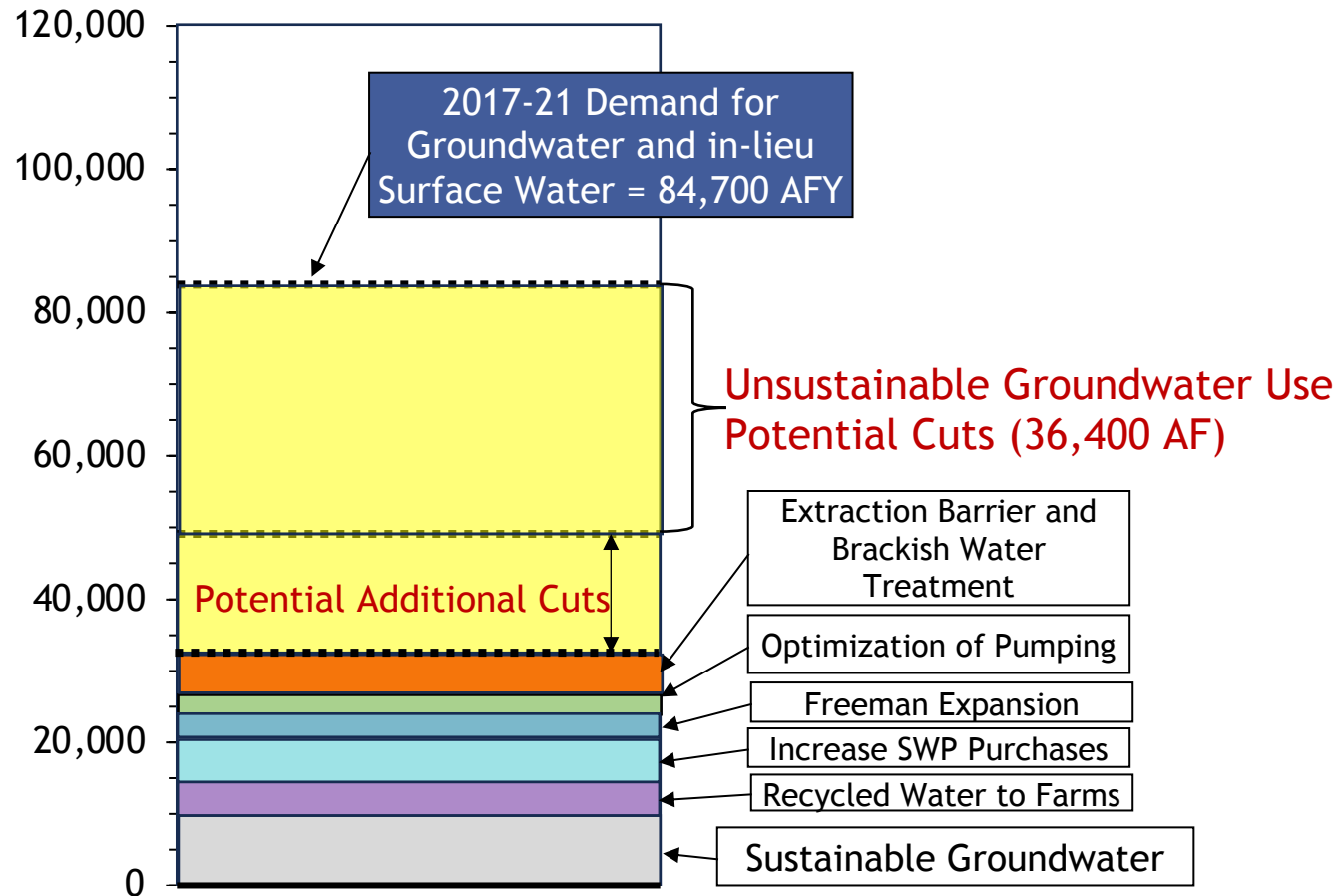
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# Proposed Projects in the Oxnard Plain to remain sustainable



Also assumes surface-water diversions from Santa Clara River would continue at historical rates.



# Reducing Diversions by 40,000 - 50,000 AFU Would Reduce Sustainable Yield of Groundwater by a Similar Amount

That would limit groundwater use to approximately 10,000 AFY. Potential outcomes include:

- Elimination of 60% of agriculture in the Oxnard and Pleasant Valley Basins.
- Replace lost yield with water from other sources?
  - If additional new projects are viable, they would be very costly.
  - Available alternative sources require significantly more energy (GHGs)
    - SWP imports
    - Recycled water
    - Seawater desalination



This slide will be modified after input from Bill Ball on what everyone can do

- 06/01/2020 - The June 1, 2020 FERC notice established July 1, 2020, as the deadline for filing motions to intervene.
- 8/29/2023 - NMFS Motion to Intervene on the SFDSIP to FERC
  - Triggered \*FERC categorizing the project as a contested proceeding (impacted UWCD's communication with FERC)
- 9/13/2023 - UWCD Filed Opposition to Late Motion to Intervene
- 10/3/2023 - FERC issued a Notice Denying Late Intervention (to NMFS)



# Questions?

**Murray McEachron**  
*Supervising Hydrologist*

United Water Conservation District