

# Groundwater Committee Meeting

February 26, 2019



*"When we talk about the need for water storage in California, we must take full inventory of the tremendous opportunity of our underground natural storage infrastructure. If we focus on this now, we'll be able to take advantage of the next wet winter."*

*Maurice Hall, EDF blog "The Hidden Opportunity for Water Storage in California," June 1, 2017*

*Saticoy  
Spreading  
Grounds,  
2017*



# Agenda Items 1 through 3

1. PUBLIC COMMENT
2. APPROVAL OF THE AGENDA
3. APPROVAL OF THE MINUTES

# 4. Fox Canyon Groundwater Management Agency (FCGMA) Agenda Review



# FCGMA's "Regular Agenda" for Feb. 27, 2019:

4. John K. Flynn Groundwater Stewardship Award
5. FCGMA Board Member Appointments and Committee Assignments
6. *Peer Review of the United WCD and Calleguas MWD Groundwater Models*
7. *Groundwater Sustainability Plan (GSP) Update*
8. *Proposed Ordinance to Establish a New Pumping Allocation System for the Oxnard and Pleasant Valley Basins*

# Item 6, Peer Review of Models

- FCGMA asked Dudek to subcontract a Stanford University professor to review United and Calleguas MWD models
  - Review focused on:
    - Consistency of numerical models with conceptual understanding of basins included in models
    - Quantifying uncertainties

# Item 6, Peer Review of Models (continued)

- “The UWCD numerical model is **consistent** with the accepted conceptual model of the Oxnard Subbasin, Pleasant Valley Basin, and Western Management Area of the Las Posas Valley Basin.”
- “The fact that the most sensitive parameter assignments were **well-constrained** by observations reduces uncertainty and provides good confidence in model predictions of groundwater levels overall.”
- “The values assigned in the model were **consistent** with horizontal hydraulic conductivities determined from aquifer testing in that area...”
- “...the UWCD model is **reliable** to use in the initial estimation of the basin wide sustainable yield.”

# Uncertainty Analysis

- The goal is to identify the uncertainty of groundwater flowrates.
- Generated 120 realizations by randomly adjusting the model input parameters
  - Aquifer properties: HHK, VHK, Storage coefficient
  - Surface recharge
  - Stream conductance
  - GHB with seawater outcrop

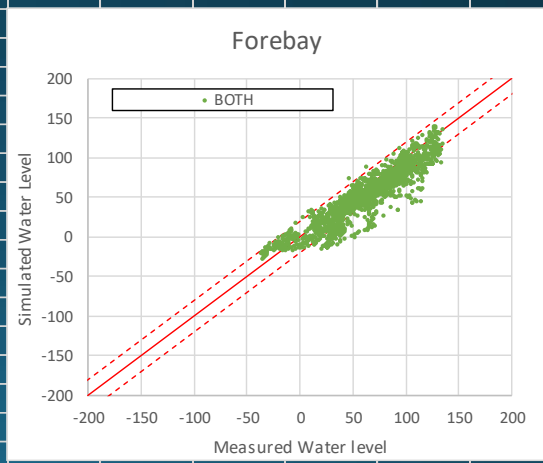
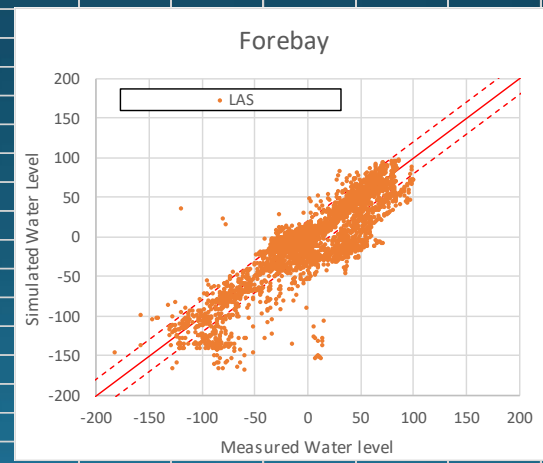
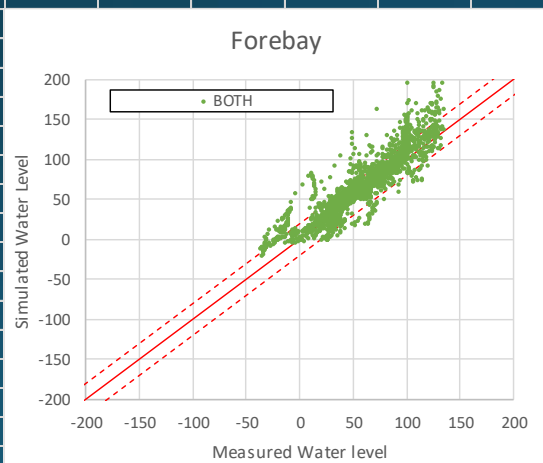
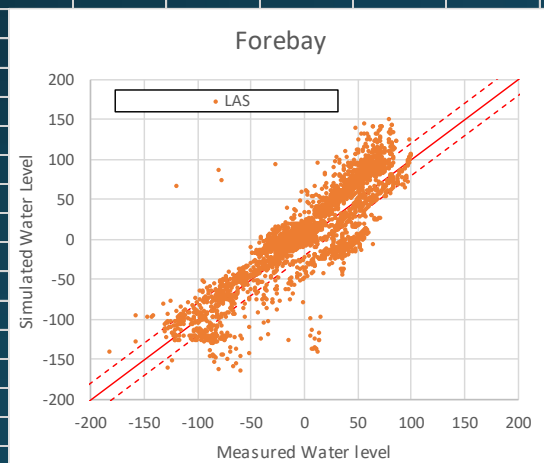
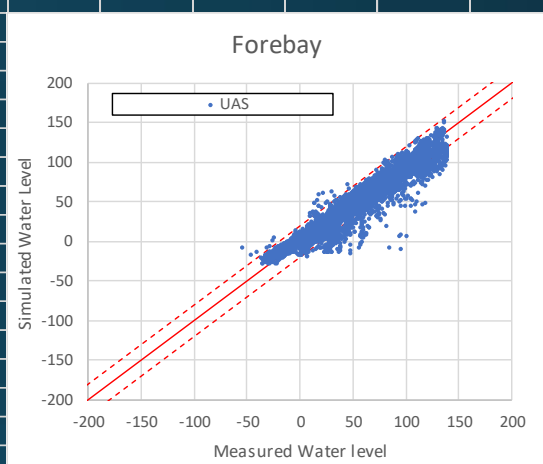
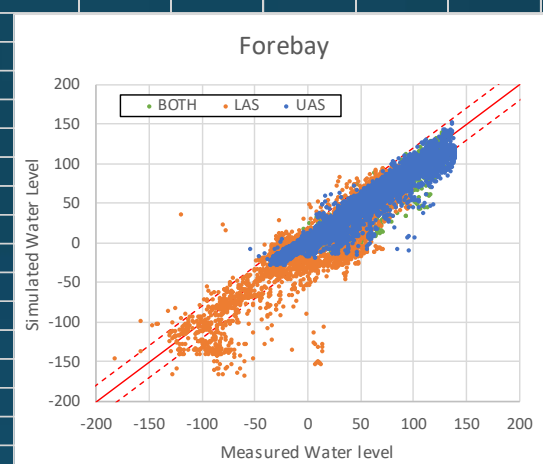
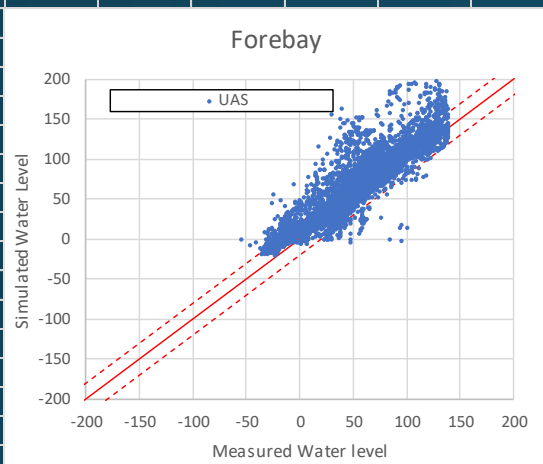
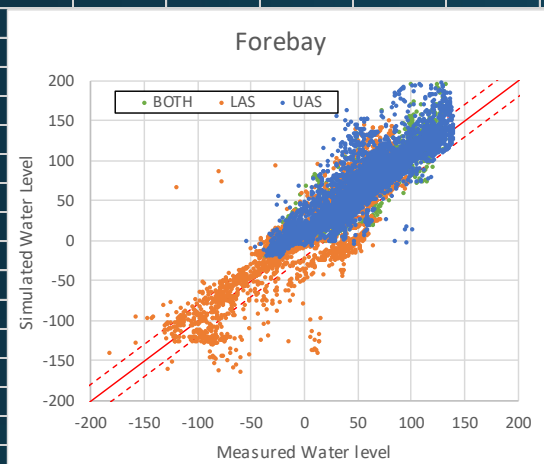
# UWCD Comments on Stanford/DUDEK Uncertainty Analysis

- Due diligence check as UWCD internal project
- Several discrepancies were identified and conveyed to FCGMA/DUDEK
- Collaboration with DUDEK in resolving the discrepancies in
  - flow budget calculation
  - STR files
  - GHB conductance related to seawater flux

# Realizations vs. Calibrated UWCD Model

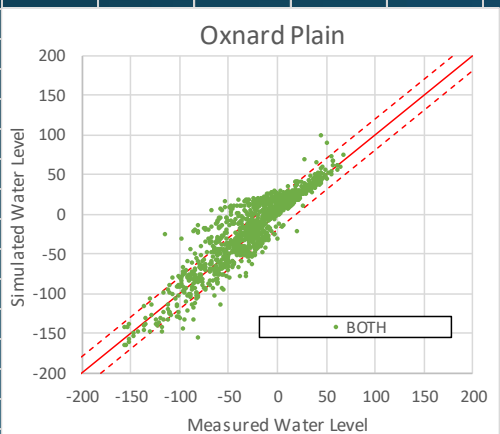
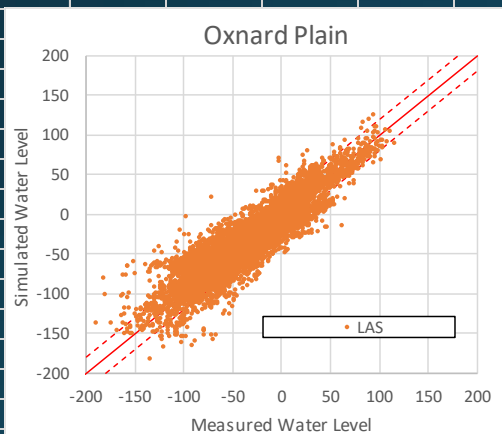
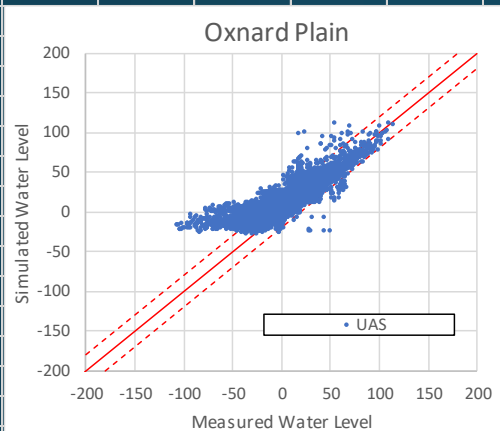
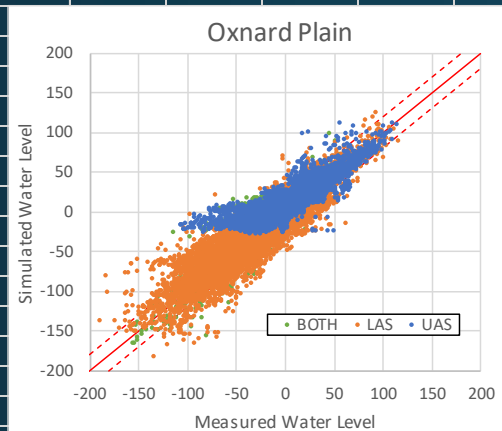
- From the result of 120 realizations with larger residual errors, the UWCD Model is shown to be optimally calibrated with smallest residual statistics
- For optimally calibrated models, the realization simulations tend be worse than the calibrated model

# R104 vs. UWCD

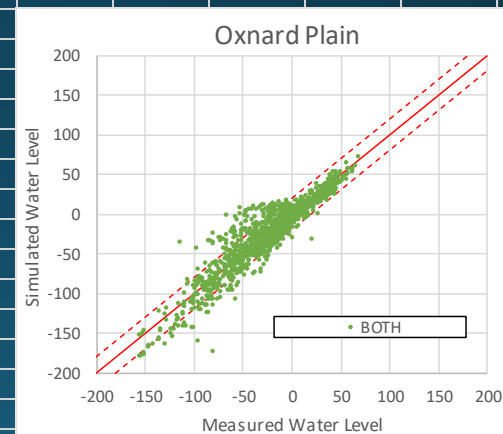
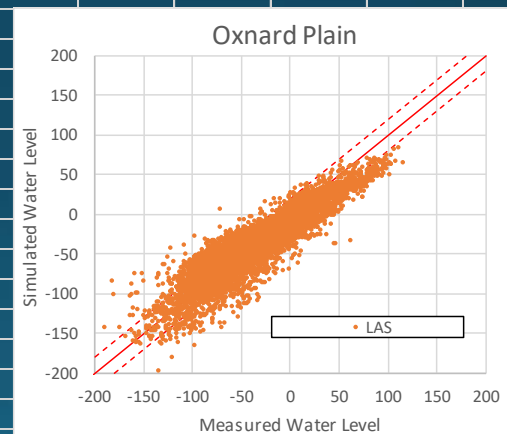
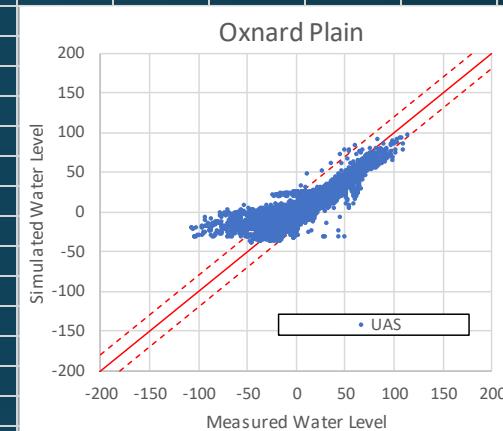
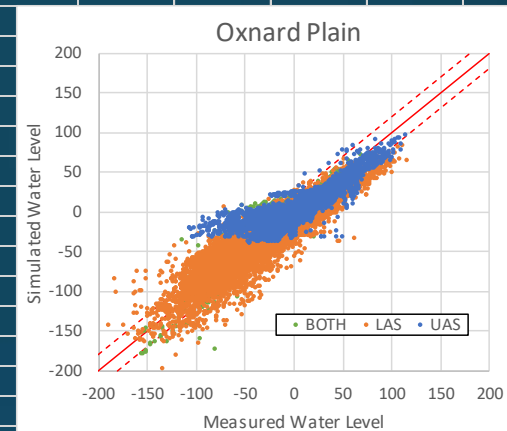




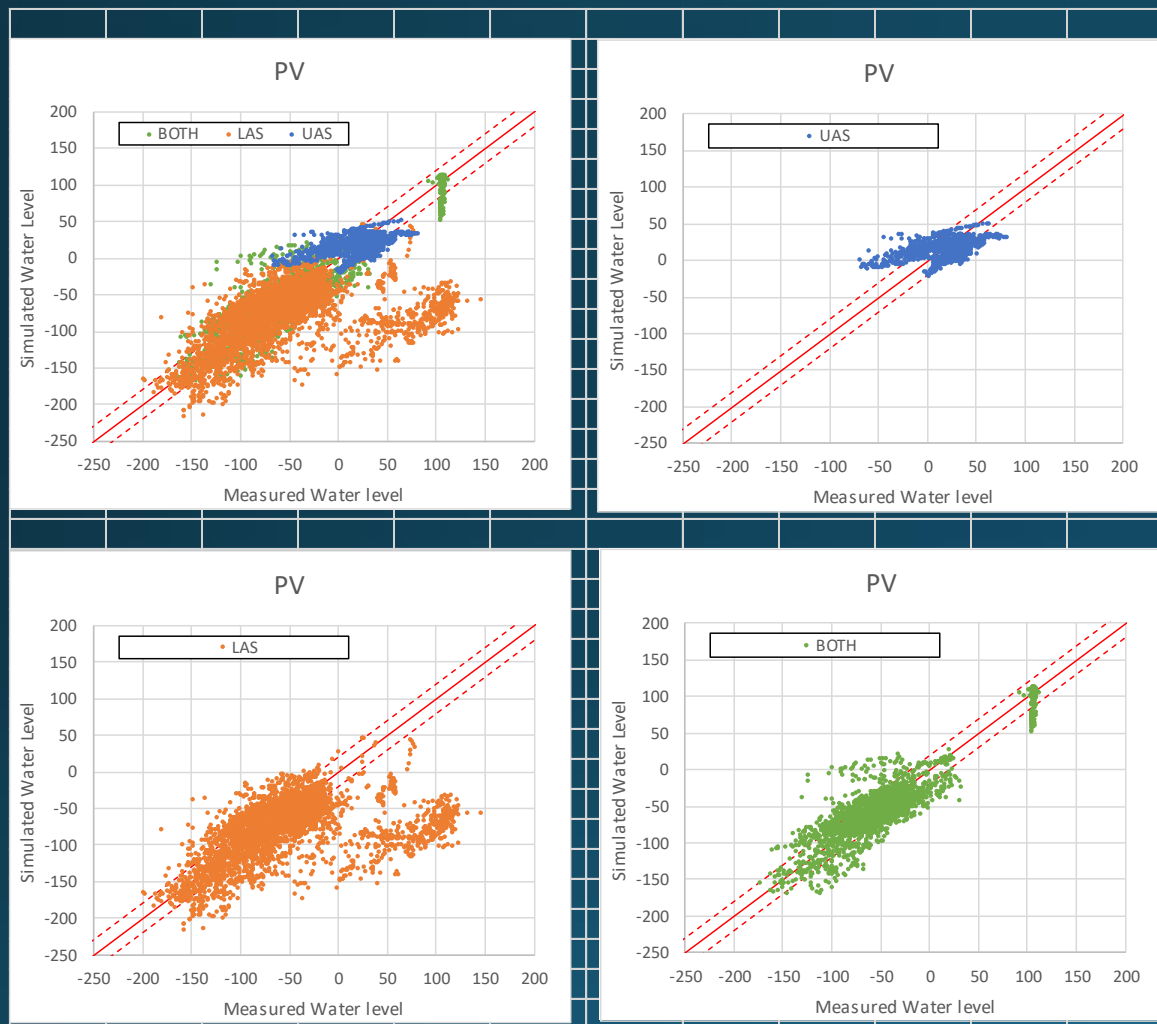
R104



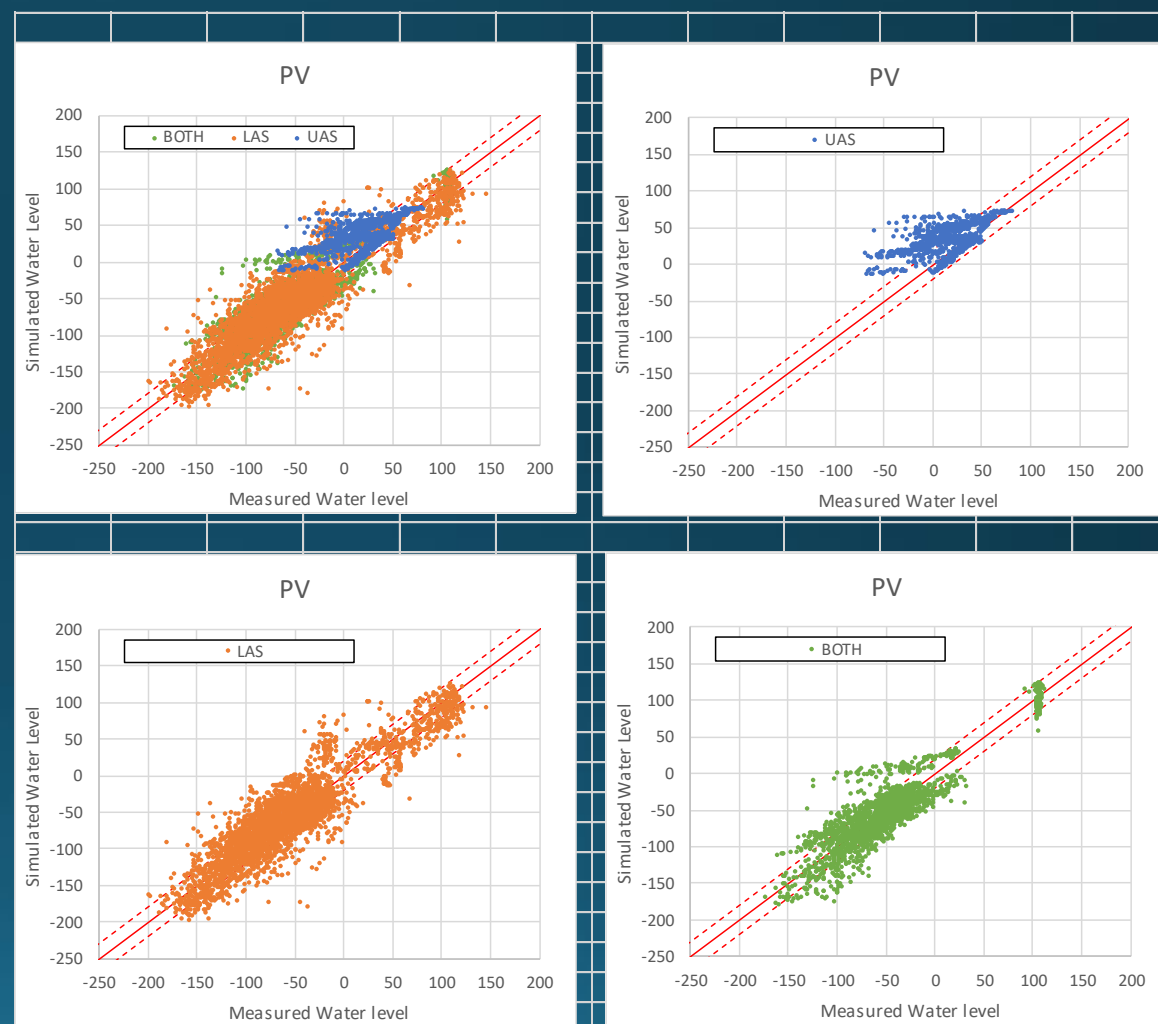
UWCD



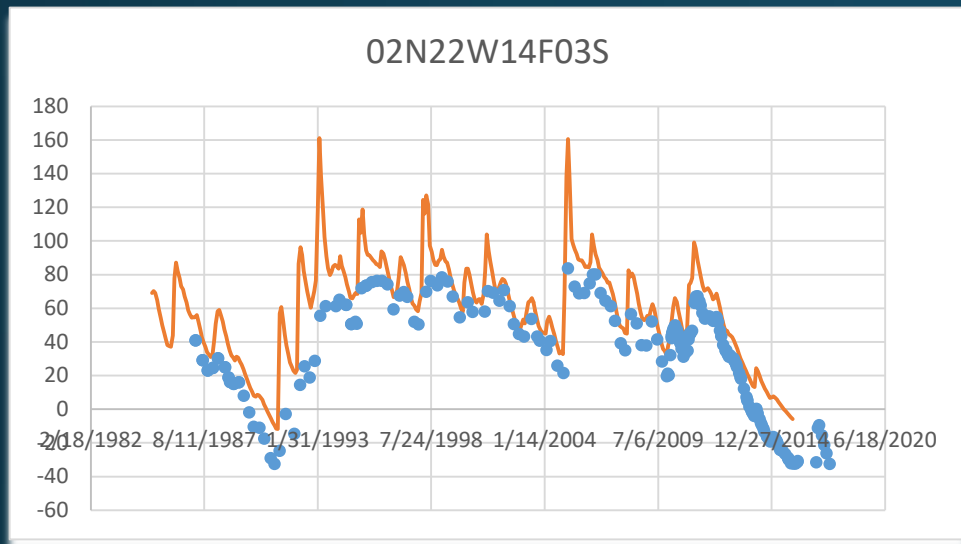
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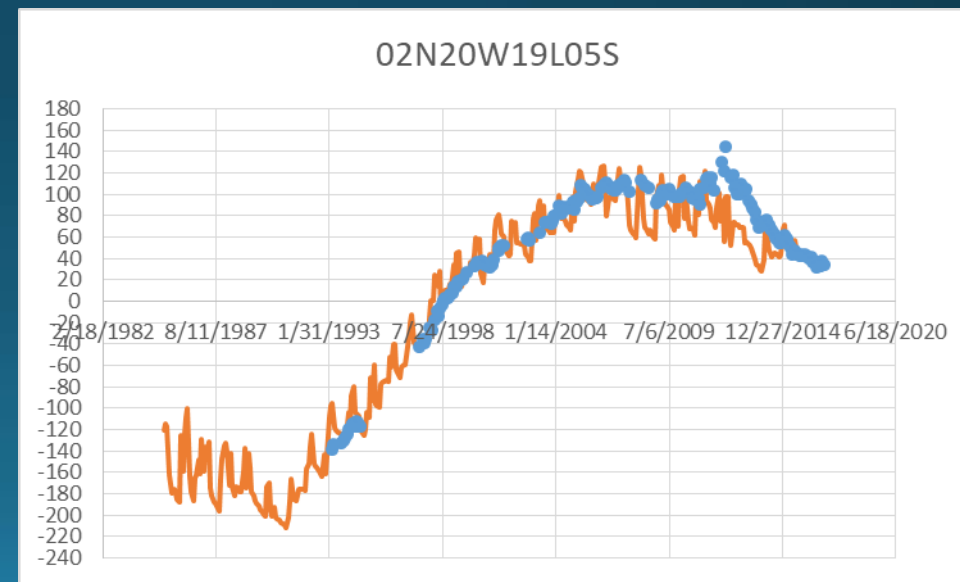
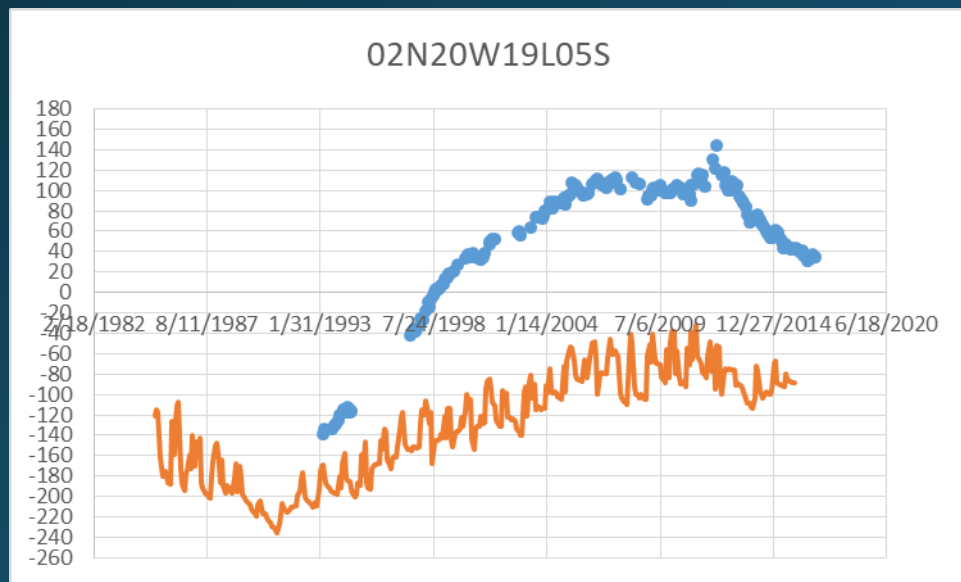
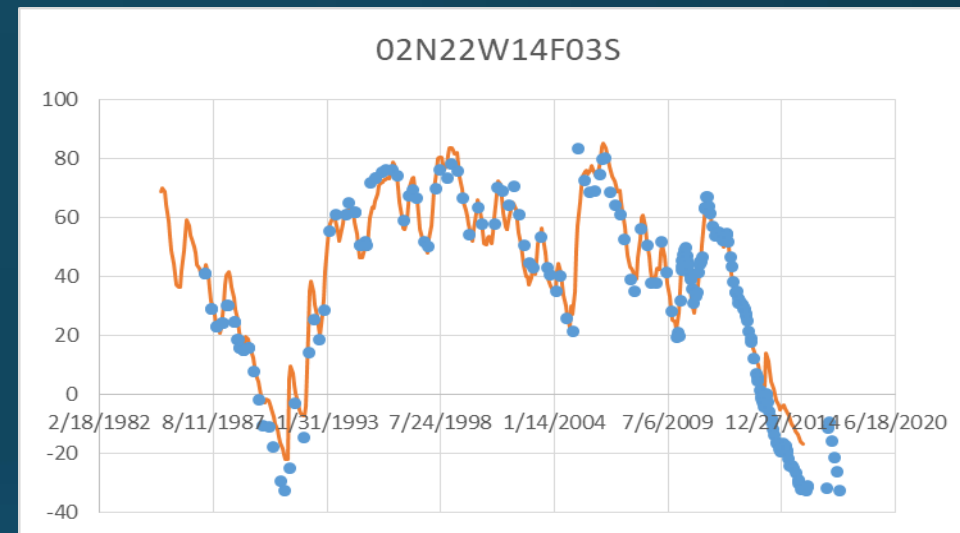
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R104



UWCD



# Item 7, GSP Update

## Key points from FCGMA staff report:

- “Board directed that completion of the GSPs for the Oxnard Subbasin and Pleasant Valley Basin be prioritized over the Las Posas Valley Basin GSP.”
- “The sustainable yields and MT/MOs may look significantly different in the 5-year GSP update based on feasibility analyses of future projects not available for these initial GSPs.”
- “...the primary sustainability goal is increasing groundwater elevations in each principal aquifer inland of the coast to levels that limit seawater intrusion beyond the currently impacted area...”

# Item 8, Revised Draft Allocation Ordinance

- Several major revisions during the past 6 months
- United staff focused on providing stakeholders with data and thoughts on practical effects of ordinance
  - Avoided advocating for any particular Ag or M&I stakeholders attempting to increase their allocations
- Proposed effective date of October 1, 2019
- Allocation reductions to be determined after sustainable yield of basins identified in GSPs

# United Staff Concerns Regarding Ordinance

1. The current Ordinance language does not make it clear that a well field can be a single “extraction facility.”

*Staff would like to ensure that extraction allocations can be easily shifted between wells in a well field (e.g., OH or PTP well fields).*

# United Staff Concerns Regarding Ordinance

2. Santa Clara River (SCR) surface water potentially allocated in a manner inconsistent with groundwater allocations.

*Likely to discourage stakeholders from accepting future in-lieu surface-water deliveries, and threatens the conjunctive use concept overall.*

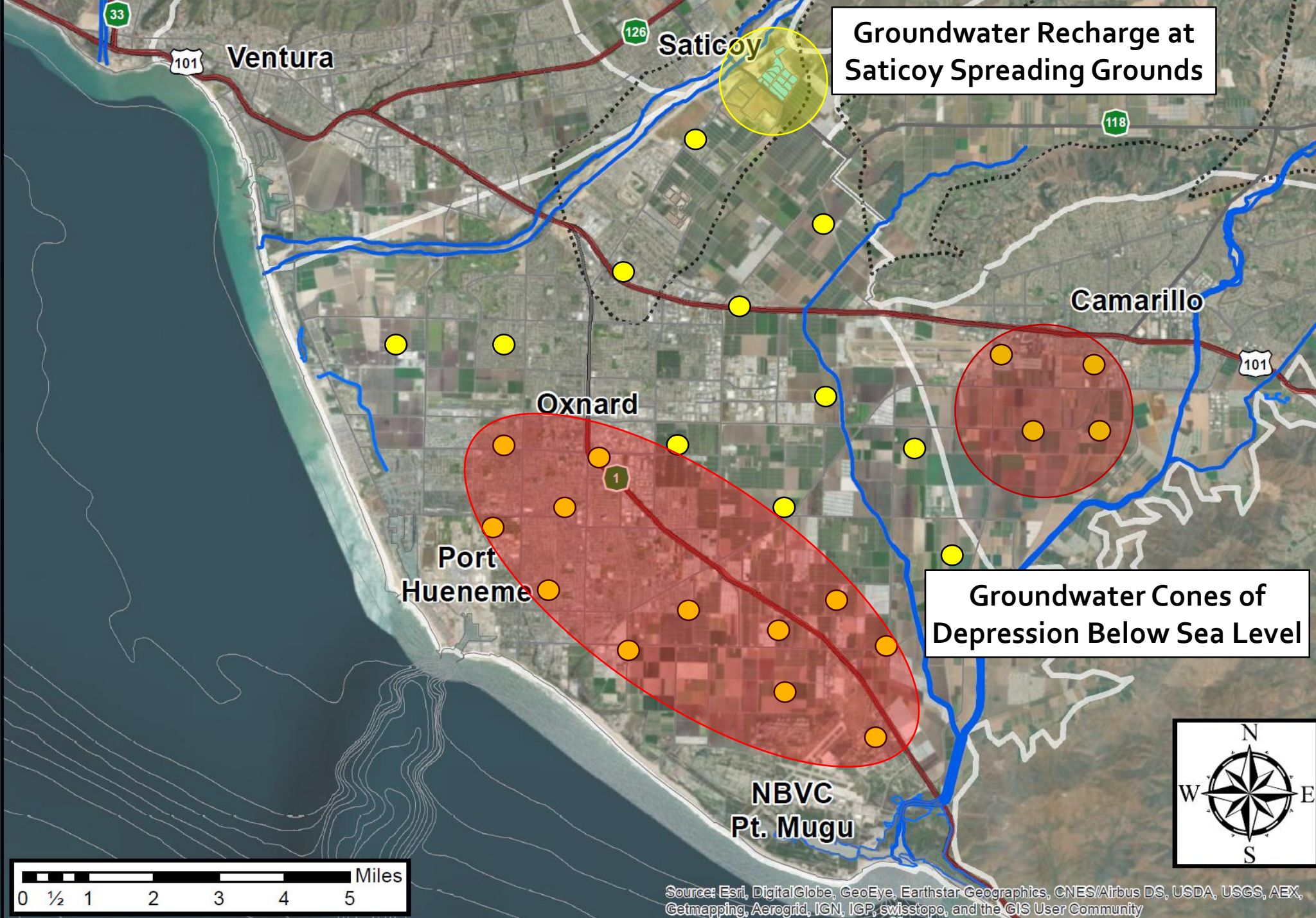
3. Reconsideration of surface-water “allocations” every 5 years will lead to excessive and unnecessary volatility in water-supply planning.

*We suggest 10 years, to “smooth” out much variability.*



# Problem Statement

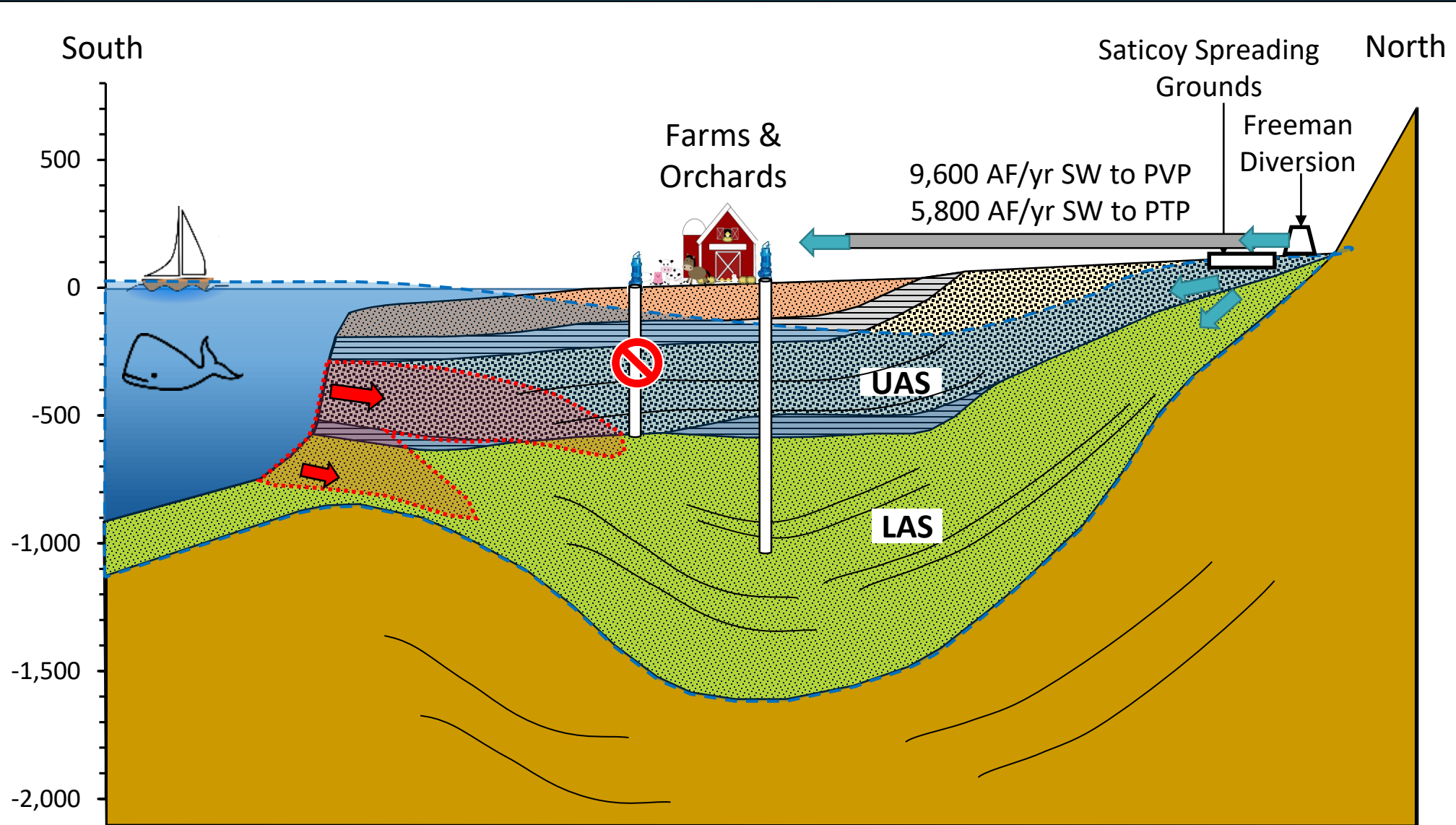
- Conjunctive use of groundwater and Santa Clara River surface water (*in lieu* of pumping) in the Oxnard and PV basins has **rewarded** all users:
  - higher water levels, mitigated seawater intrusion in UAS, less cost/energy use/GHG emissions
- In the current allocation ordinance language, those who receive PTP and PVP surface water *in lieu* of groundwater pumping **risk** losing a greater portion of their historical allocation compared to other water users.
- This could discourage expanded conjunctive use in the future
  - Lower basin sustainable yield, increased cost/energy use/GHGs



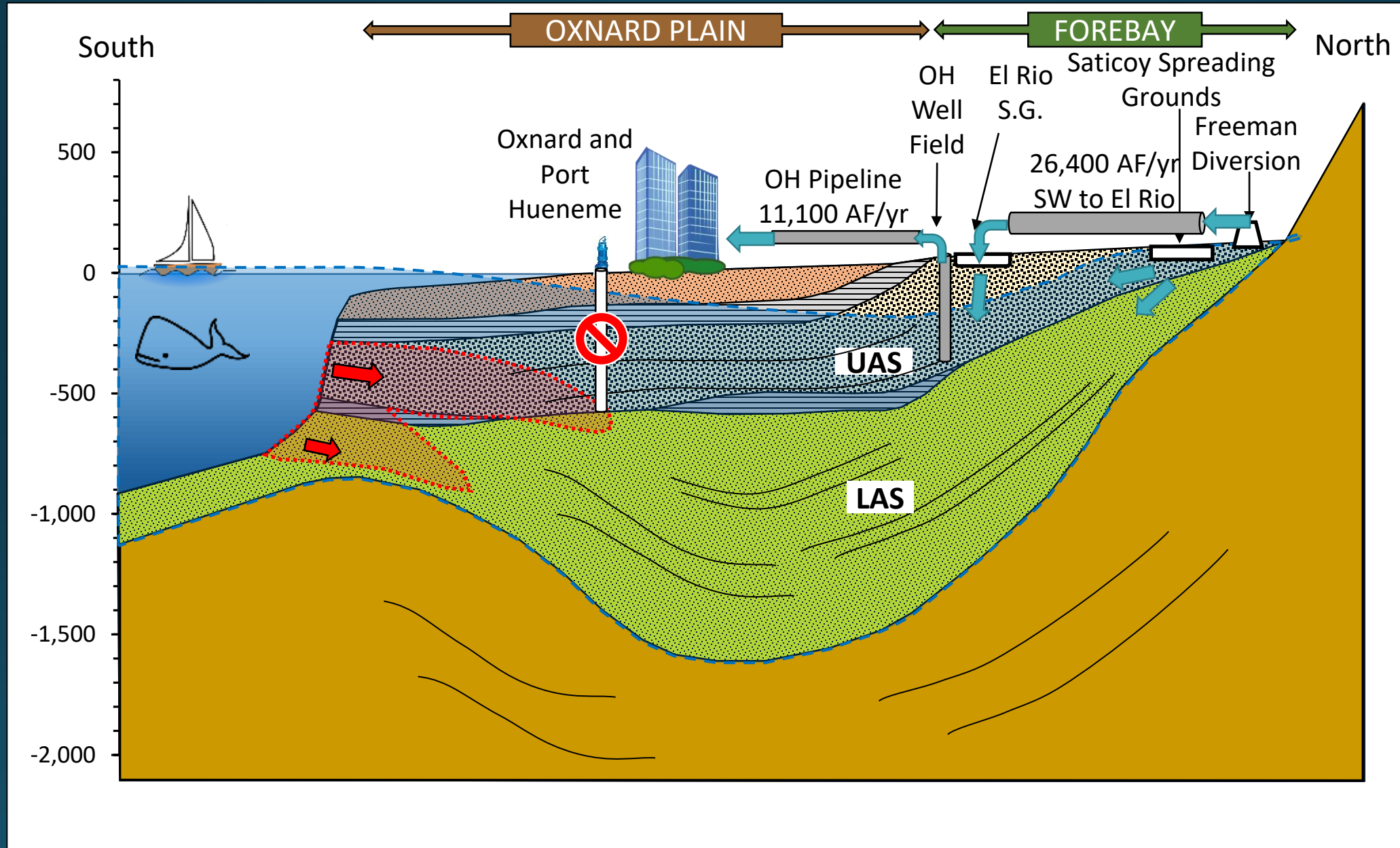
Ground-  
water  
Conditions  
in the Early  
1950s  
Were of  
Serious  
Concern

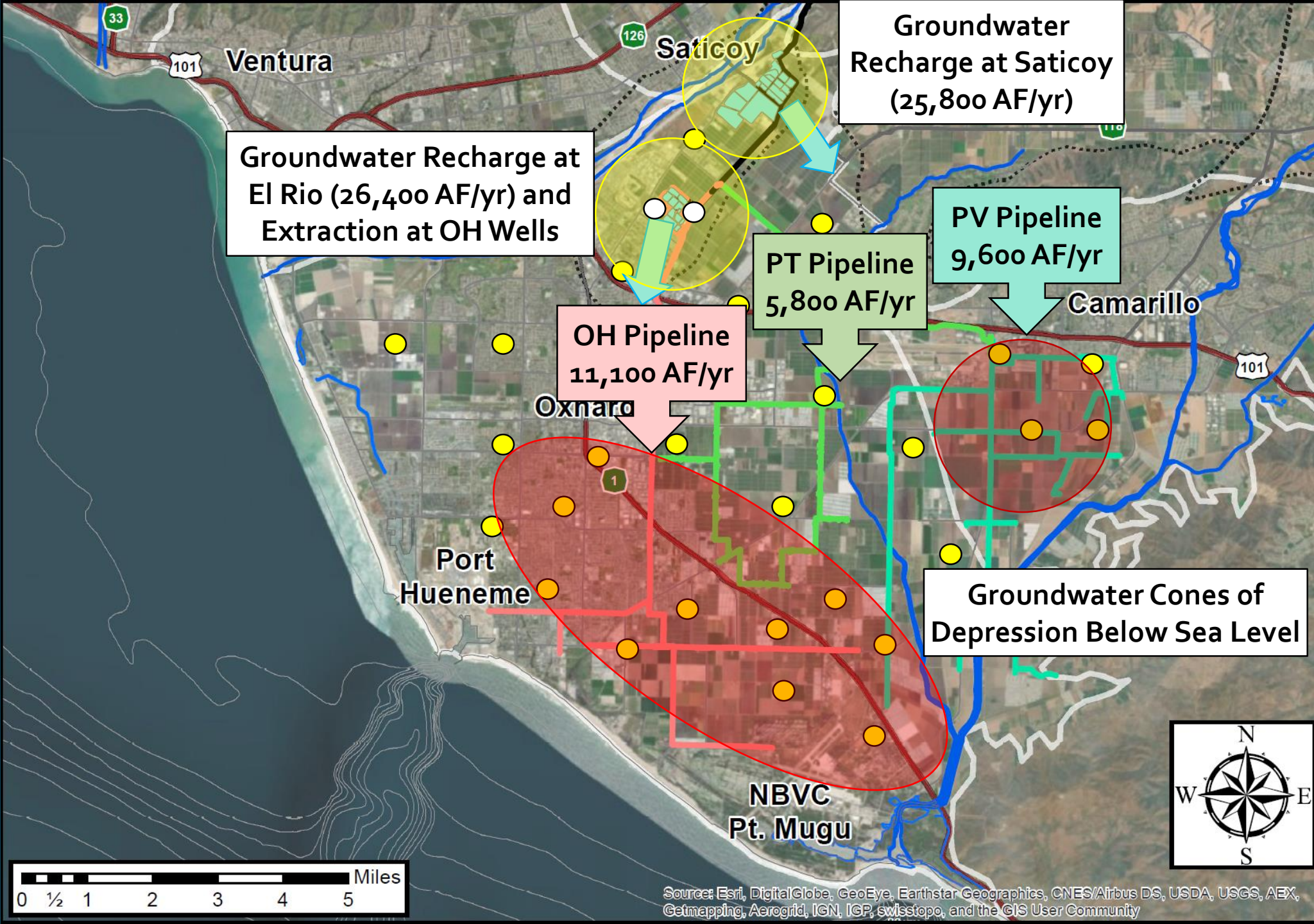


# PT and PV Pipelines Were Intended to Help



# OH Pipeline Was Nearly Identical in Concept



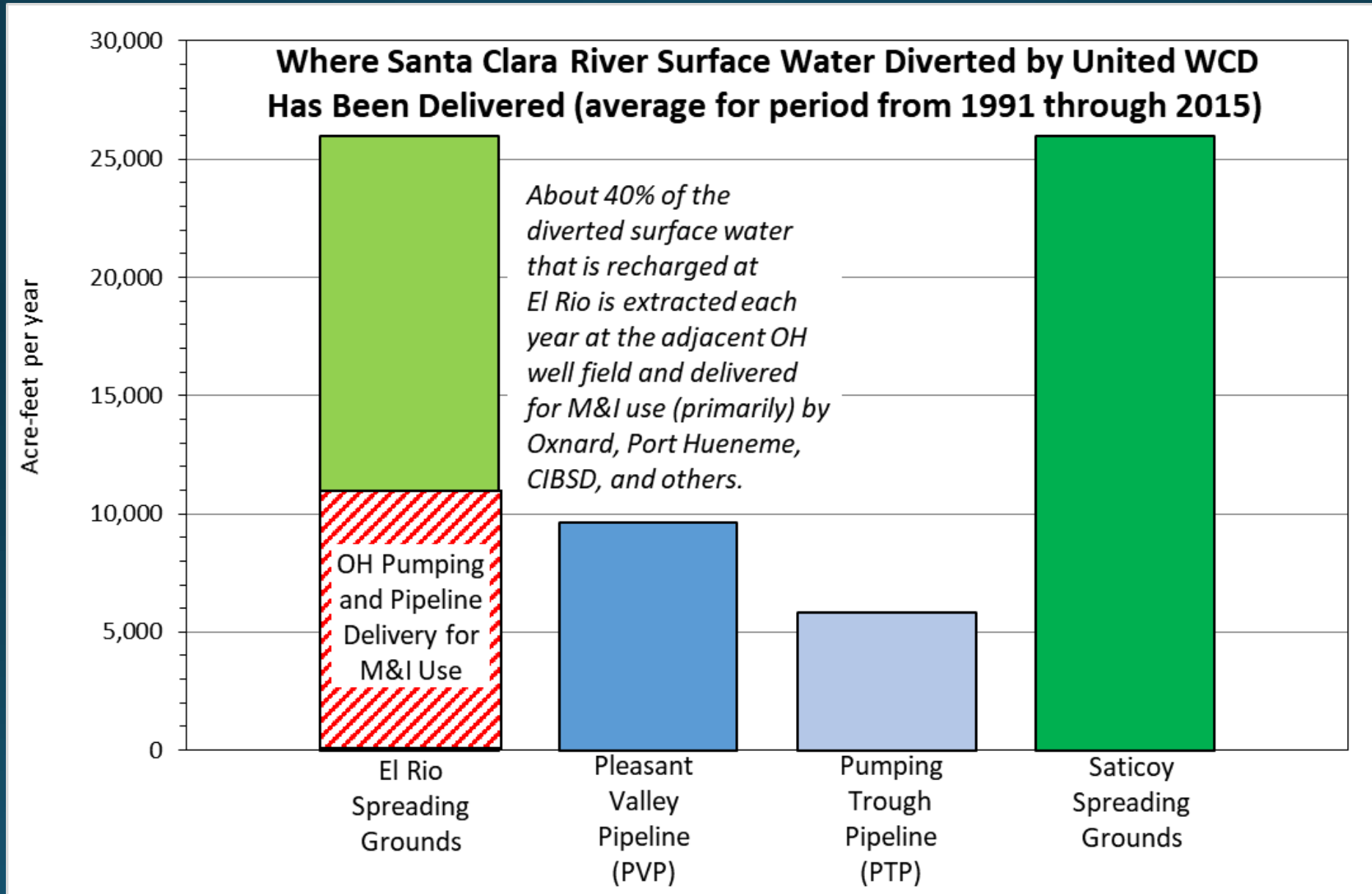


United's  
Conjunctive  
Use Projects  
Have  
Significantly  
Improved  
Ground-  
water  
Conditions

(showing average  
recharge rates  
and *in lieu*  
deliveries,  
1991-2015)

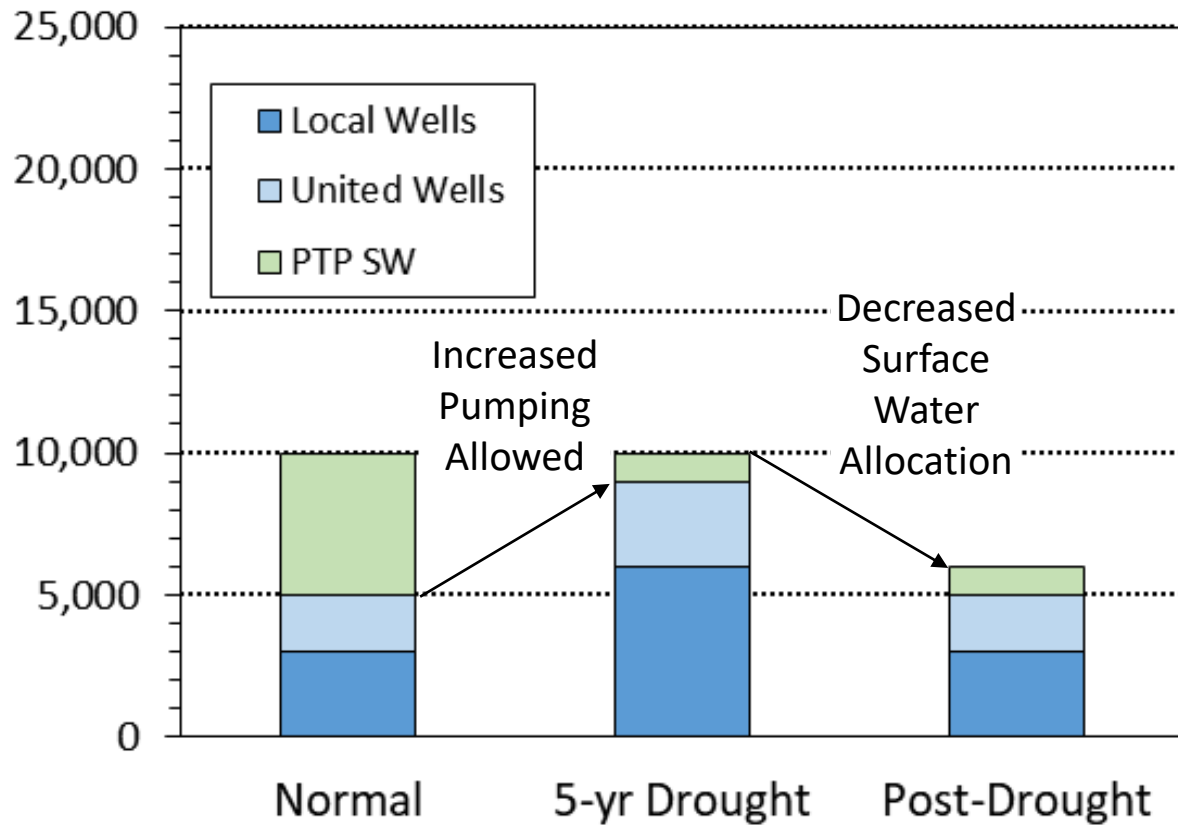


# The OH Pipeline Receives More Water than the Other Pipelines

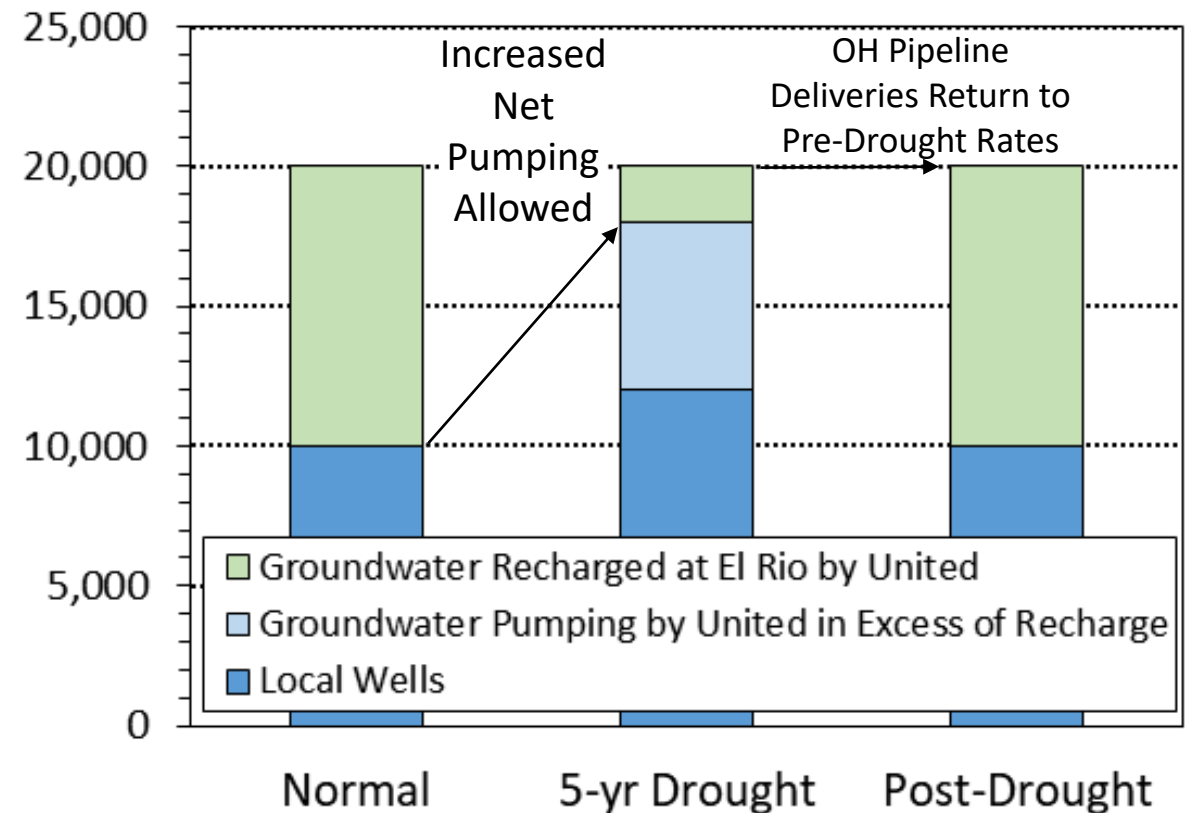


# What Happens if Surface-Water Allocations are Reduced Following the Next 5-Yr Drought?

Hypothetical PTP-User Allocation Changes Resulting from a Drought

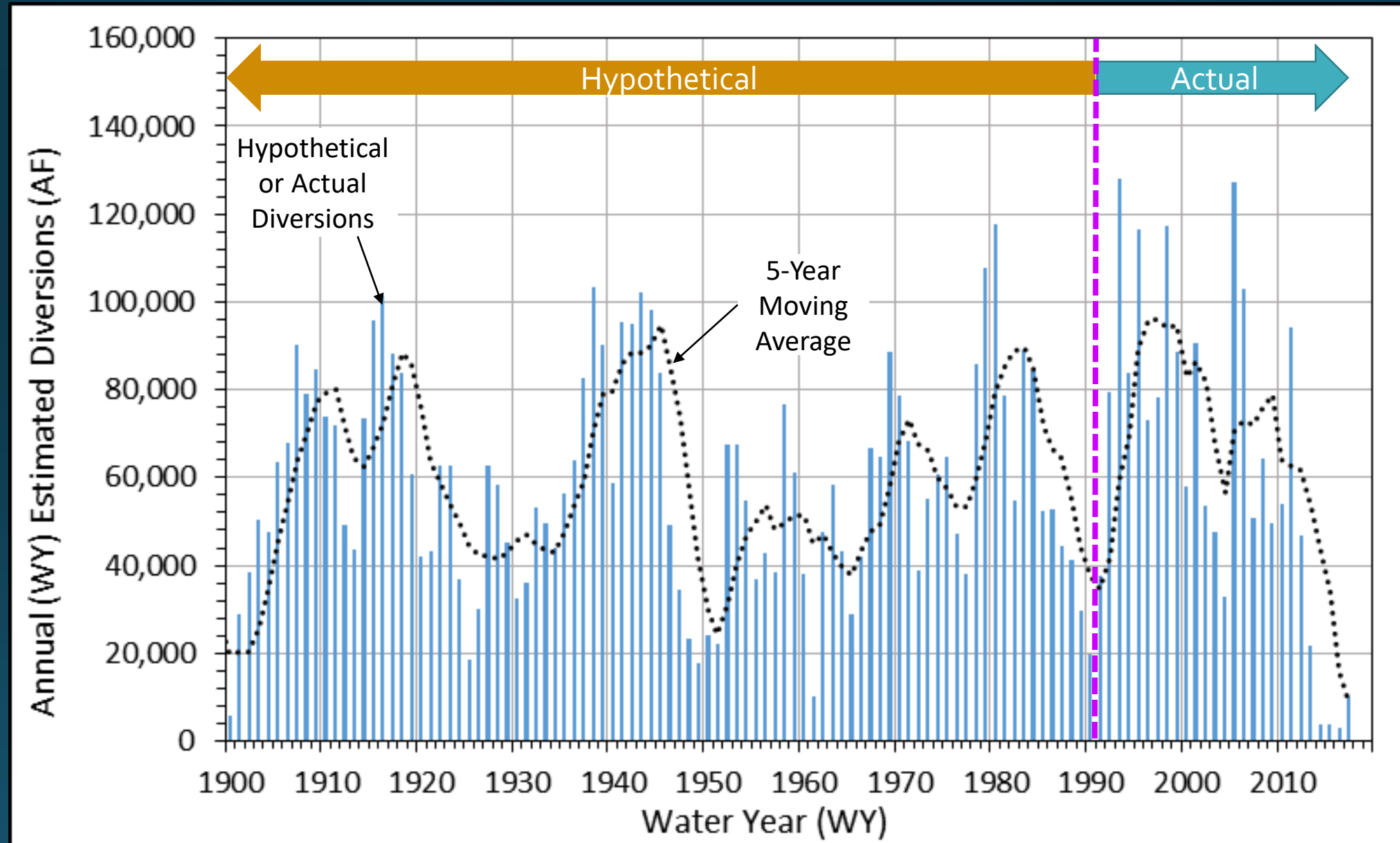


Hypothetical OH-User Allocation Changes Resulting from a Drought

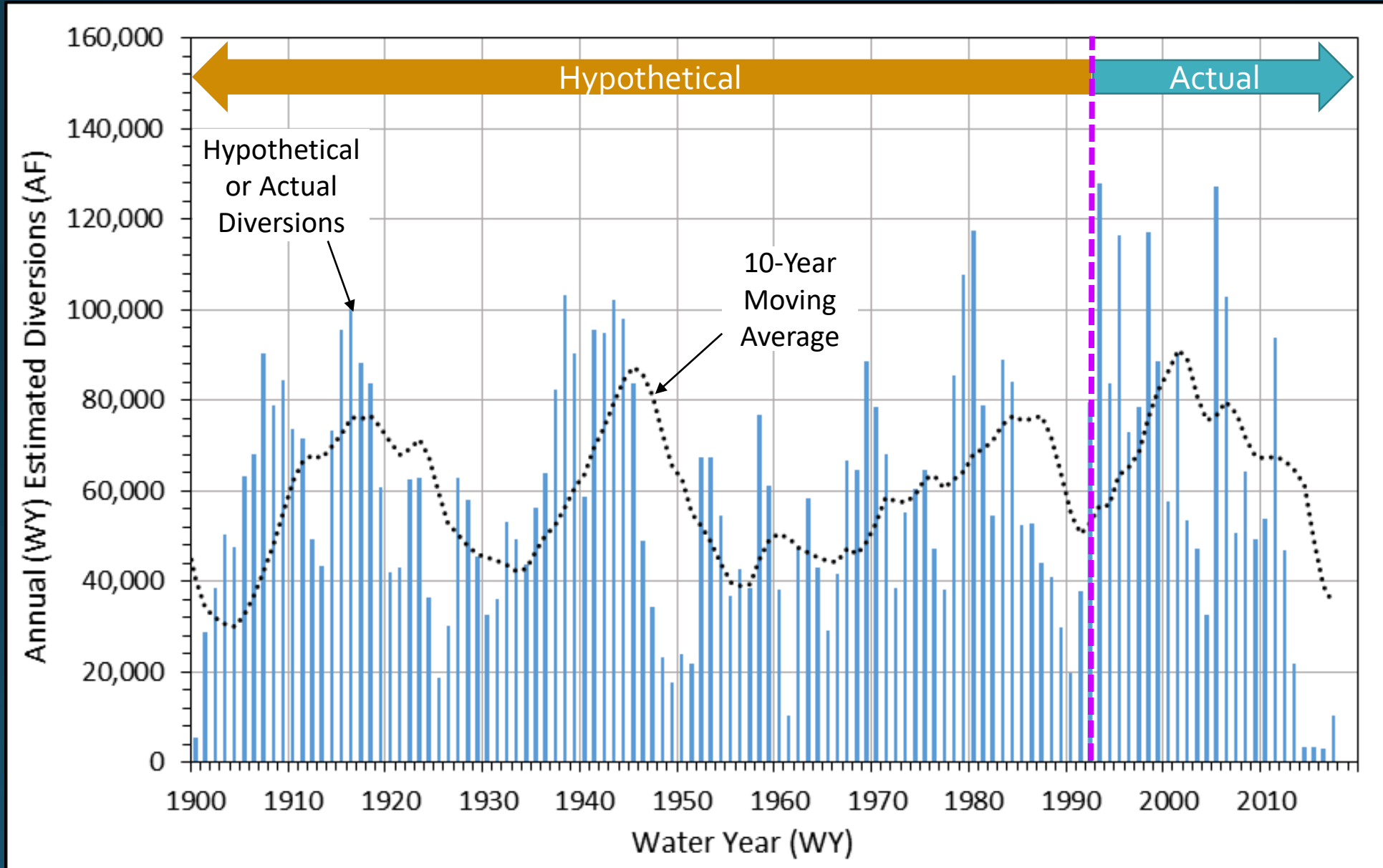




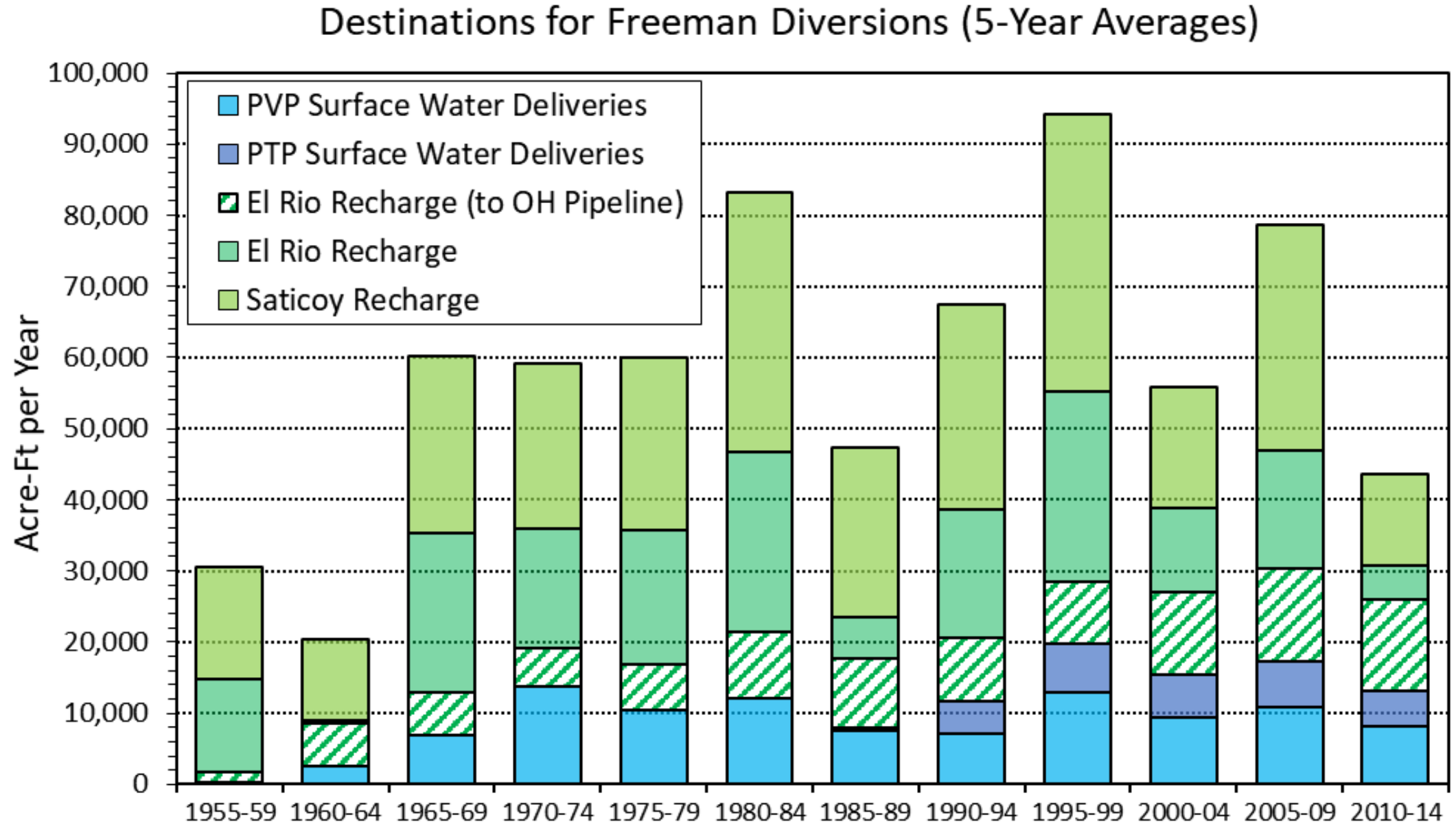
# United's Diversions Can Vary Significantly in 5 Years



# Variability is Diminished Using 10-Year Averages



# What Have Past 5-Year Average Pipeline Deliveries Been?



# What Makes Sense?

Allocation ordinance should return to treating surface water delivered *in lieu* of pumping the same as groundwater.

1. PTP and PVP users originally accepted conjunctive use on the premise that delivered surface water would be equal to groundwater.
2. Current language is a big disincentive to accept *in lieu* surface water or expanding conjunctive use
  - Encouraging conjunctive use improves sustainable yield for all users, lowers costs for water, improves environmental conditions

# 5. Mound Basin Groundwater Sustainability Agency (MBGSA) Agenda Review

# Recent Activities (as of Feb. 21 Board meeting)

- Basin boundary modifications approved
- Prop. 1 grant for GSP preparation in negotiation
- DWR technical support in monitoring-well installation may not be possible due to depth of planned well
- RFQ for GSP support contractor “on the street”
- Contract language, SOW, and LOE for United staff support on GSP preparation seems acceptable to both parties

# Agenda for Next Meeting

- Next meeting: March 21 at 1:00 pm
- Future agenda items:
  - GSP-consultant RFQs/selection
- April meeting shifted from April 18 to April 25
  - may be cancelled if not needed



# 6. Fillmore and Piru Basins Groundwater Sustainability Agency (FPBGSA) Agenda Review

# Recent Activities (as of Feb. 21 Board meeting)

- Basin boundary modifications approved
- Prop. 1 grant for GSP preparation executed
- GSP-consulting contract executed
  - Daniel B. Stephens & Associates, Inc.
  - United providing significant technical support
- Lynn Edmonds, City of Fillmore, joined the FPBGSA as a member Director on the Board
- United staff presented model development approach

# Agenda for Next Meeting

- Next meeting: March 21 at 5:00 pm
- Future agenda items:
  - Stakeholder engagement *ad hoc* subcommittee progress

# 7. Santa Paula Basin Technical Advisory Committee (TAC) Update

# Recent Activities

- Basin boundary modifications for adjacent Fillmore and Mound basins approved
  - No changes to Santa Paula Basin Settlement Boundary
- Draft 2017 Annual Report submitted to TAC
  - Groundwater elevations rose, overall, in SP basin in 2017
  - Must complete SGMA reporting for adjudicated basins by April 1, 2019
- TAC Working Group on groundwater elevation “triggers” making progress

# Agenda for Next Meeting

- Next TAC meeting: Feb. 28 (not a public meeting)
- Future agenda items:
  - Report on TAC Working Group progress regarding “triggers” document
  - Review planned SGMA adjudicated-basin reporting data

## 8. FUTURE AGENDA ITEMS

# ADJOURNMENT

*Thank you!*