Thank You For Joining Us!
The Webinar Will Begin Shortly

While we wait… take a moment to connect with OCWD

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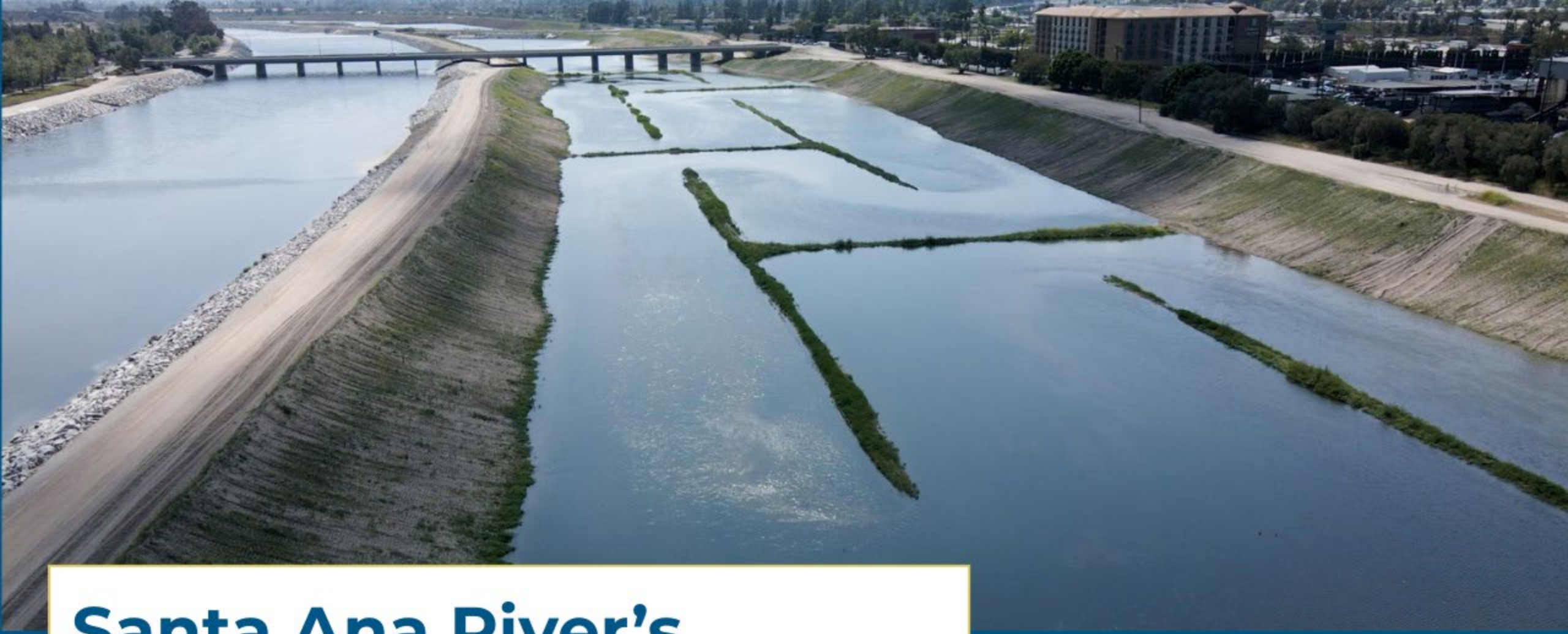


Santa Ana River's Essential Role in Orange County's Water Supply

Thursday, June 25, 2026

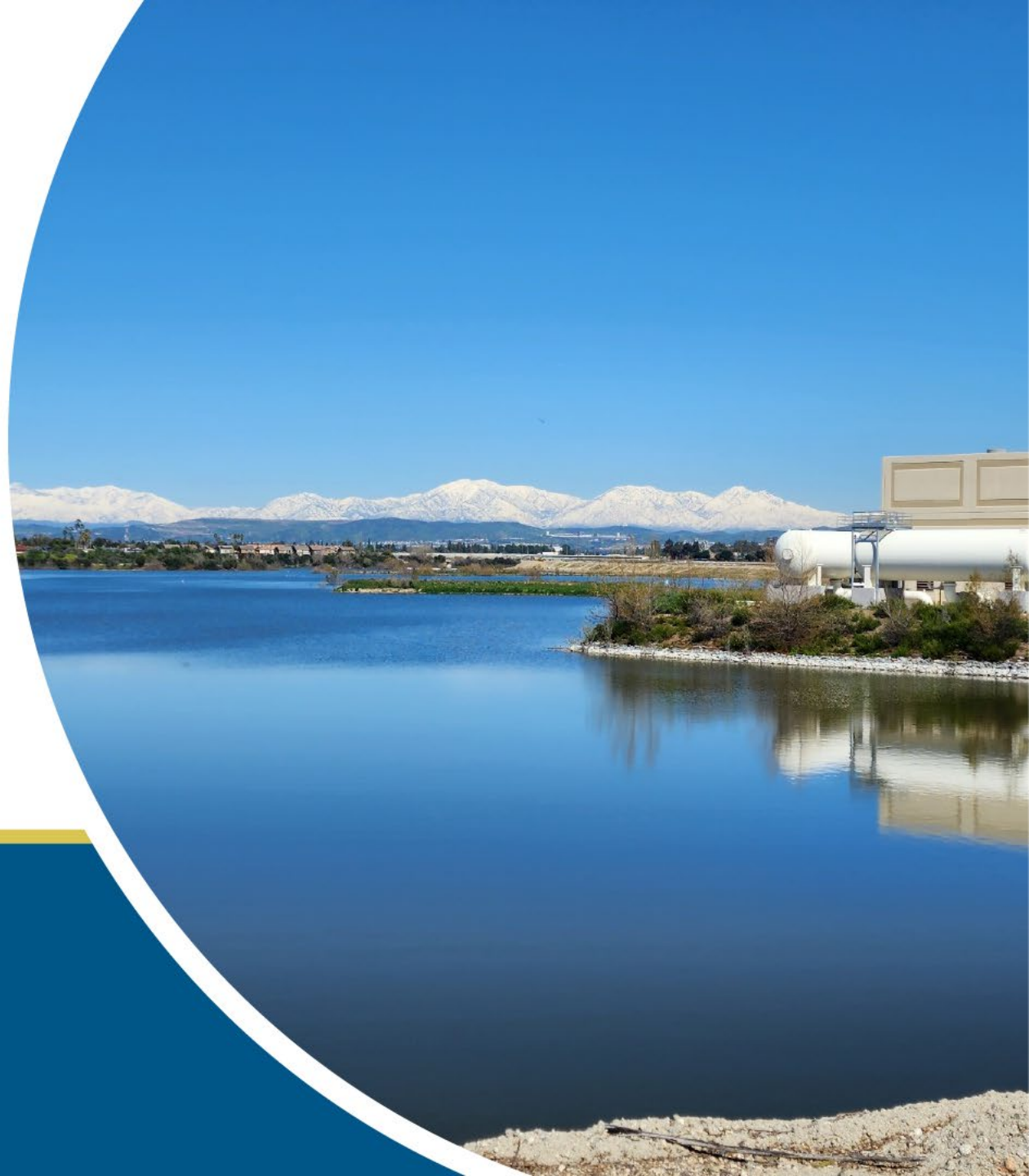
Before We Get Started

- Attendees are muted to reduce background noise
- Webinar is being recorded and will be published on OCWD's YouTube Channel
- Use the Q&A box to submit questions on today's topic
- Email info@ocwd.com for any follow-up questions

Meet Our Speaker

Roy Herndon, P.G., C.HG
Chief Hydrogeologist
Orange County Water District

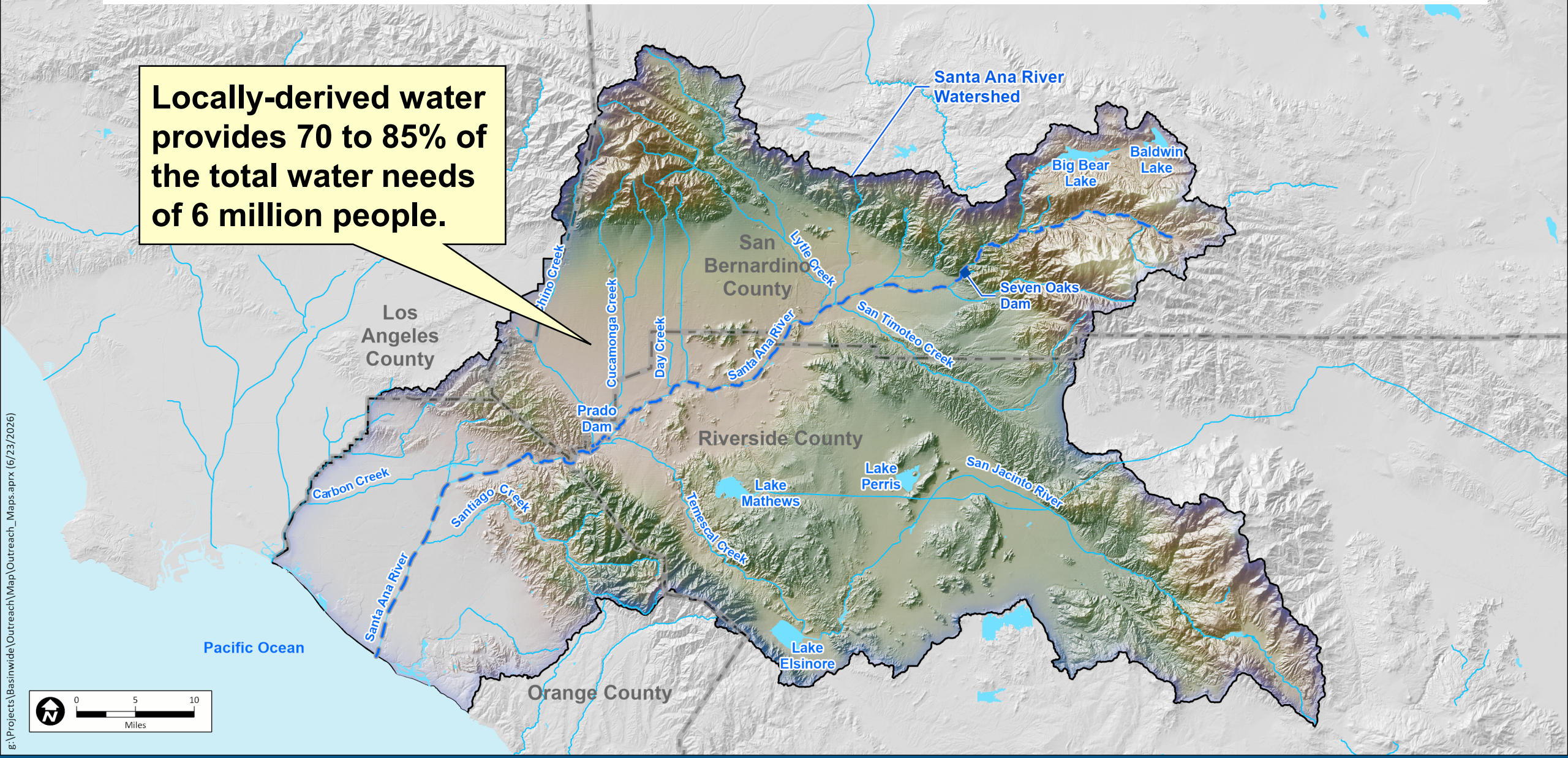
A Historical Perspective of the Santa Ana River as a Water Supply to Orange County



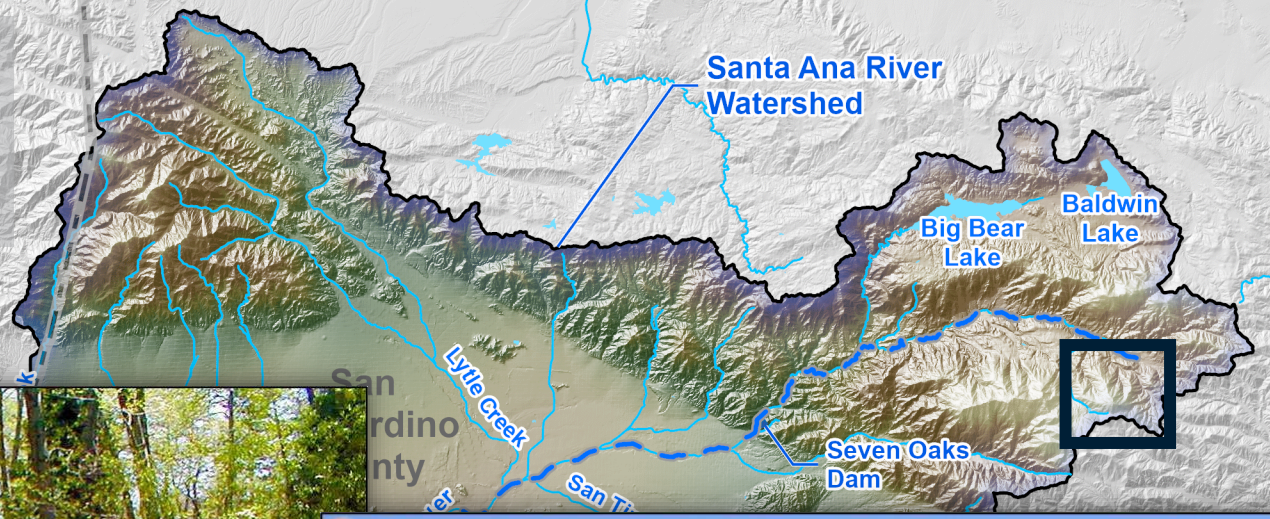
Roy Herndon
Chief Hydrogeologist

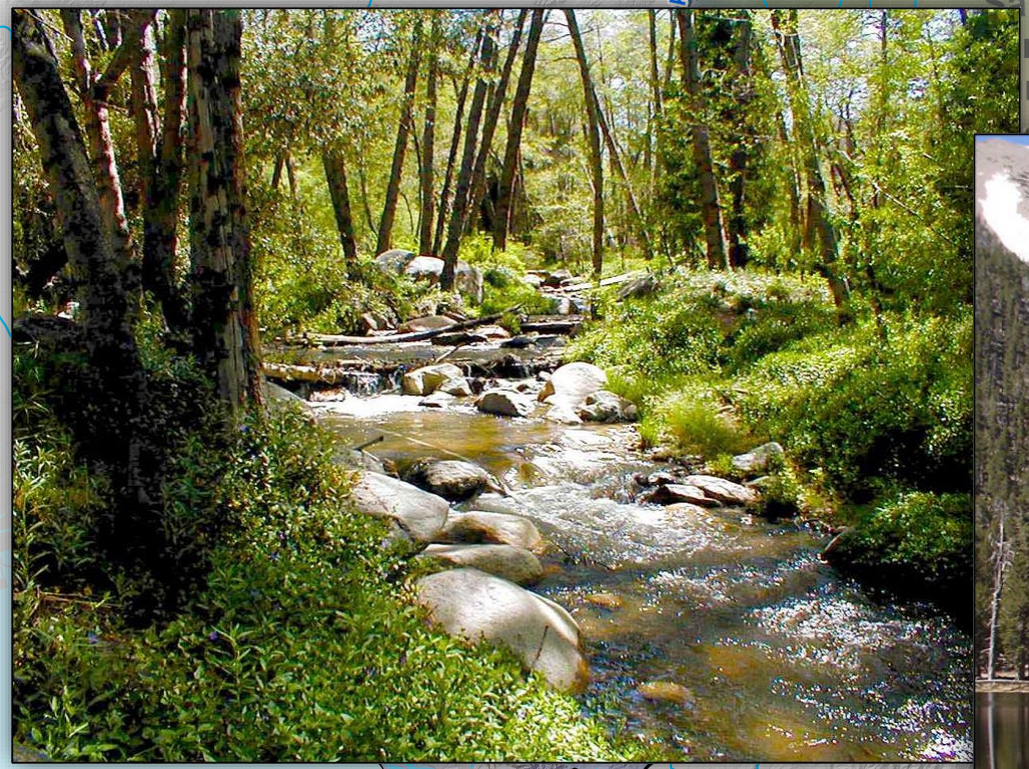
OCWD Webinar
June 25, 2026

The Santa Ana River watershed covers nearly 3,000 sq. miles.



Santa Ana River Headwaters





Orange County

0 4.5 9
Miles

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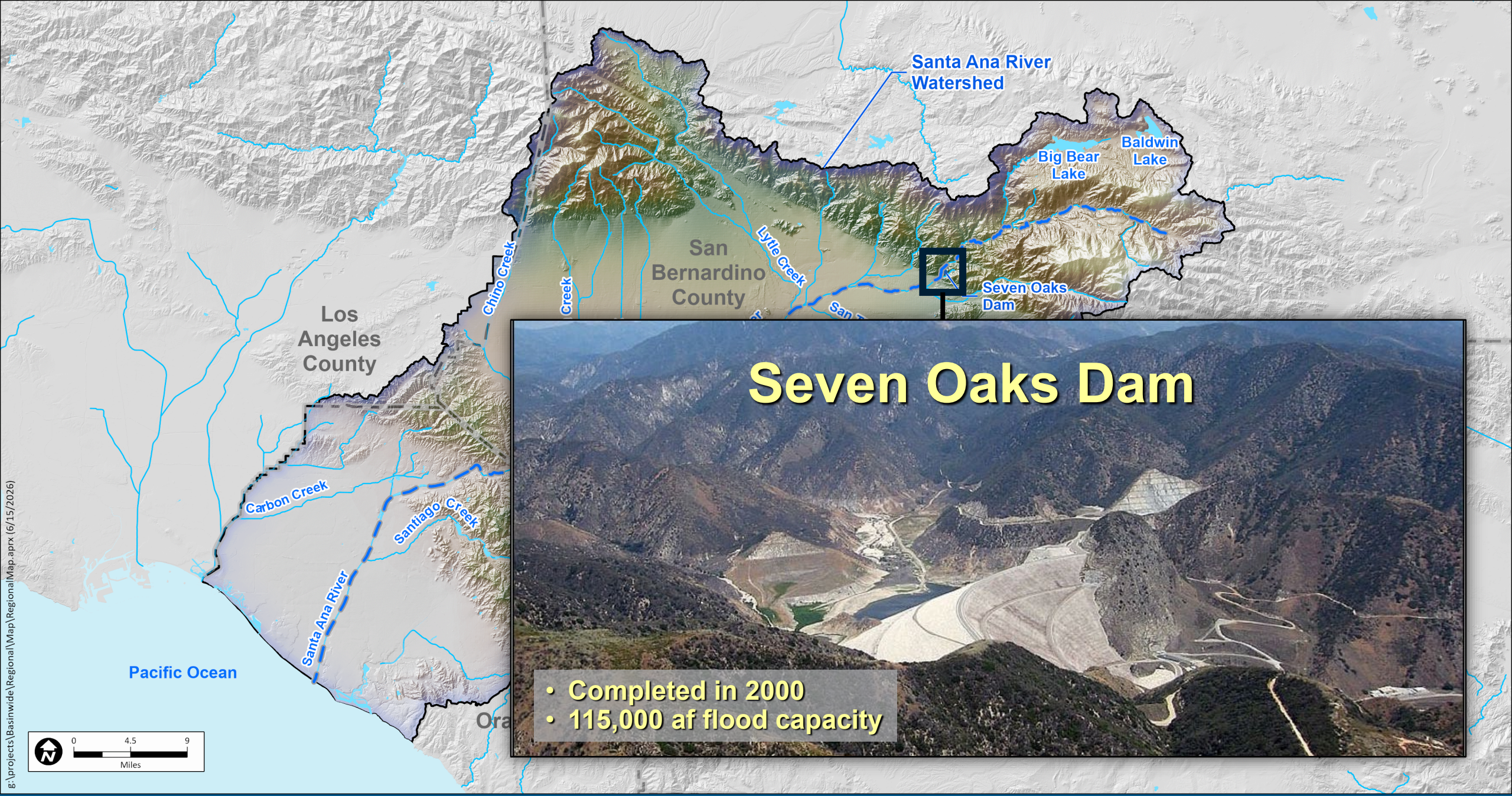
Santa Ana River Watershed
Baldwin Lake
Big Bear Lake
San Bernardino County
Lytle Creek
Chino Creek
Seven Oaks Dam
Los Angeles County
Carbon Creek
Santiago Creek
Santa Ana River
Pacific Ocean
0
4.5
9
Miles
Seven Oaks Dam
• Completed in 2000
• 115,000 af flood capacity
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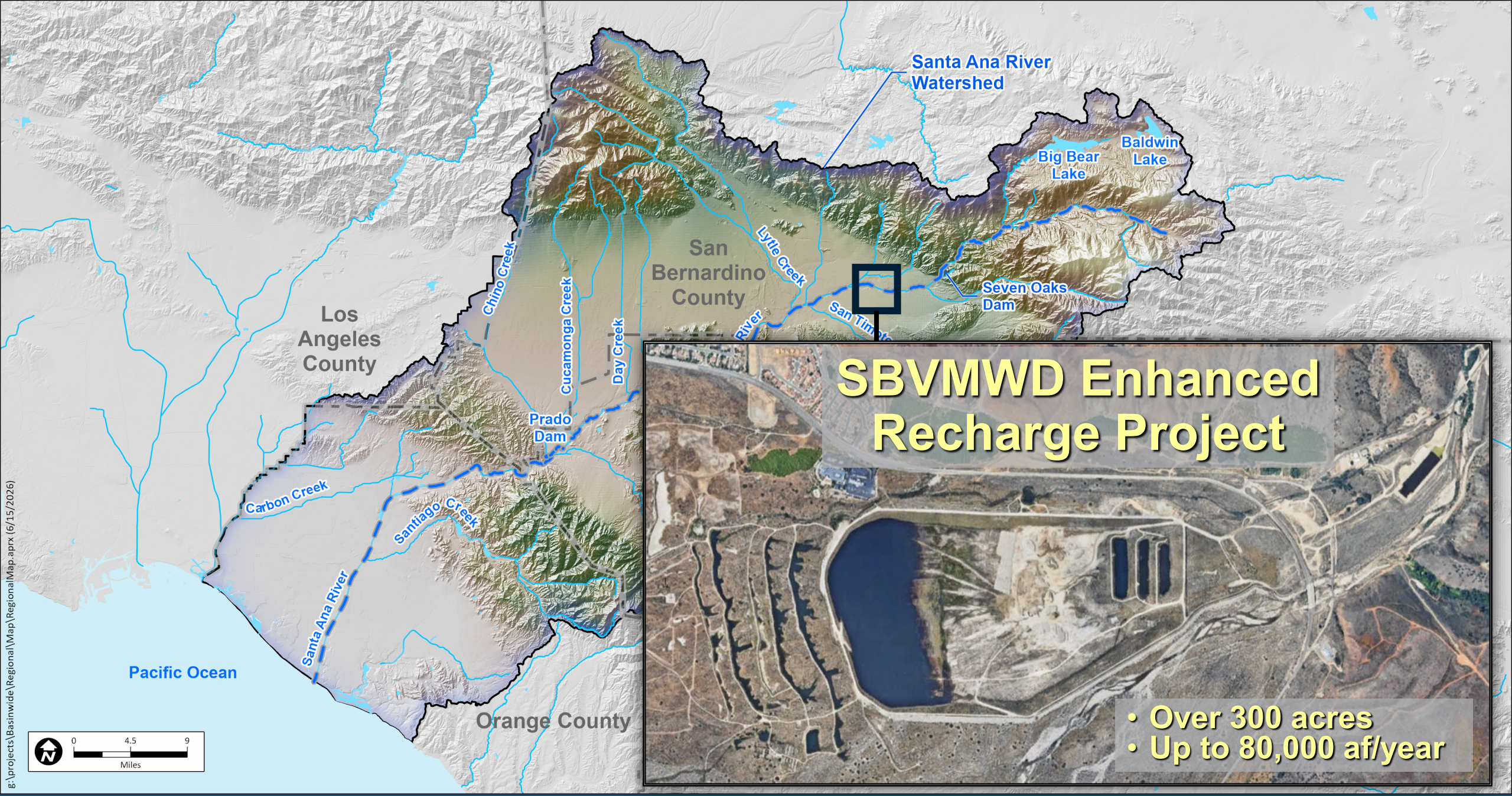
Santa Ana River Watershed
Big Bear Lake
Baldwin Lake
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San Bernardino County
Los Angeles County
Orange County
Chino Creek
Cucamonga Creek
Day Creek
Lytle Creek
San Timoteo
Prado Dam
Carbon Creek
Santiago Creek
Santa Ana River
Pacific Ocean
0
4.5
9
Miles
SBVMWD Enhanced Recharge Project
• Over 300 acres
• Up to 80,000 af/year
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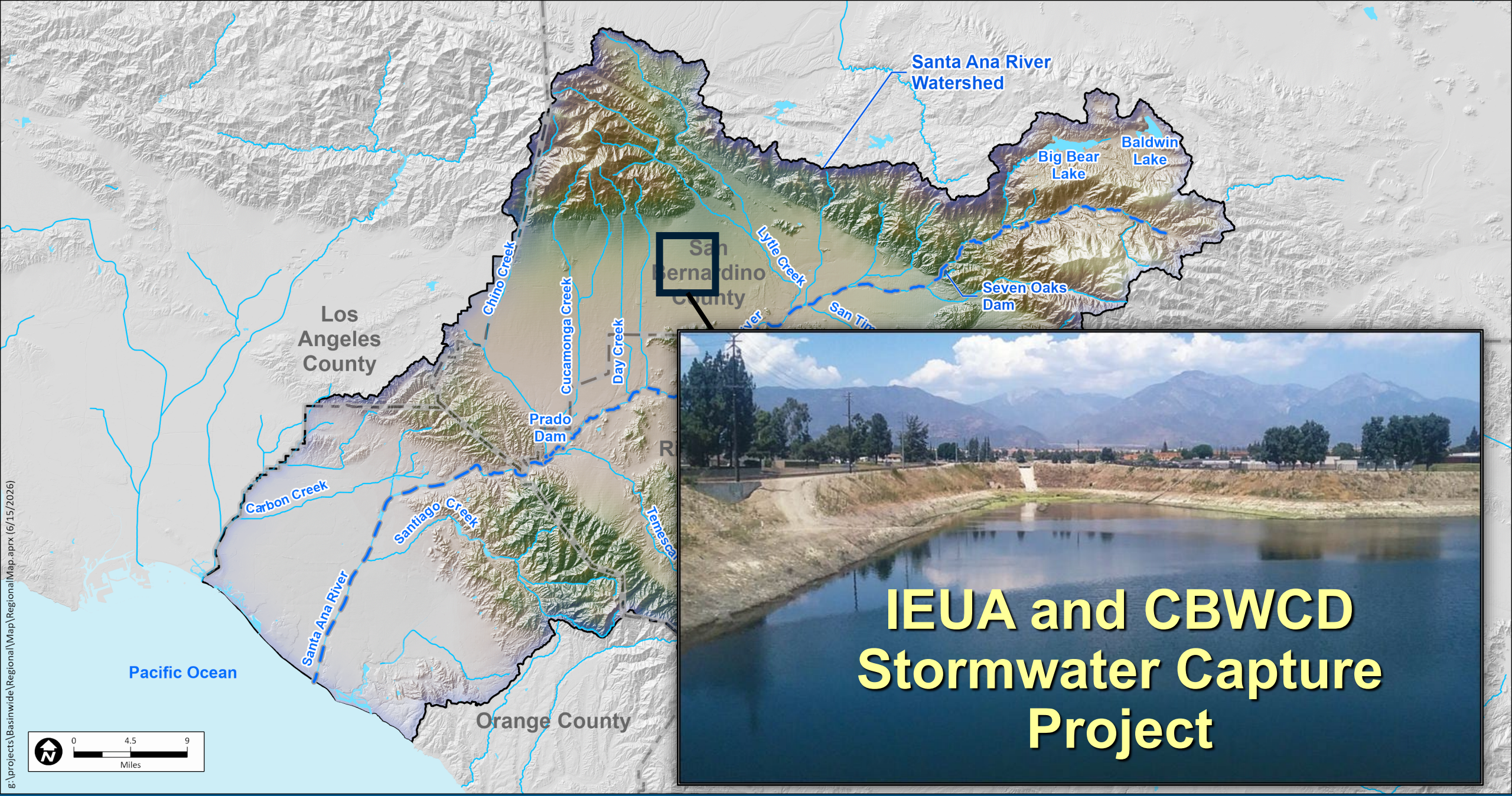
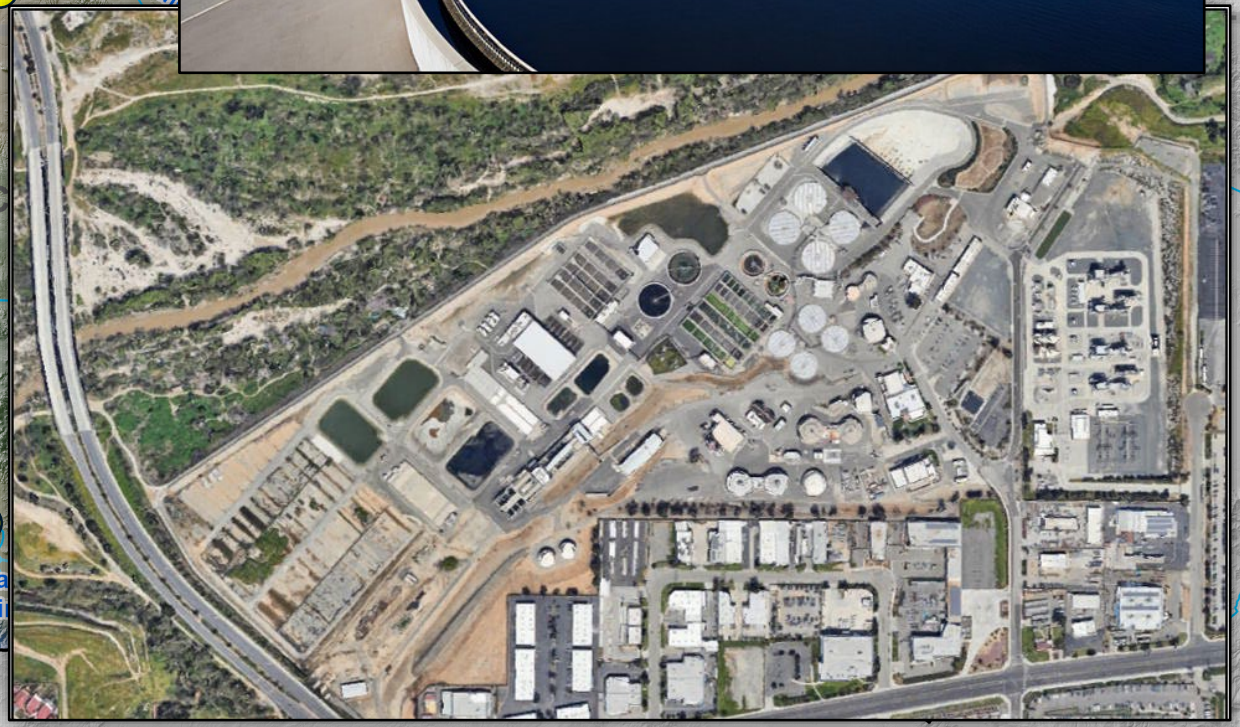


IEUA and CBWCD Stormwater Capture Project

Wastewater Treatment Plants in Upper SAR Watershed



San Bernardino County

Los Angeles County

Riverside C

Orange County

Pacific Ocean

Chino Creek

Cucamonga Creek

Day Creek

Lytle Creek

San Tim

Santa Ana Ri

Prado Dam

Carbon Creek

Santiago Creek

Santa Ana River

Lake Mathews

Elsi

0 4.5 9
Miles

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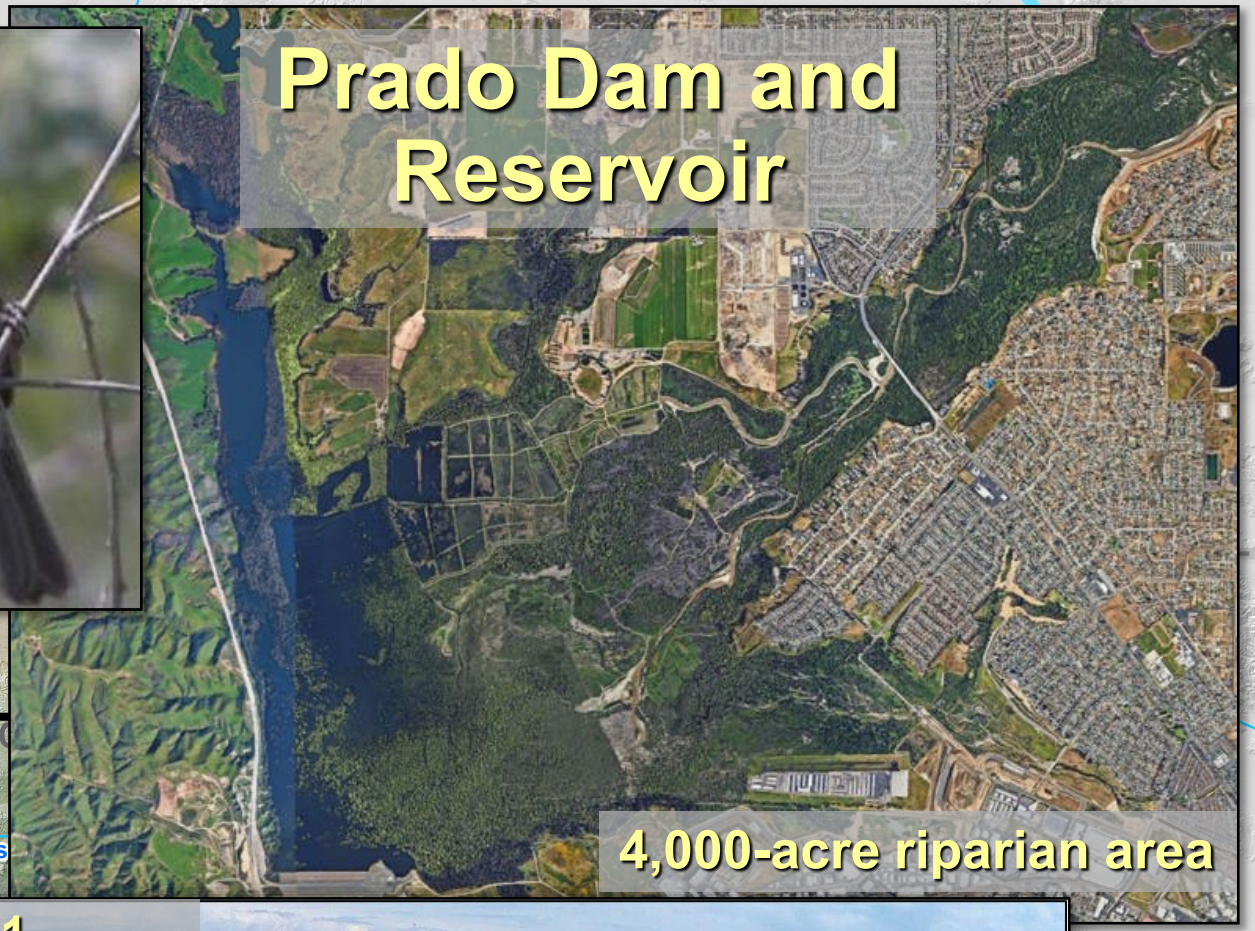
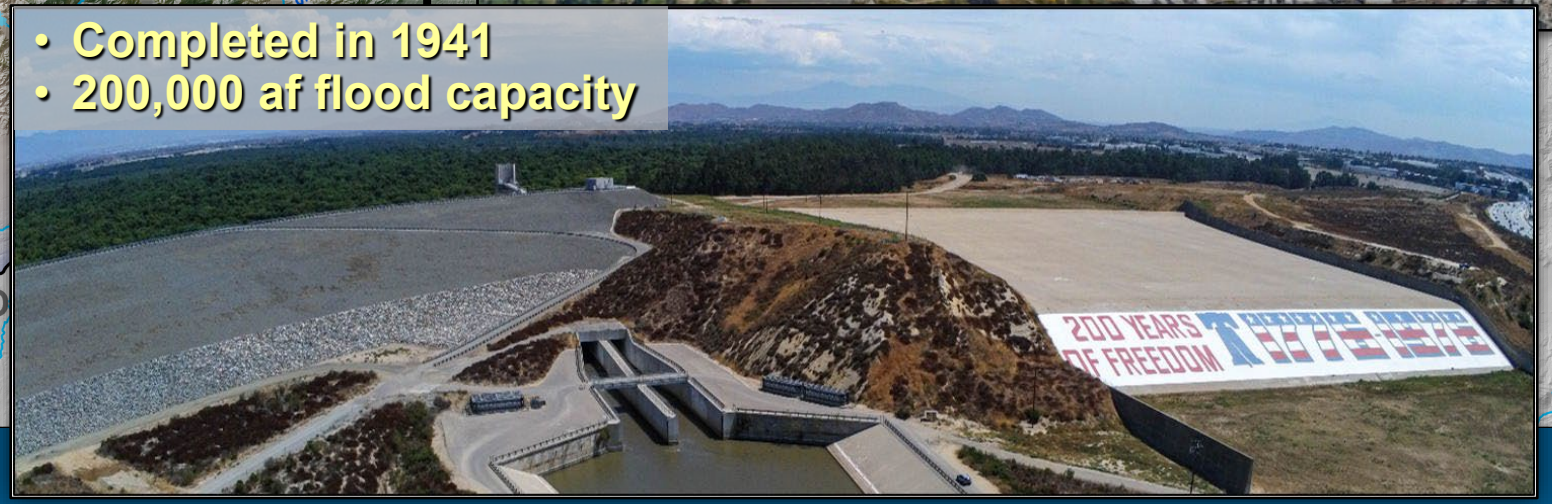
Prado Dam and Reservoir



4,000-acre riparian area

- Completed in 1941
- 200,000 af flood capacity



Los Angeles County

Riverside C

Chino Creek

Cucamonga Creek

Prado Dam

Carbon Creek

Santiago Creek

Santa Ana River

Lake Mathews

Pacific Ocean

0 4.5 9
Miles

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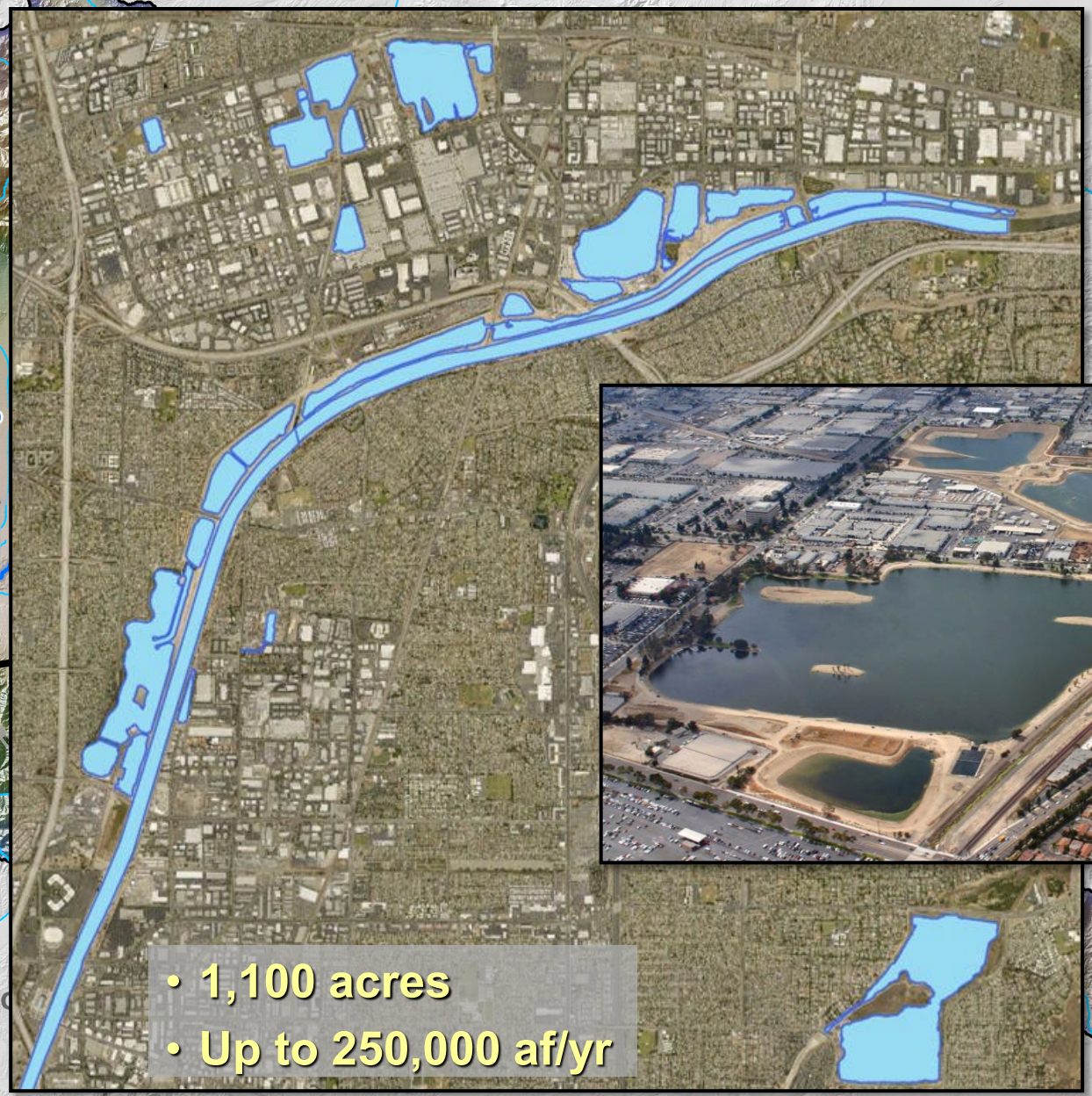
OCWD Forebay Recharge Facilities



- 1,100 acres
- Up to 250,000 af/yr

Los Angeles County

Orange Co

Chino Creek

Cucamonga Creek

Prado Dam

Carbon Creek

Santiago Creek

Santa Ana River

Pacific Ocean

0 4.5 9
Miles

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Santa Ana River Watershed
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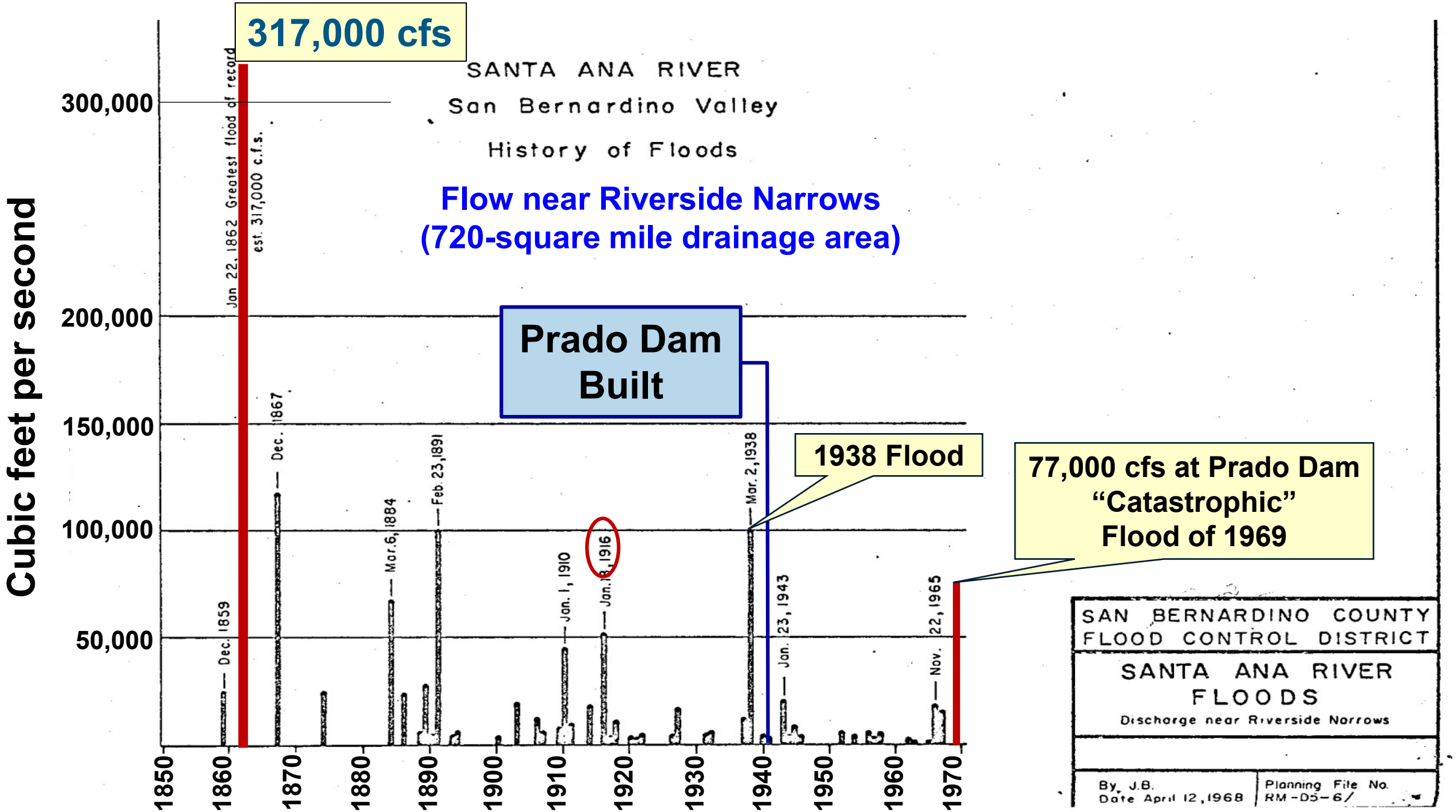
Nov

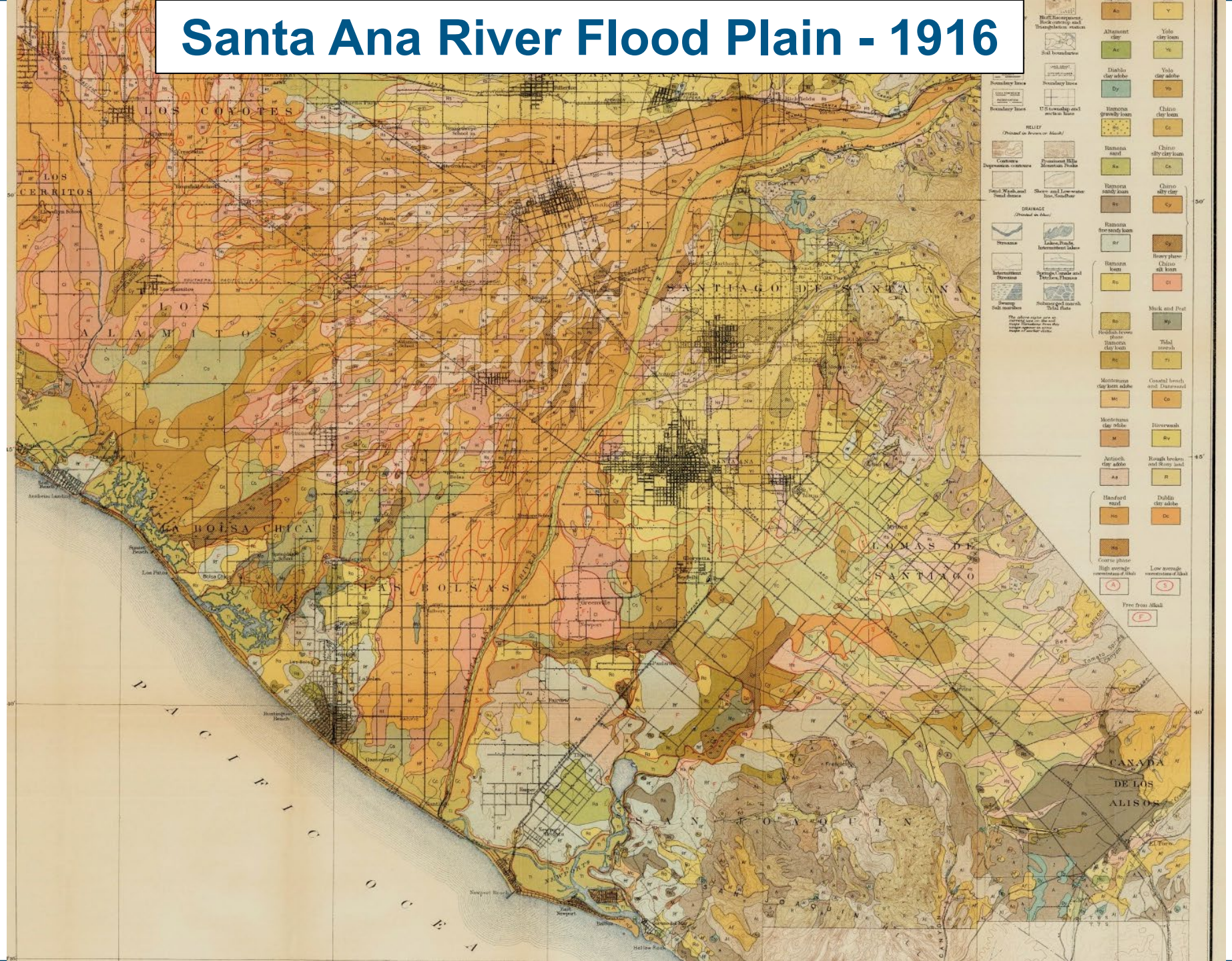
. . .

. . . to 1862 – The Great Santa Ana River Flood

- 15 days/nights of continuous rain
- Snow in the mountains
- Rain became increasingly warm, triggering snow melt
- Thunderous roar heard on evening of January 22 – peak event
- Orange County became an “inland sea”
- Northern California was impacted similarly
  - Central Valley inundated up to 30 feet
  - San Francisco had 24 inches in <u>one day</u> (historical daily max.)


317,000 cfs
SANTA ANA RIVER
San Bernardino Valley
History of Floods
Flow near Riverside Narrows
(720-square mile drainage area)
Cubic feet per second
300,000
200,000
150,000
100,000
50,000
Jan 22, 1862 Greatest flood of record
est. 317,000 c.f.s.
Dec. 1859
Dec. 1867
Mar. 6, 1884
Feb. 23, 1891
Jan. 1, 1910
Jan. 18, 1916
Mar. 2, 1938
Jan. 23, 1943
Nov. 22, 1965
Prado Dam Built
1938 Flood
77,000 cfs at Prado Dam
"Catastrophic"
Flood of 1969
1850
1860
1870
1880
1890
1900
1910
1920
1930
1940
1950
1960
1970
SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT
SANTA ANA RIVER
FLOODS
Discharge near Riverside Narrows
By J.B.
Date April 12, 1968
Planning File No.
RM-D5-6/

Santa Ana River Flood Plain - 1916

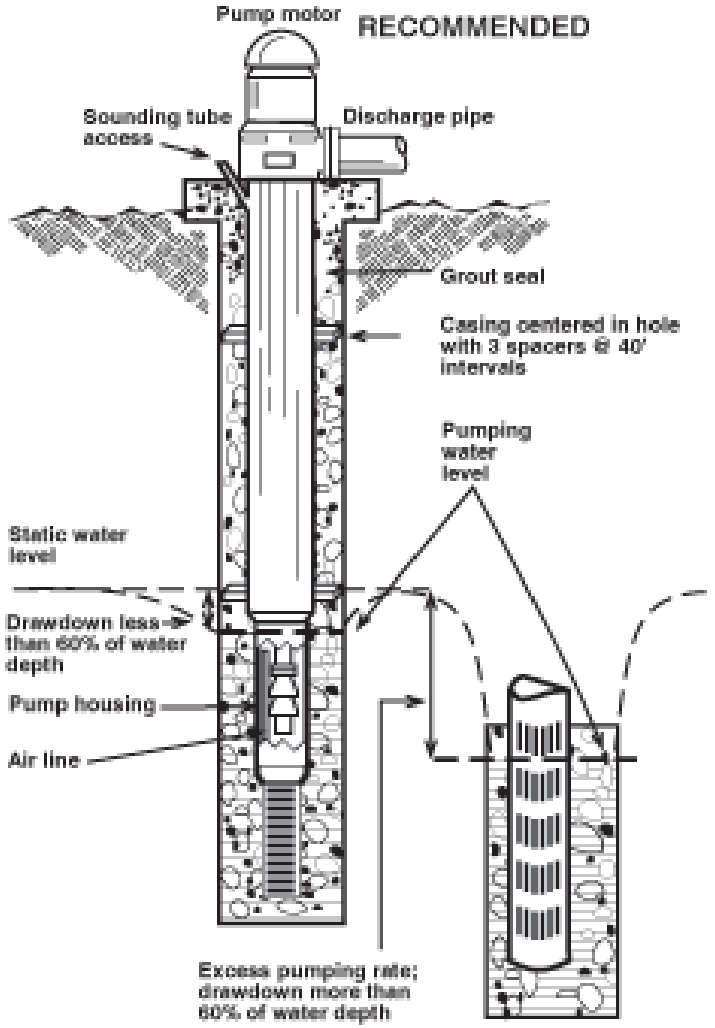


Late 1800s – Early 1900s

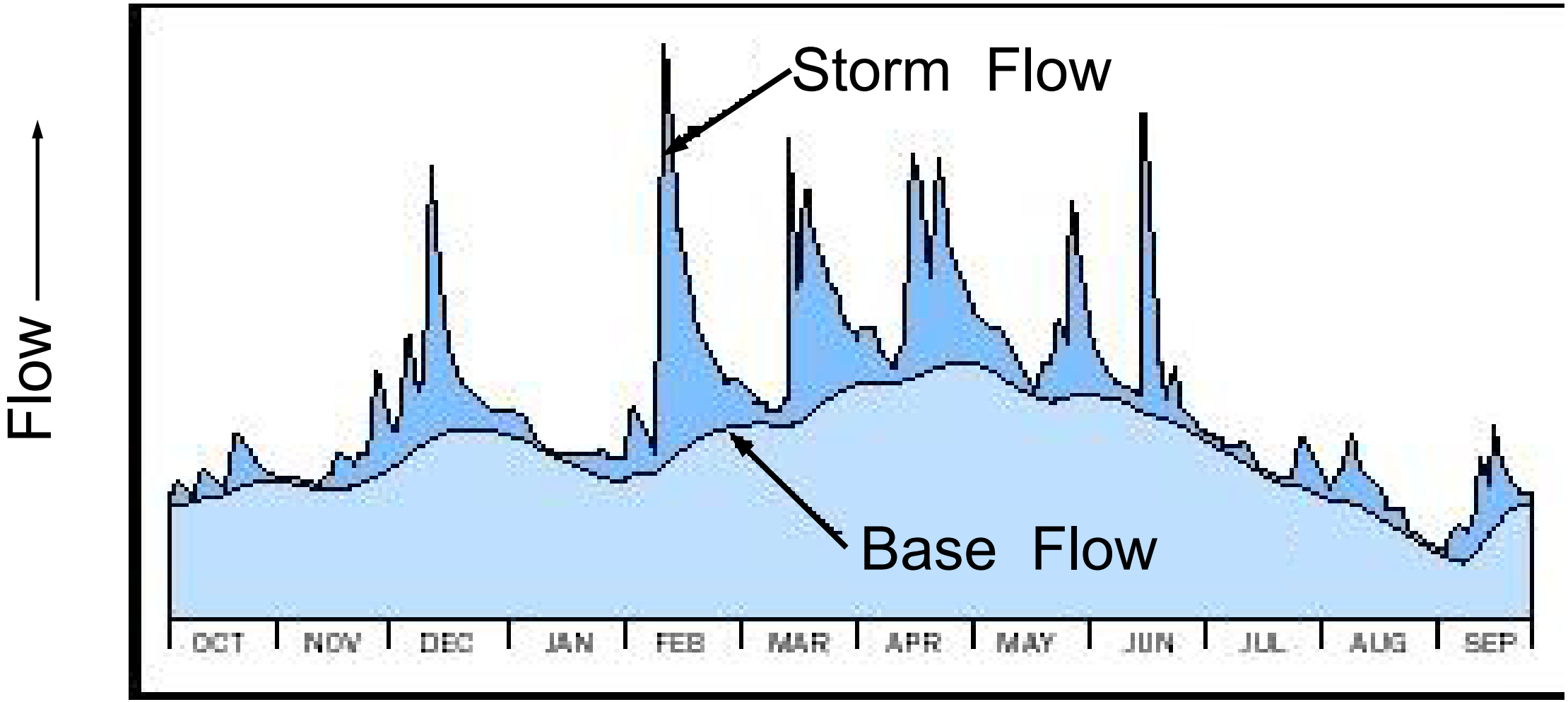
- SAR primary water source to farmers
- Squabbles on river water
- Anaheim Union Water Co. and Santa Ana Valley Irrigation Co. split river flows below Prado
- Land in Prado Basin purchased by downstream farmers to protect flows

SAR base flows to OC were largely from rising groundwater from the upper watershed…

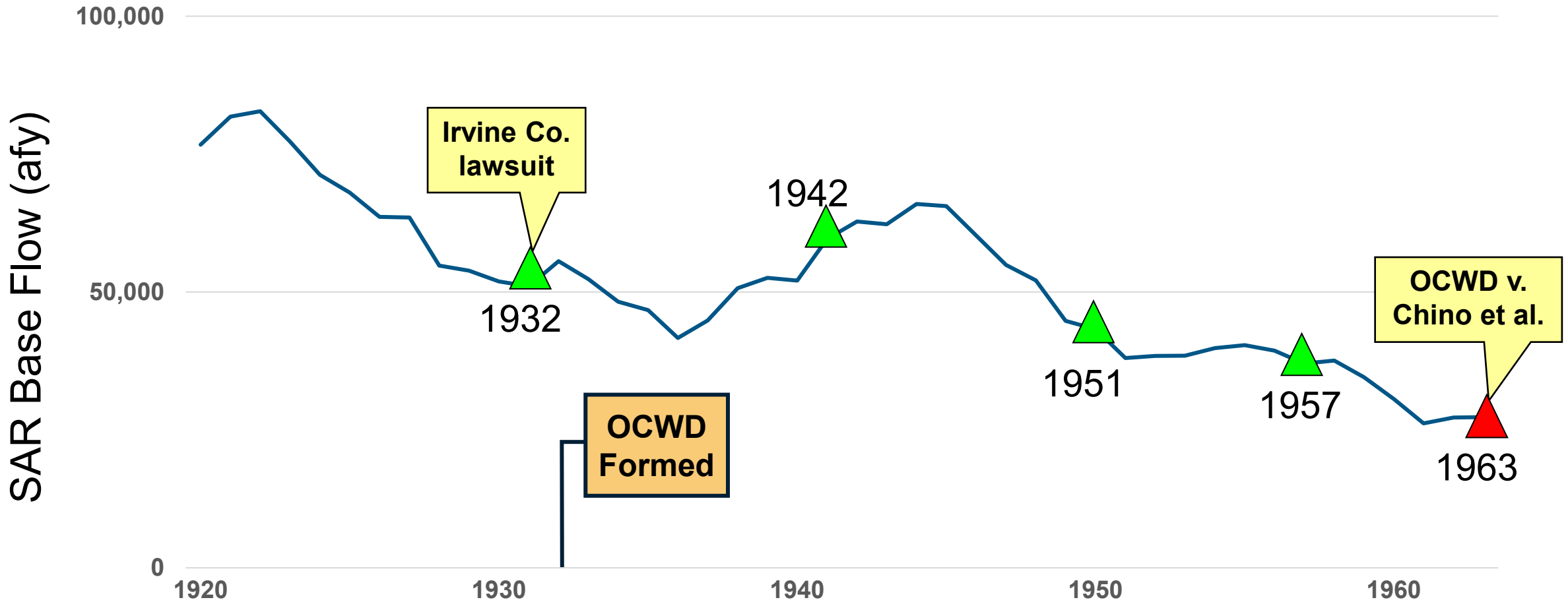
…until well drilling and turbine pump technology developed. Pumping and diversions reduced base flows.



Base Flow vs. Storm Flow



Seeing reduced flows, OC entities filed several water rights lawsuits against upstream entities



s:\watermaster\history\hist prado base.xls

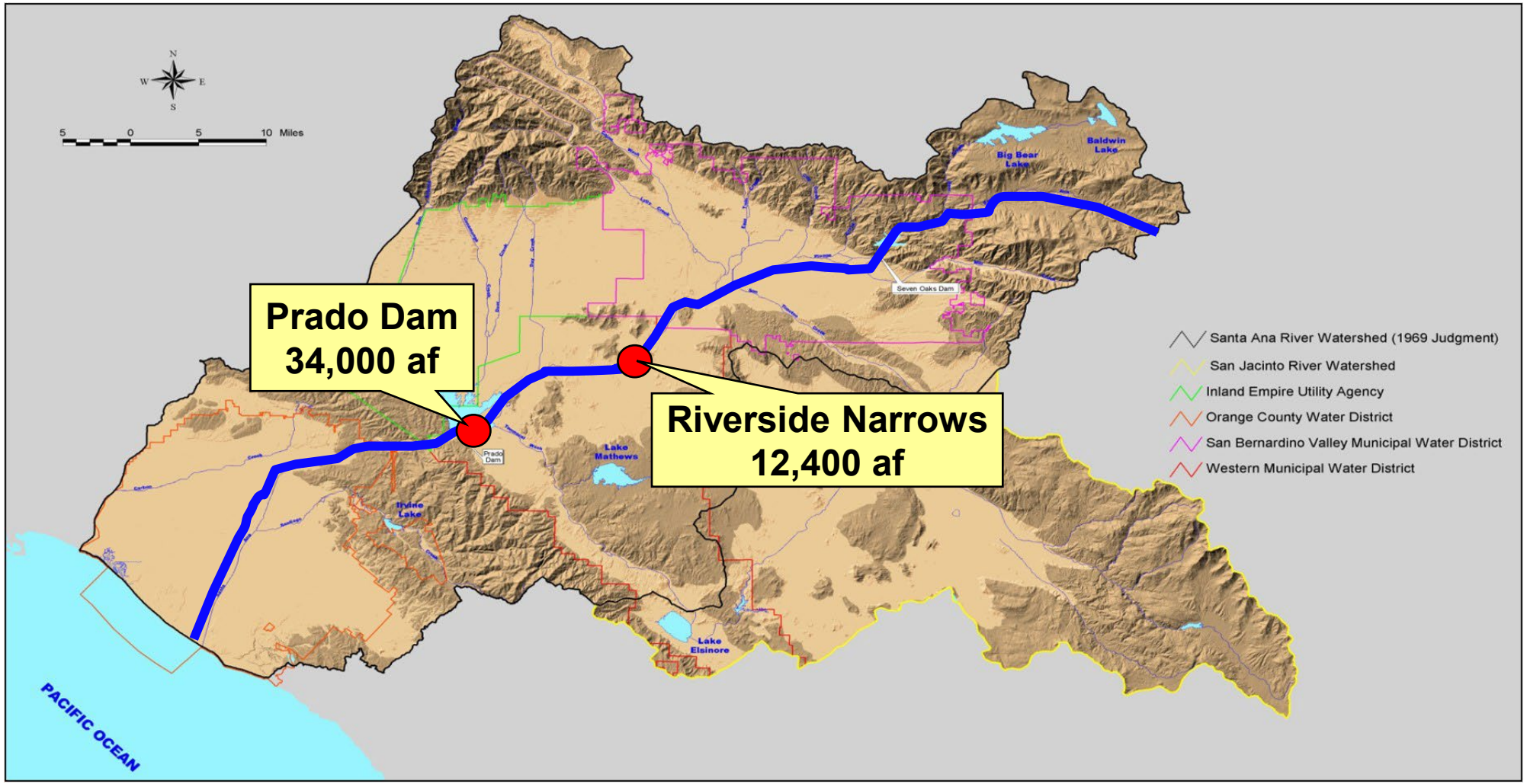
OCWD v. City of Chino, et al.

- Filed in October 1963
- 2,500 defendants (Upper Area)
- 1,500 cross-defendants (Lower Area)
- Consolidation
  - Chino Basin Municipal Water District (IEUA)
  - Western Municipal Water District
  - San Bernardino Valley Municipal Water District
  - Orange County Water District

1969 Stipulated Judgment

- Ended decades of legal battles regarding upstream and downstream water use
- Declared rights of entities in the Lower Area as against those in the Upper Area, and provides a physical solution to satisfy those rights
- Effective date October 1, 1970

The Judgment requires minimum base flows at two key stream gauges along the river.



Additional Judgment Provisions

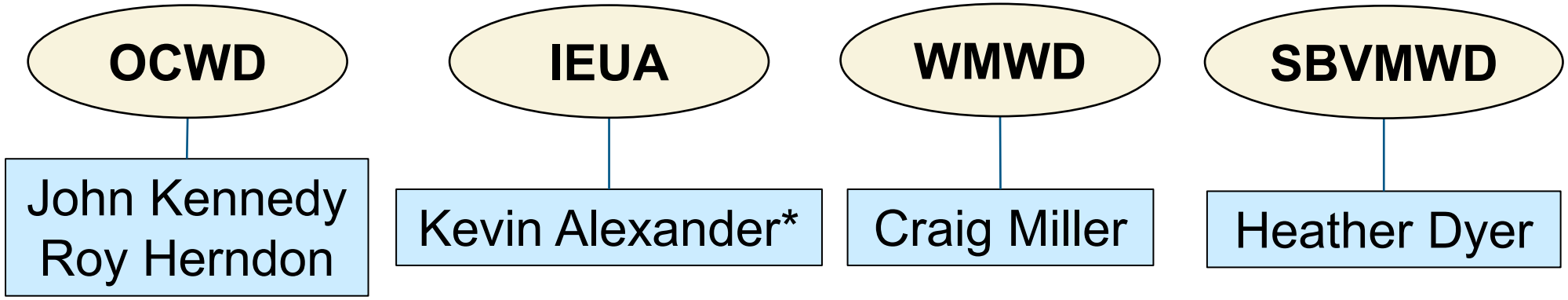
- Lower Area has the right to all **storm water** reaching Prado reservoir
- Upper Area is freed from recharge restrictions
- Upper Area has the right to divert, pump, extract, conserve, store and use all surface and groundwater supplies originating in the Upper Area, provided the Lower Area receives the water to which it is entitled under the Judgment

Additional Judgment Provisions

- SBVMWD, IEUA, and WMWD are prevented from exporting water from Lower Area to Upper Area
- OCWD is prevented from exporting or “causing water to flow” from Upper Area to Lower Area

The Judgment created a Watermaster Committee

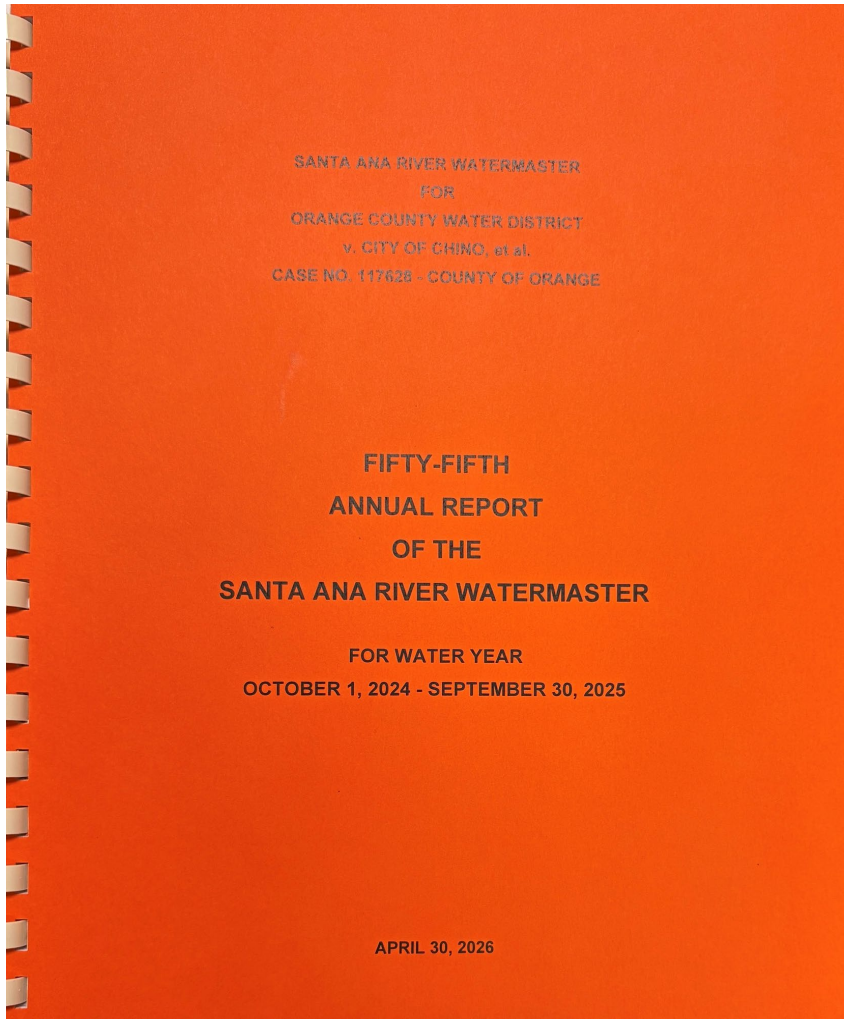
- Nominated by four water agencies
- Appointed by Court to administer Judgment provisions



*appointment in process

Watermaster Duties

- Maintain a continuous accounting and report findings for each water year
- Water year is October 1 – September 30
- Publish and submit annual report to Court and parties

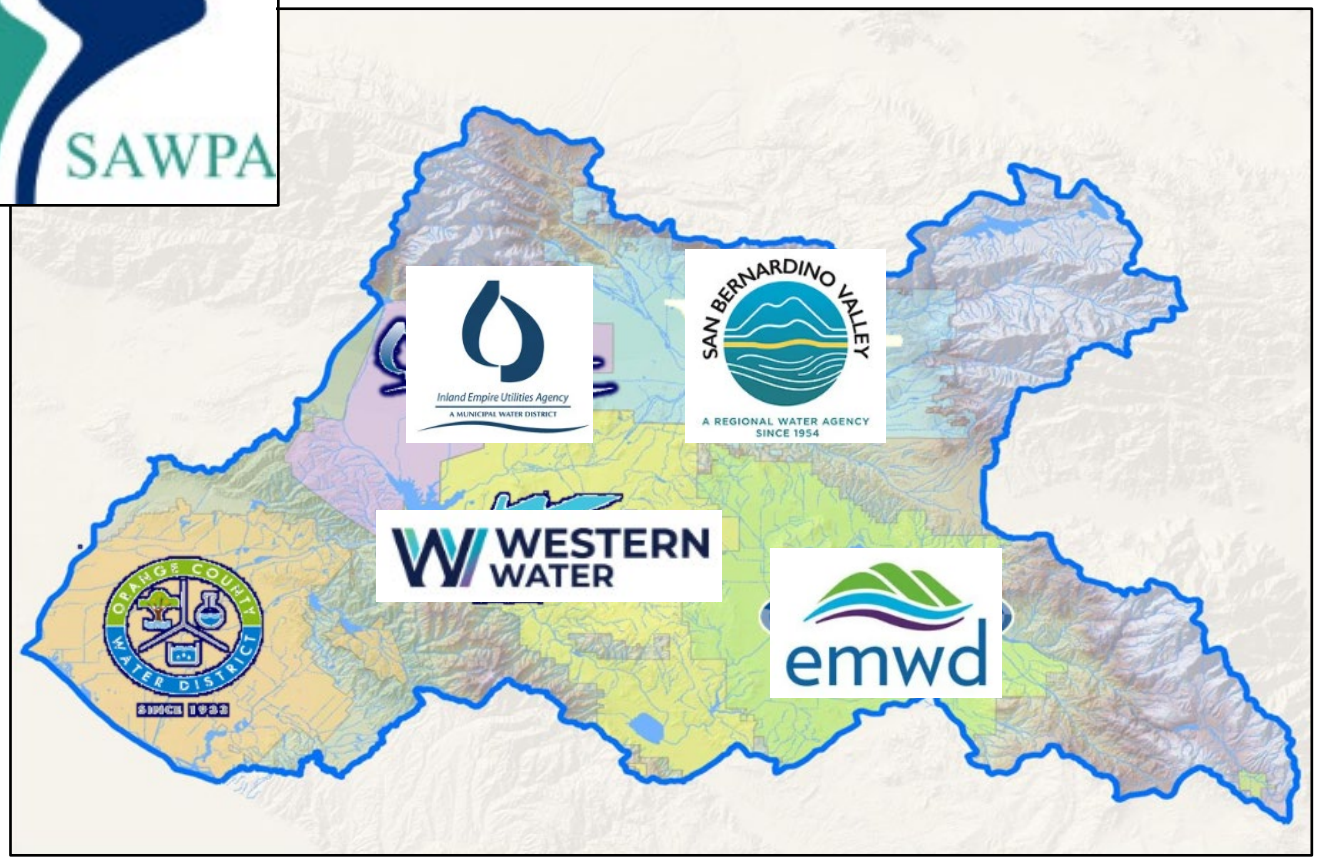


The 1969 Judgment triggered other judgments and agreements in the upper watershed

- WMWD-ESBCWD Judgment
- SBVMWD-ESBCWD Judgment
- SBVMWD-City of San Bernardino Agreement
- SBVMWD-City of Colton Agreement
- WMWD-CBMWD (IEUA) Agreement
- WMWD-CBMWD (IEUA) - County of Riverside-Riverside County Flood Control and Water Conservation District Agreement
- WMWD-City of Riverside Agreement
- WMWD-City of Corona Agreement

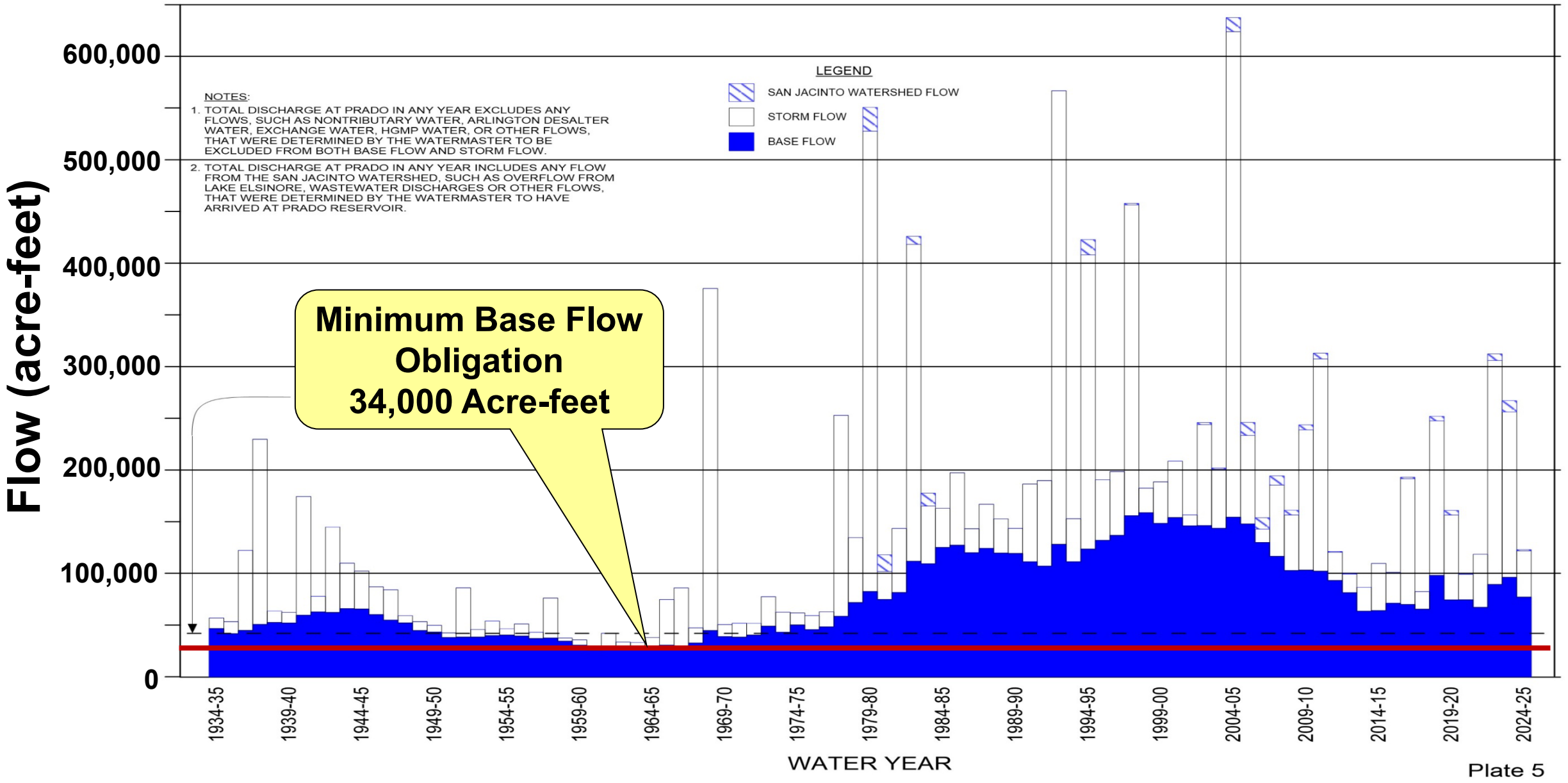
Like most water rights adjudications, the 1969 Judgment primarily addressed a flow dispute.

Water quality issues were lurking, and **SAWPA** was formed in 1968 as a vehicle for watershed-wide collaboration.

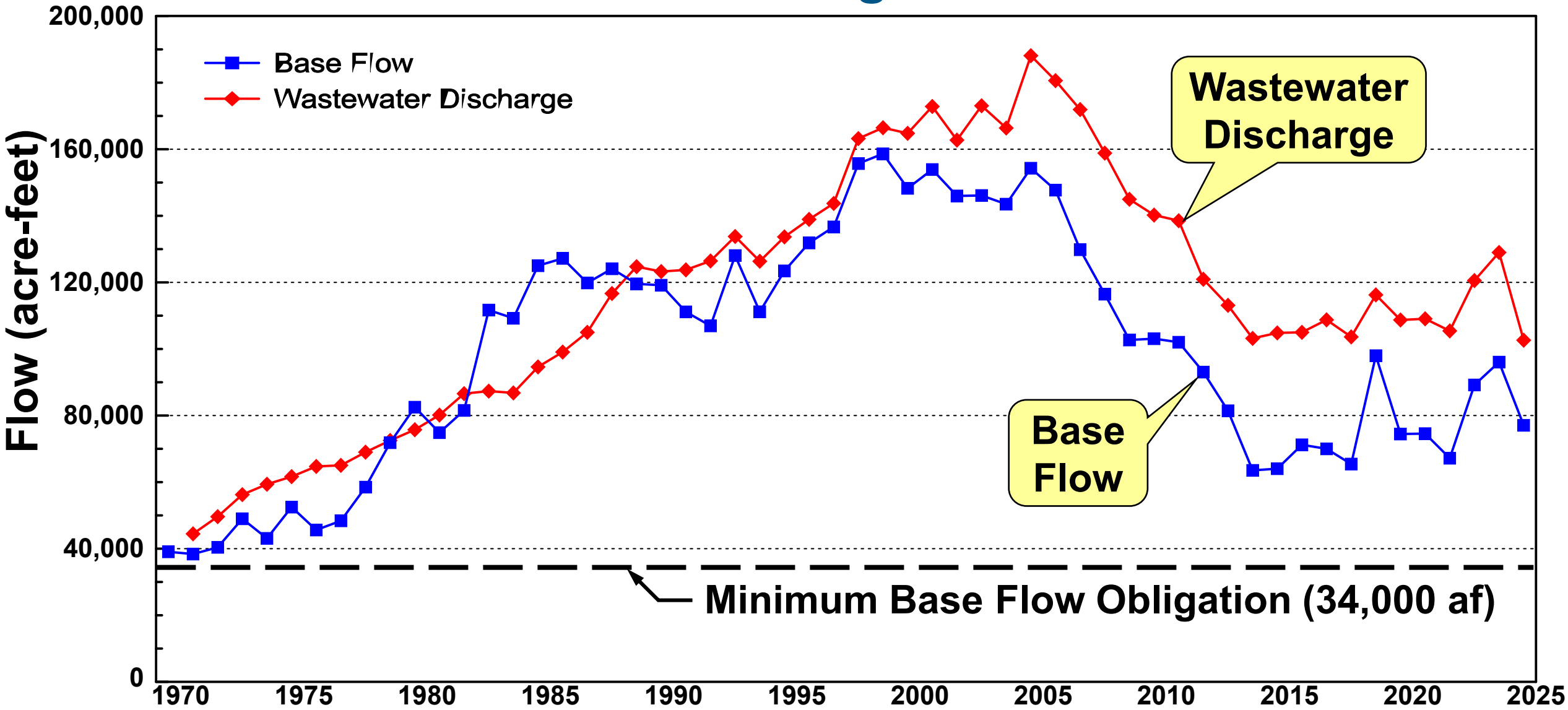


Past and Present Trends in SAR Flows

Santa Ana River Flow at Prado Since 1934-35



Santa Ana River Base Flow at Prado and Wastewater Discharge to the River



OCWD continues to respond to challenges to maintaining a reliable water supply.

- Completed GWRS Final Expansion in 2023
- Received approval for Prado storage deviation to elev. 508 feet
- Completed PFAS treatment systems for 53 wells with 50 more in design/construction
- Creation of a groundwater bank for dry year supply (36,000 af)
- Optimizing existing surface water recharge system
- Researching technology to increase GWRS efficiency and output

Questions?

Roy Herndon
Chief Hydrogeologist
Orange County Water District

rherndon@ocwd.com

Stay informed

Questions?

Use the Q&A box to submit your question

Thank You!

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