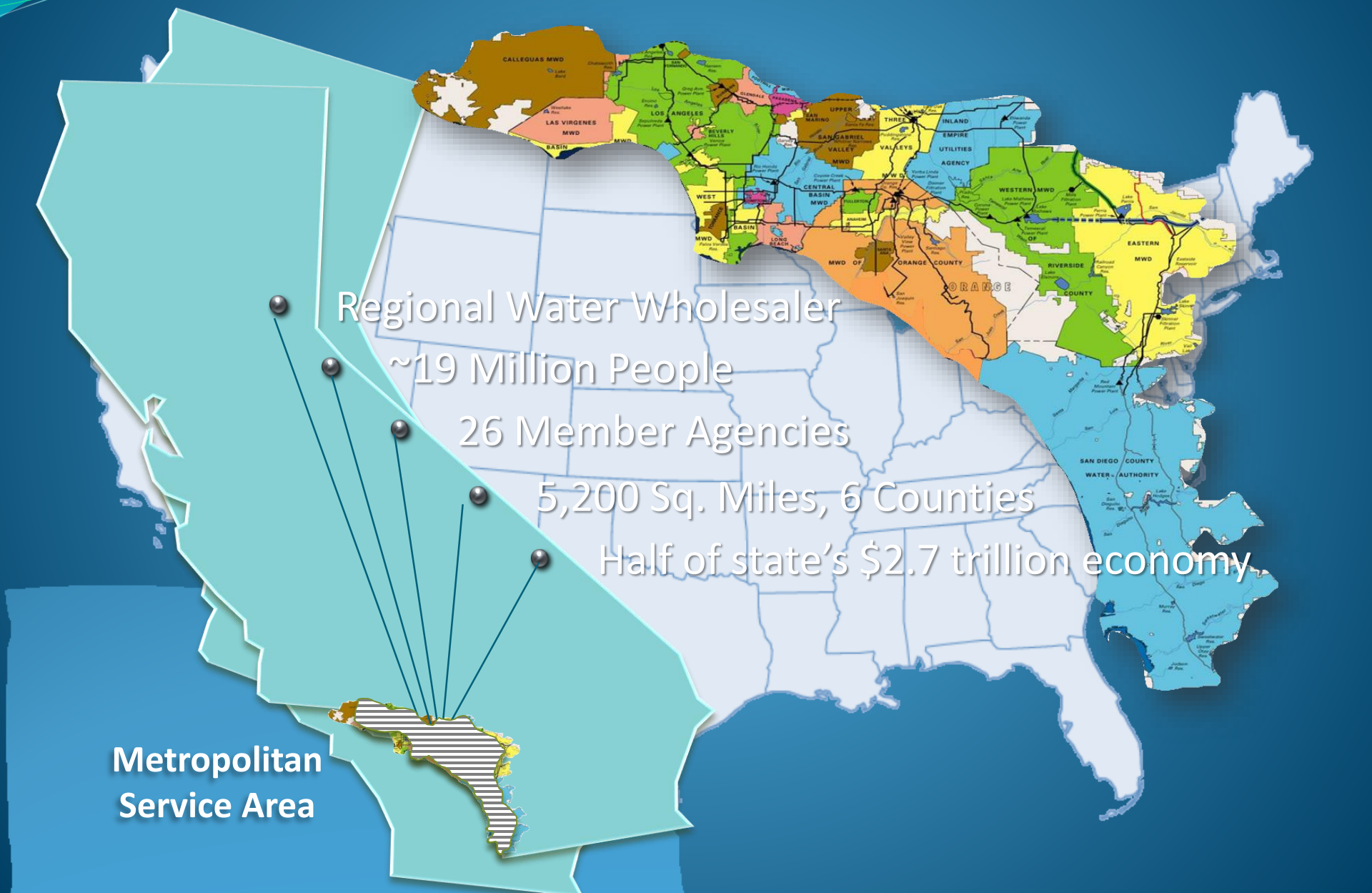
Maintaining Water Supply Reliability Under Extreme Hydrologic Conditions

WESTCAS 2018 Annual Conference

June 21, 2018

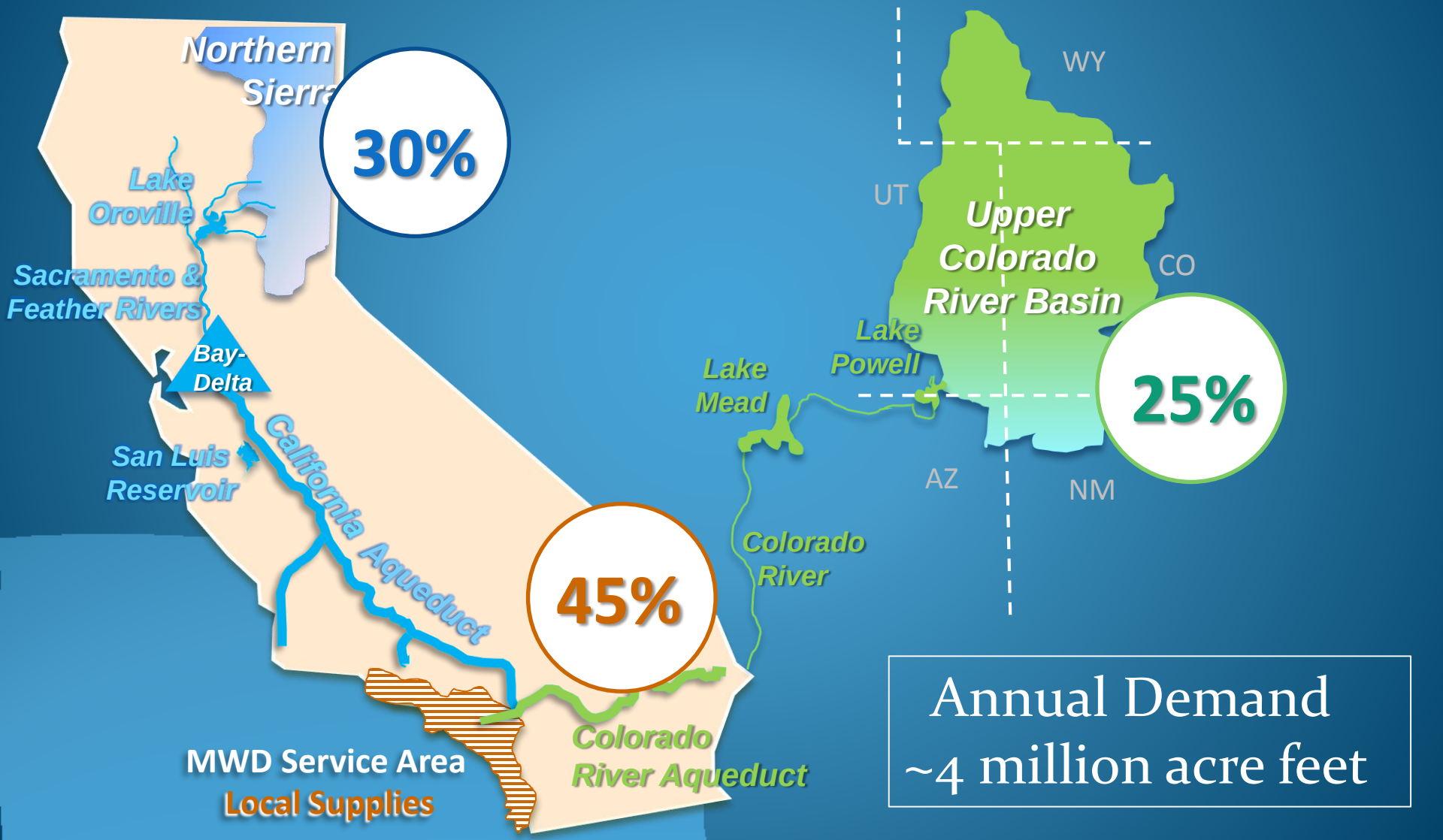
Dee Zinke, Assistant General Manager, Chief External Affairs Officer
The Metropolitan Water District of Southern

Metropolitan Water District



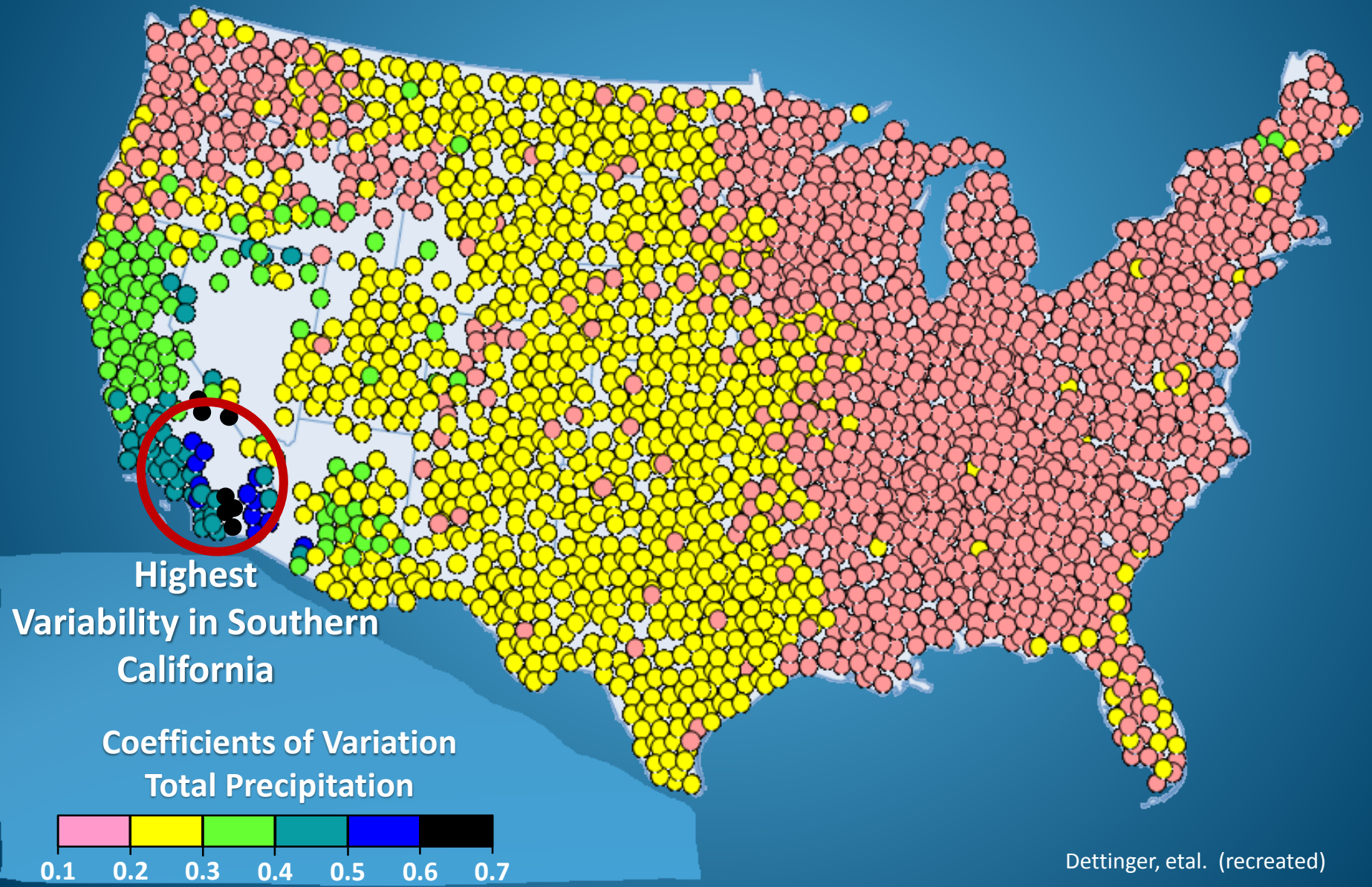
Southern California's Water Supply Sources

Winter snow accumulation and spring melt support supply development



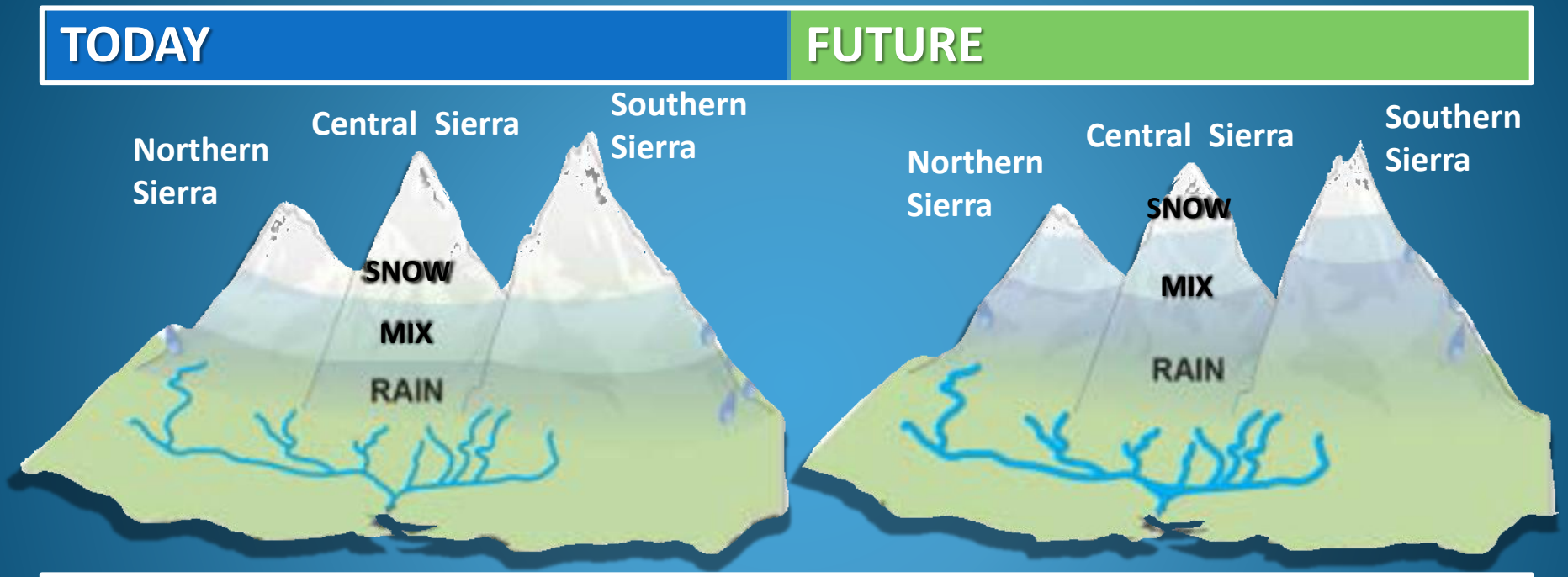
Annual Demand
~4 million acre feet

The southwest faces the most variable hydrologic conditions in the nation



Dettinger, etal. (recreated)

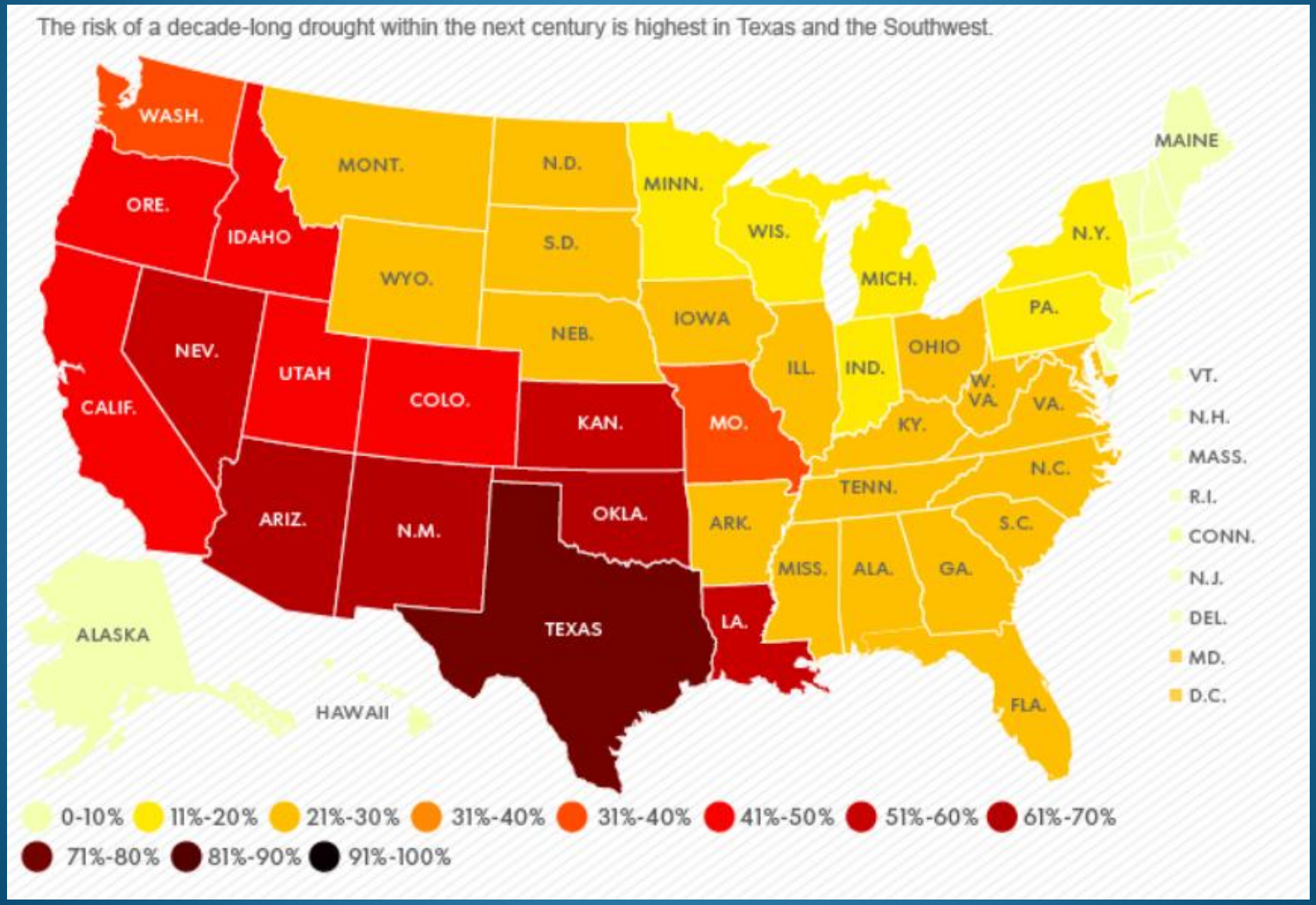
Climate change will exacerbate these extreme conditions and challenges



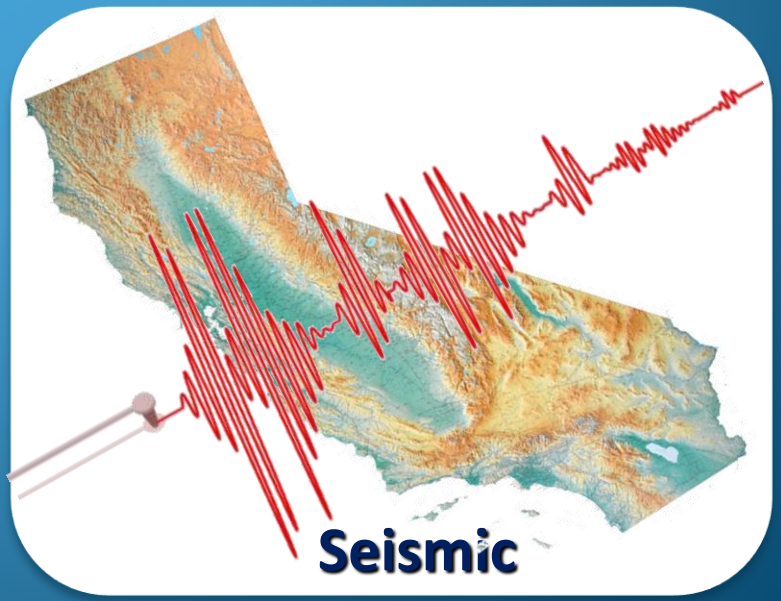
A temperature increase of 1˚C moves snow level elevation 500 feet higher

- Reduced Snowpack
- Changing Precipitation Patterns
- Changing Runoff Timing and Intensity

Droughts in the Southwest are expected to worsen in the future



Imported water supplies have many other challenges



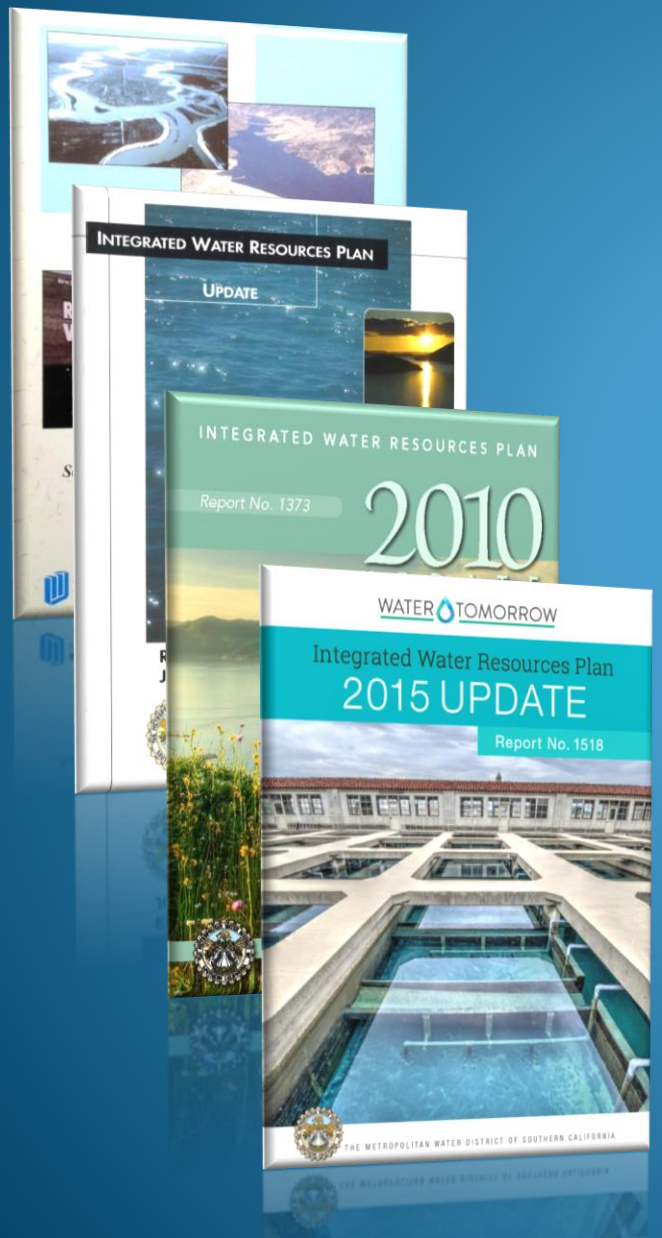
Developing imported supplies were a key focus through the 1980's

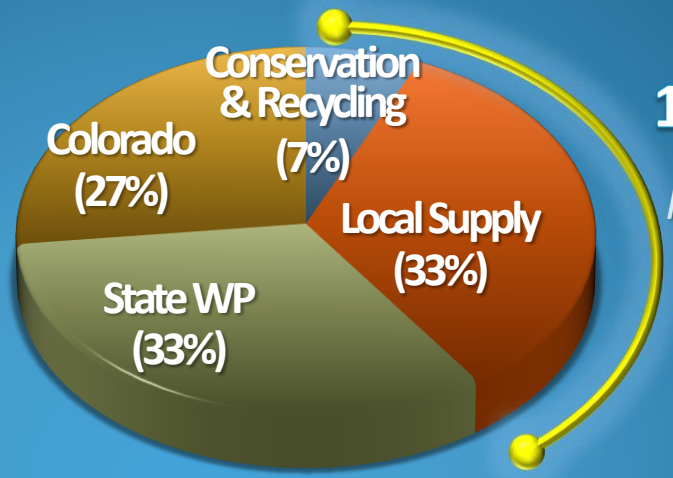
The drought of The early 1990's was Metropolitan's wake up call:

Relying solely on imported supplies is not sustainable in meeting a growing demand

Imported water alone would not sustain the region… Metropolitan needed a new approach

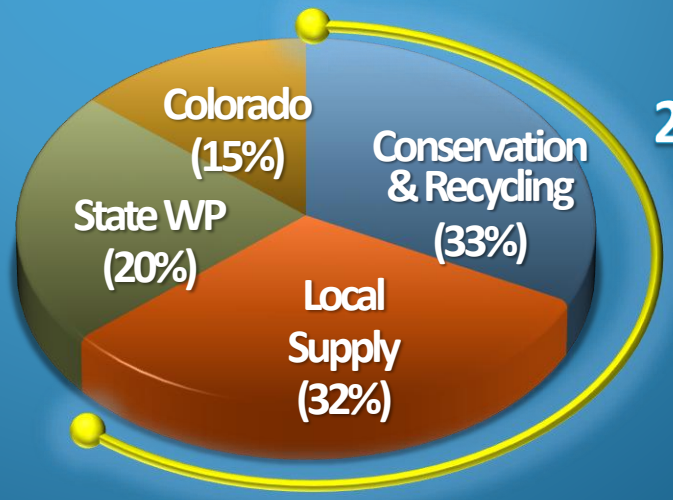
The Integrated Resource Plan defined new role as region's backstop for reliability





1990 – 40% Local

Heavy dependence on imported supply and SWP Diversions

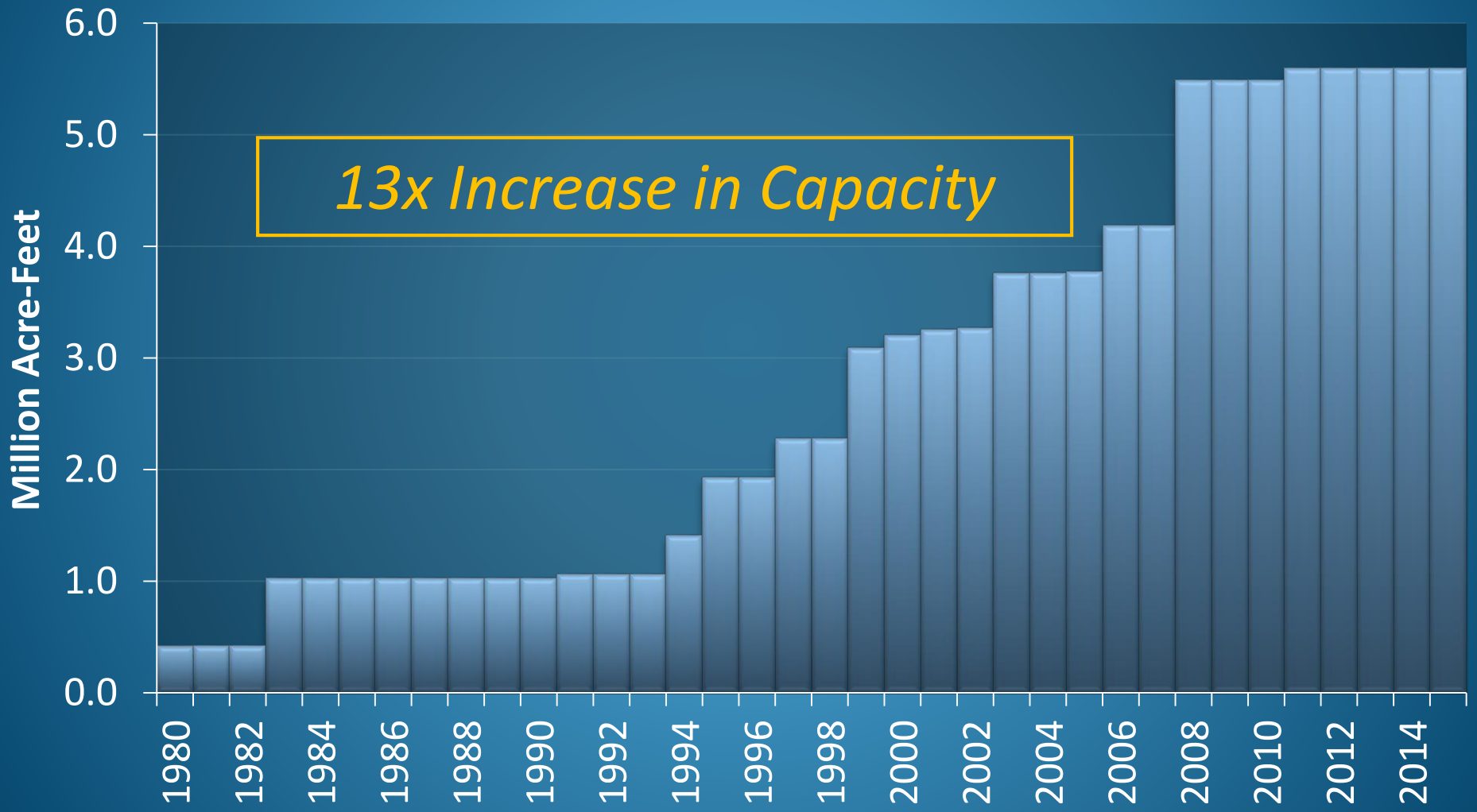


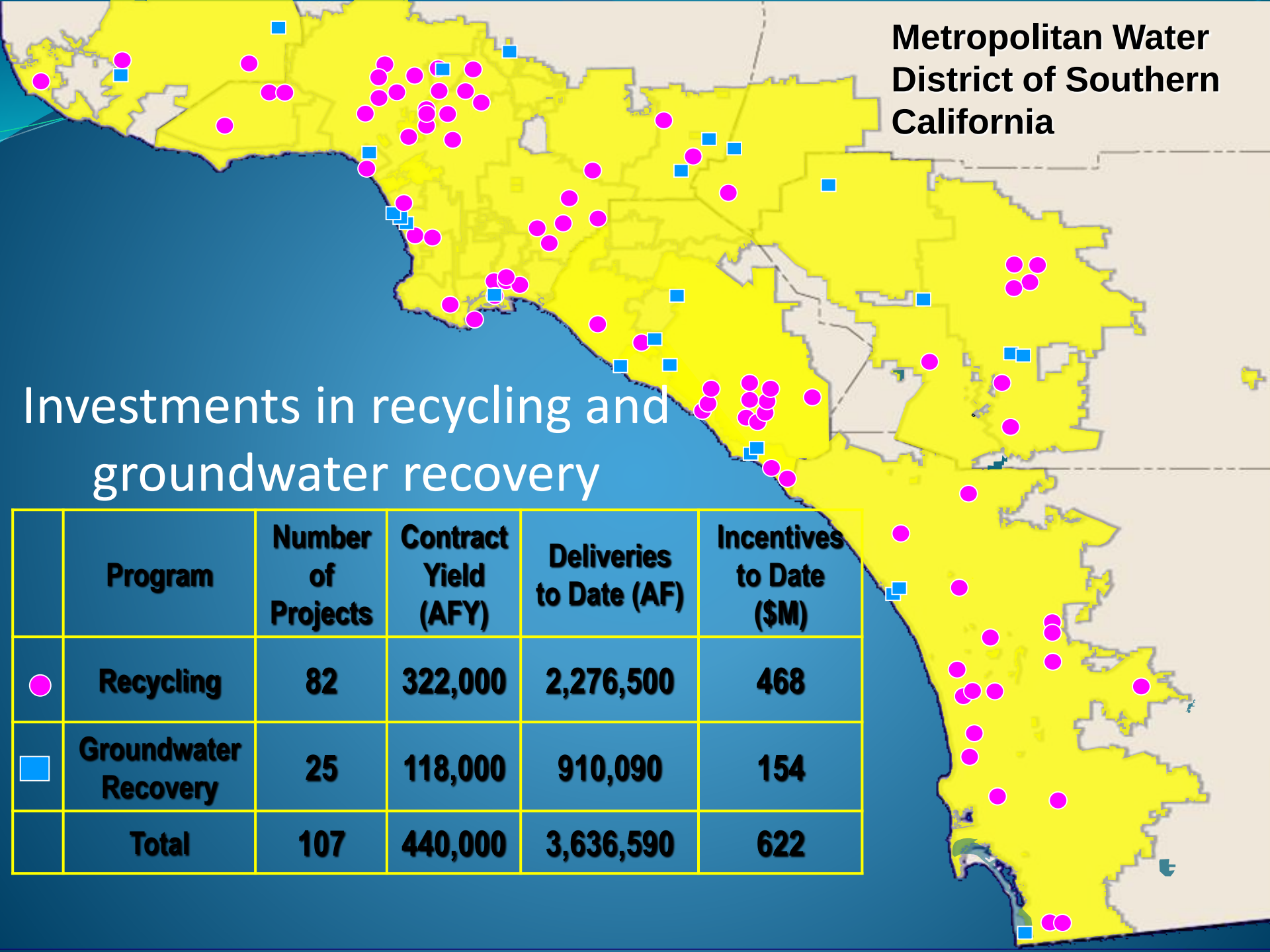
2040 – 65% Local

Emphasis on Conservation, Local Supplies and Storage & Transfers

Since then, Metropolitan followed through with extensive investments in its water supply portfolio

Investments in regional storage capacity





Investments in recycling and groundwater recovery

	Program	Number of Projects	Contract Yield (AFY)	Deliveries to Date (AF)	Incentives to Date ($M)
●	Recycling	82	322,000	2,276,500	468
■	Groundwater Recovery	25	118,000	910,090	154
	Total	107	440,000	3,636,590	622

Investments in Expansive Conservation Program

Turf Removal

Largest program in the nation

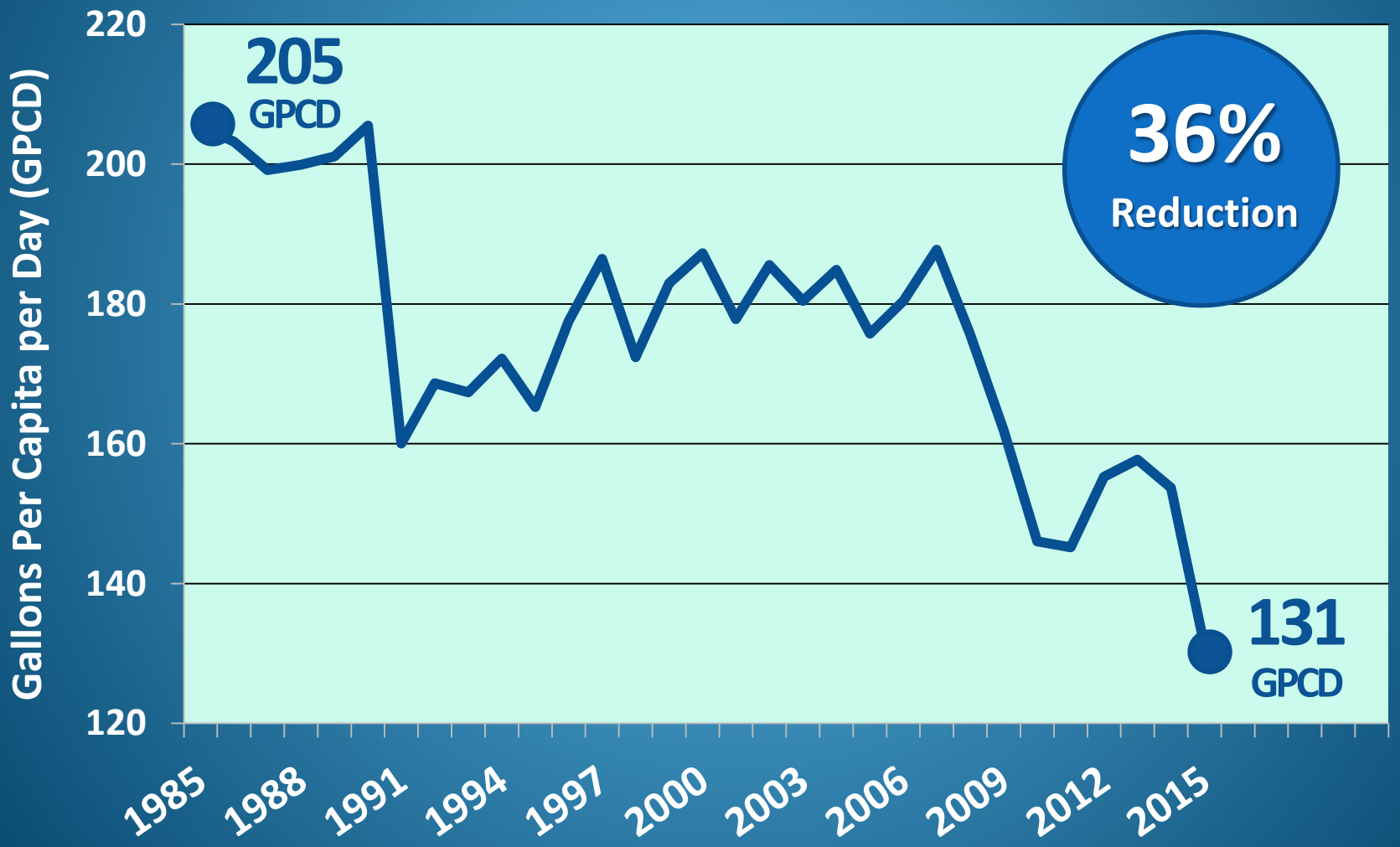
Device Rebates

Outreach

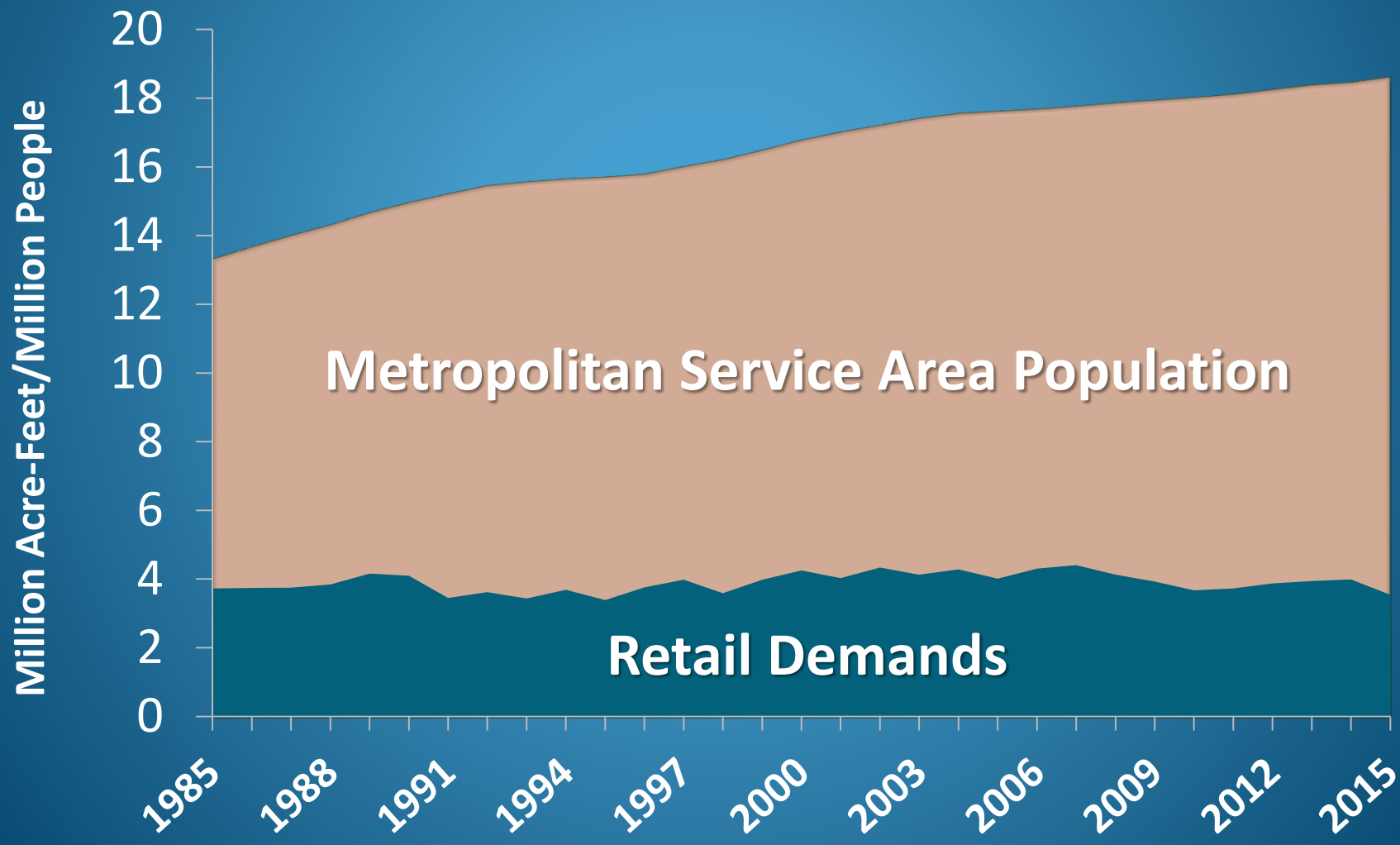
Education

Over 2.6 MAF savings since 1990

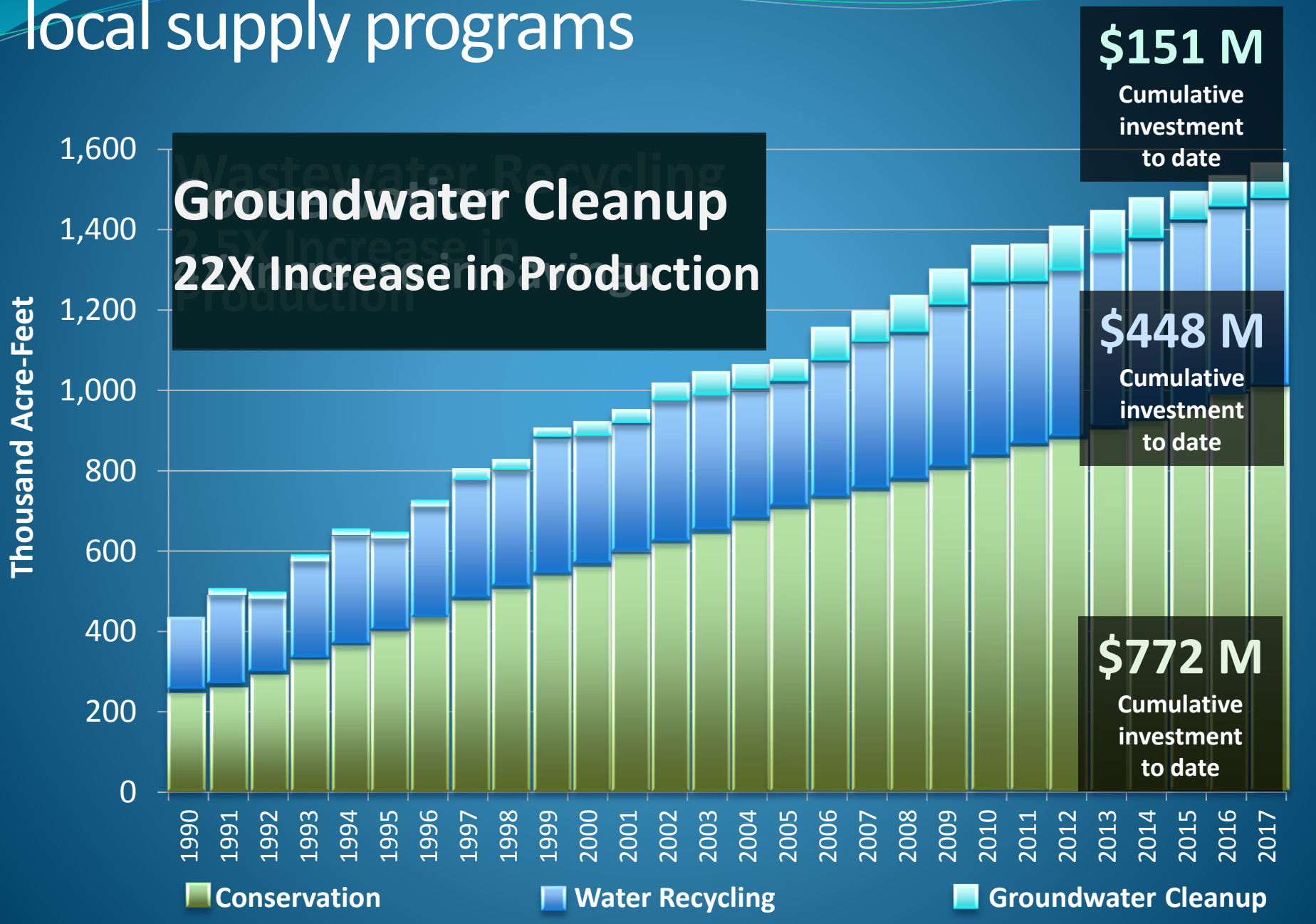
Significant success in reducing per capita water use



Allowing the region to grow while holding demands flat

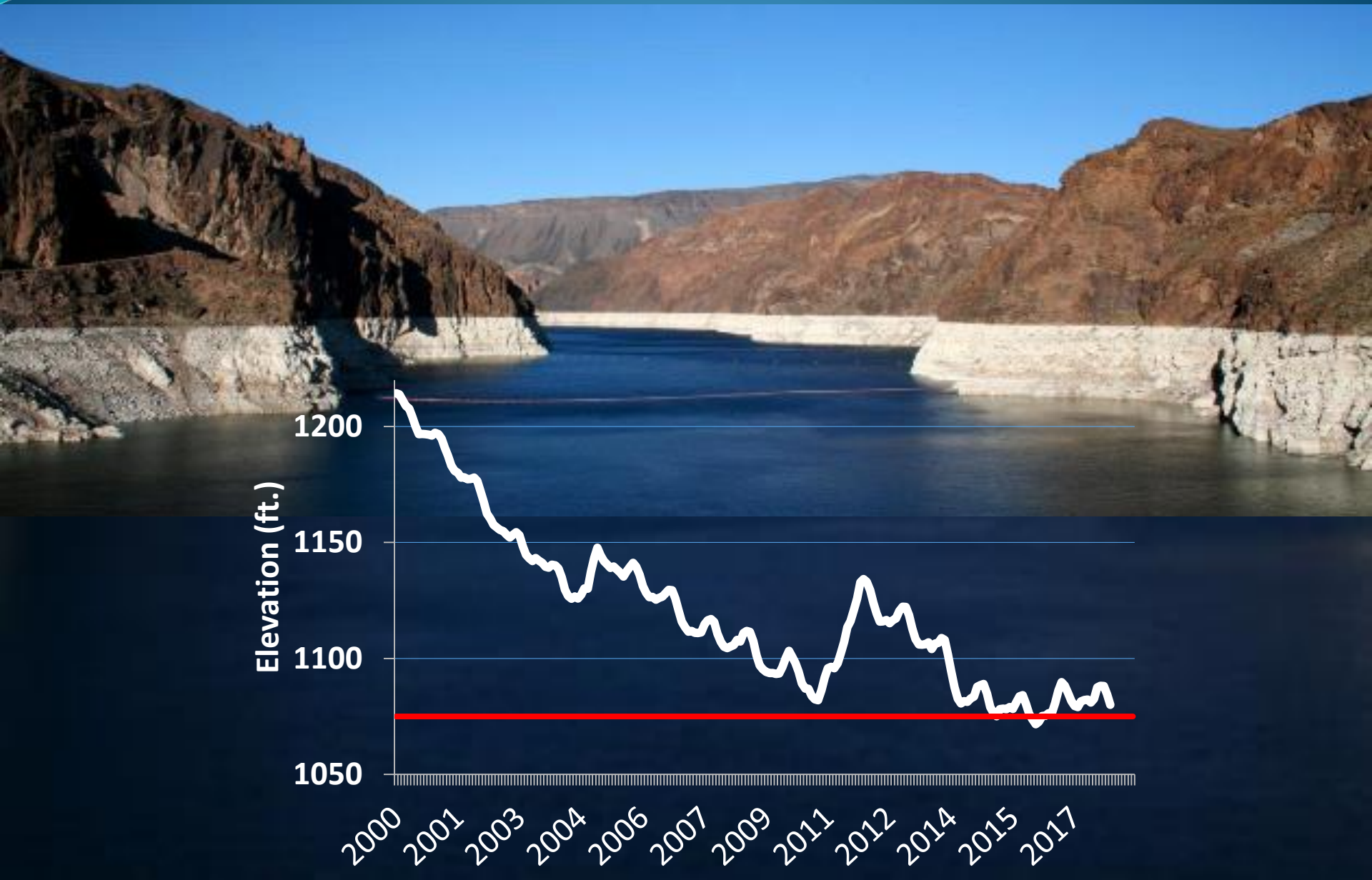


Substantial investments in conservation and local supply programs



Imported water supplies remain key

Colorado River Nearing Shortage



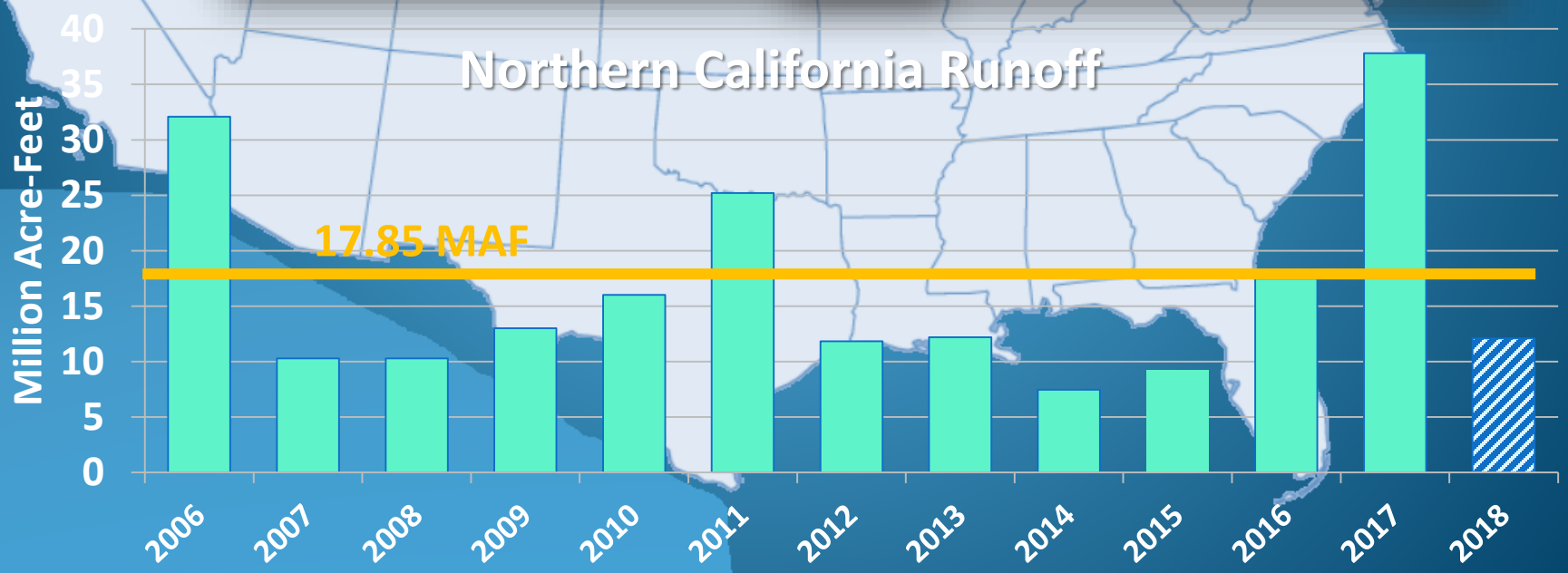
Filling Colorado River Aqueduct - Ag efficiency Colorado River

Imperial Irrigation District Conservation

PVID Fallowing

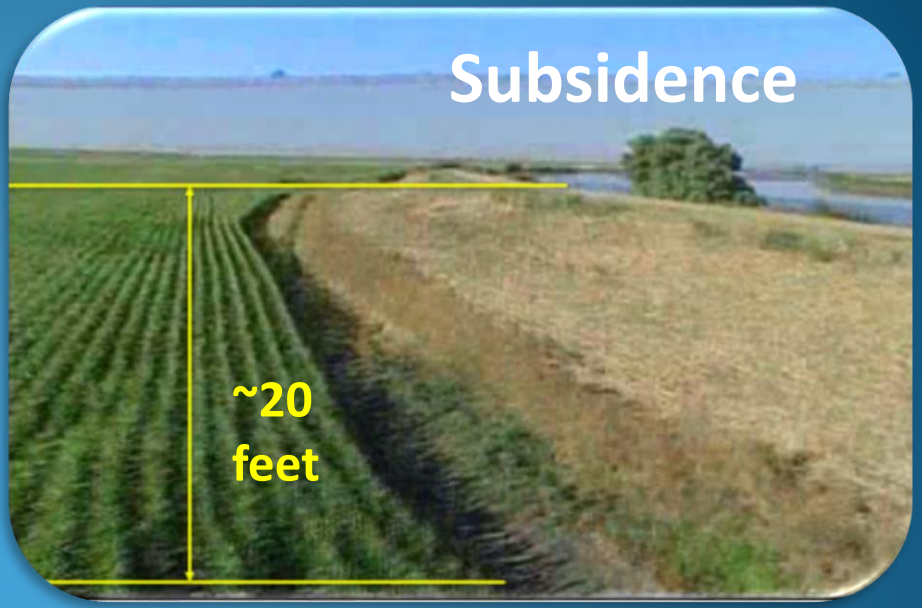
Seasonal Fallowing

State Water Project Supplies – Feast or Famine



Delta Risks

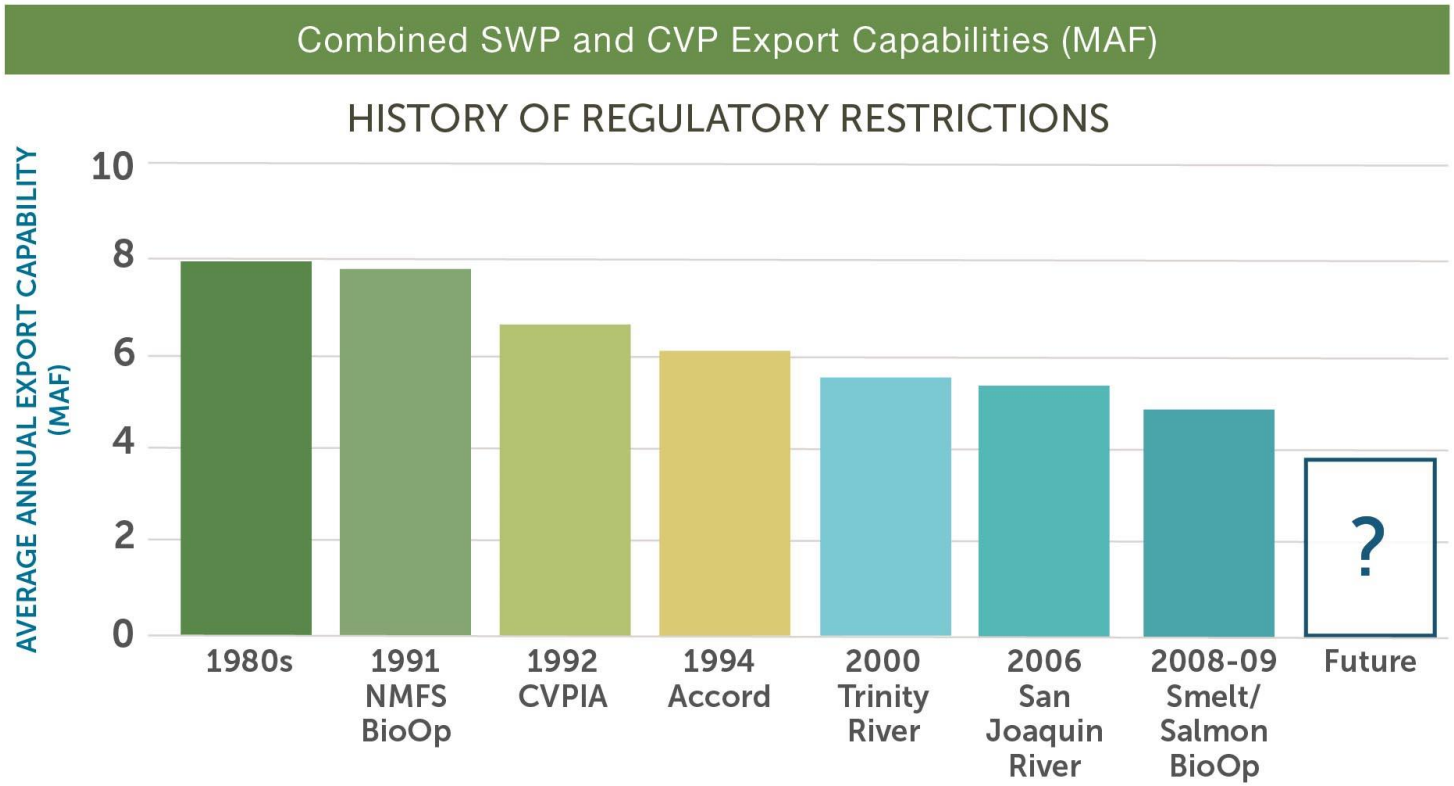

Sea Level Rise


Subsidence
~20
feet

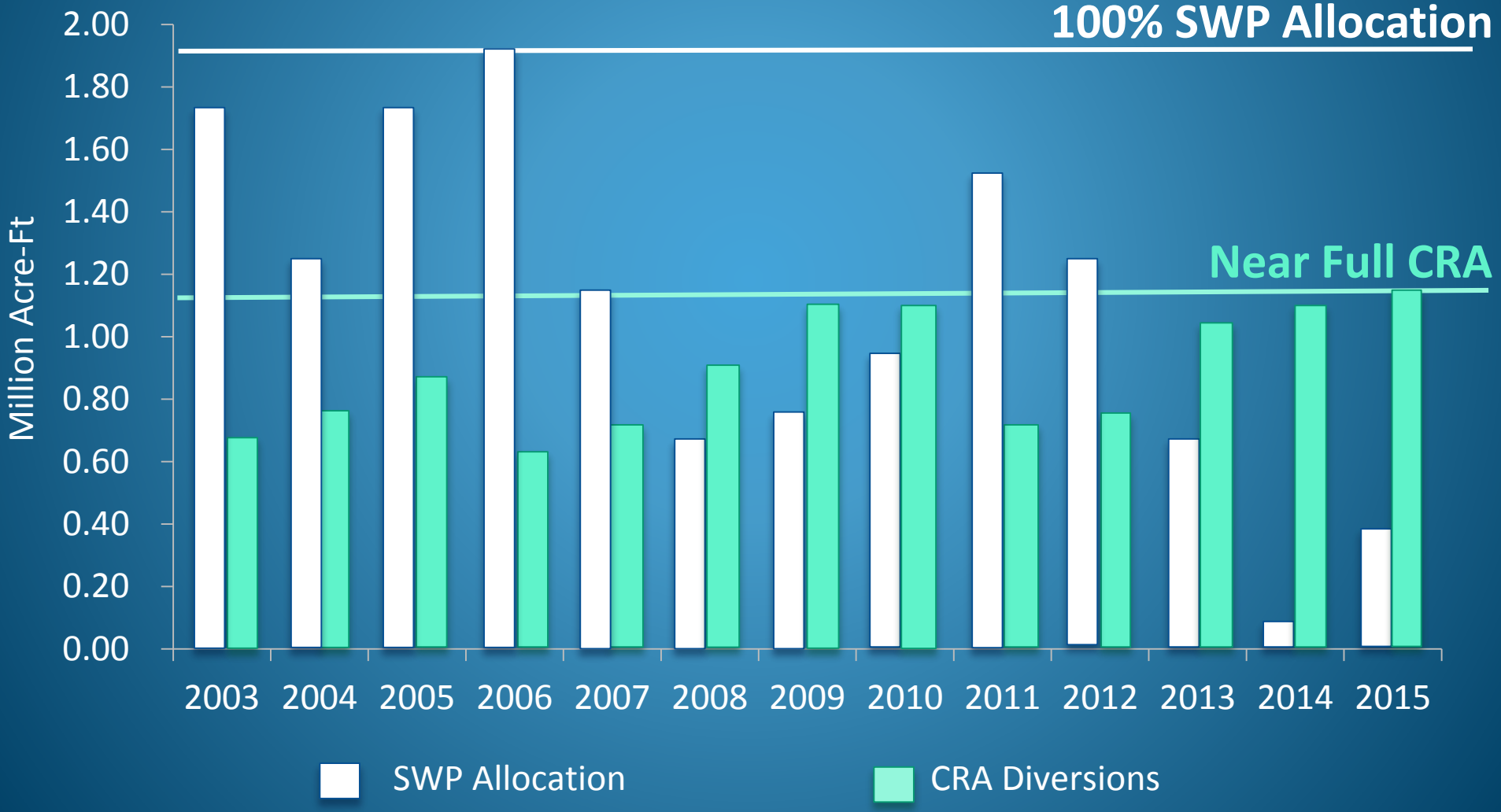

Seismic


Fishery Declines

Regulatory Restriction Impacts: Eroding Baseline of Supply



Although these watersheds are thousands of miles apart, they are interconnected



California is experiencing extreme conditions

2012- 2015

- Record high temperatures
- Lowest snow survey measurement
- Earliest and lowest snowpack
- Lowest SWP Allocation
- 4th lowest runoff

2017 -2018

- Record precipitation, 46 Atmospheric River events
- Sierra Nevada receives most snowfall in one month
- Oroville released more water in one month than any single year prior

So, what is our path forward?

All of the Above Strategy

Maintain Colorado River Aqueduct Supplies

Stabilize State Water Project Supplies

Achieve Additional Conservation Savings

Develop New Local Water Supplies

Colorado River Drought Contingency Plan

California WaterFix: A Modern Infrastructure Upgrade

- Two tunnels to protect water supplies, quality
- New intakes away from endangered fish species
- Adaptive management using best science

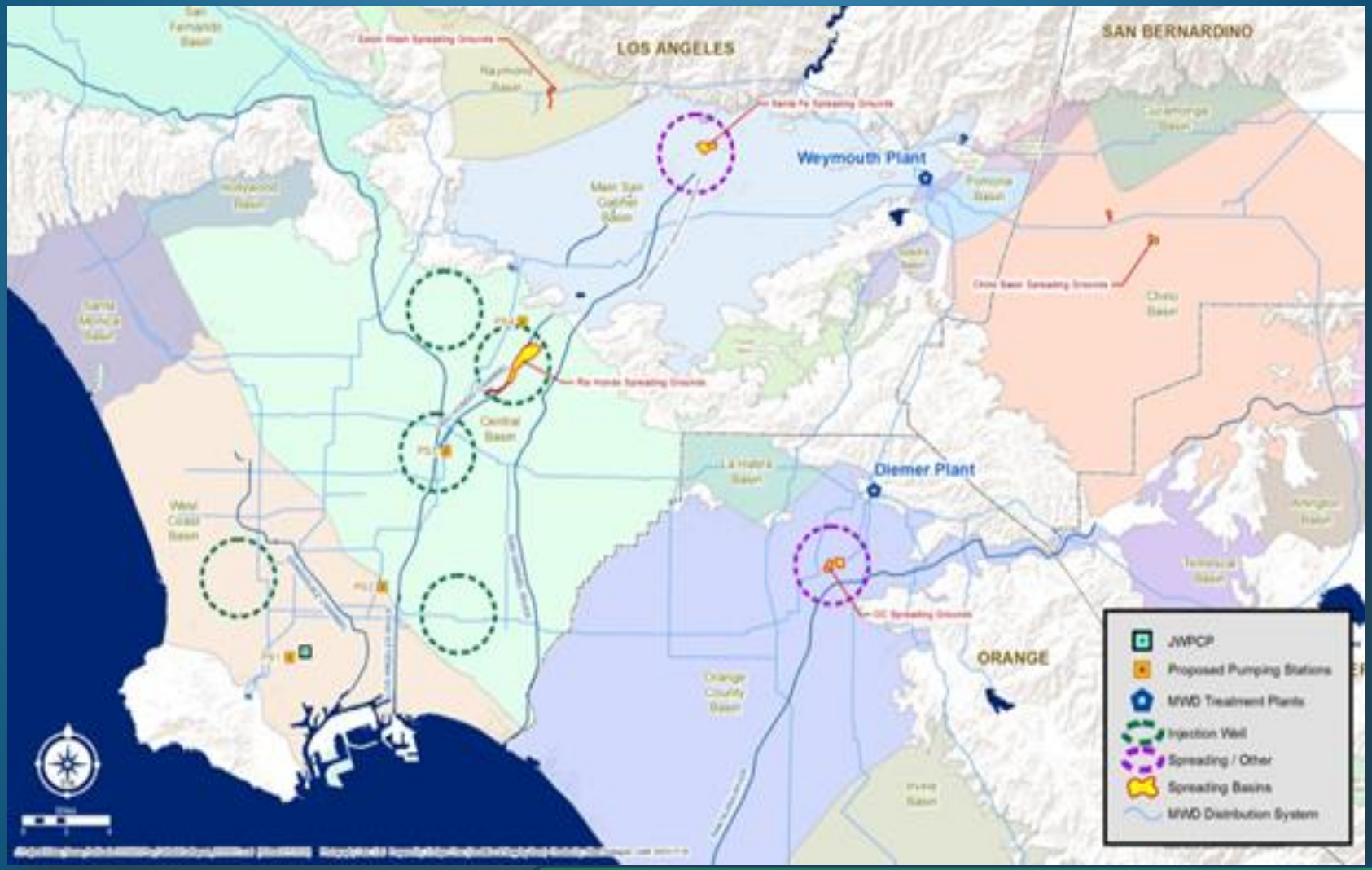
California WaterFix: Moving Forward

In April 2018, Metropolitan made the historic decision to invest $10.8 billion, nearly 65% of project cost, to construct of new facilities to:

- Secure reliable water supplies
- Improve water quality
- Respond to climate change
- Protect ecosystem health

CALIFORNIA WATER FIX
RELIABLE. CLEAN. WATER.

Exploring new regional recycled water program



$2.7 billion 150 mgd facility

Will these actions address the challenges presented by climate change?

Foundational Action Funding Program

- Approved in 2013
- Funded 13 studies / 13 member agencies
- ~$3.0 million invested
- Technical conference ~230 participants

Groundwater

- 4 projects
- 6 agencies
- $990,000

Recycling

- 5 projects
- 10 agencies
- $810,000

Desalination

- 2 projects
- 2 agencies
- $325,000

Storm Water

- 2 projects
- 2 agencies
- $814,000

http://www.mwdh2o.com/AboutYourWater/fafprogram

2018 Future Supply Actions Funding Program

Two Program Elements

Water Research Foundation Studies

- ~$1.0 million in co-funding
- 7 potable reuse studies
- 1 agriculture study
- Managed by WRF
- Leverages $7.0 million
- Study RFPs in FY2019

Member Agency Co-Funded Studies

- $3.5 million RFP for:
- Groundwater
- Recycling
- Stormwater
- Seawater Desalination
- $500k MWD co-fund cap
- RFP in July

Seeking what is new in water efficiency

Innovative Conservation Program

Partnership throughout the Western States

U.S. Department of the Interior – Bureau of Reclamation

Southern Nevada Water Authority

Western Resource Advocates

CAP – Central Arizona Project

SoCalGas – A Sempra Energy utility

Dee Zinke, Assistant General Manager, Chief External Affairs Officer

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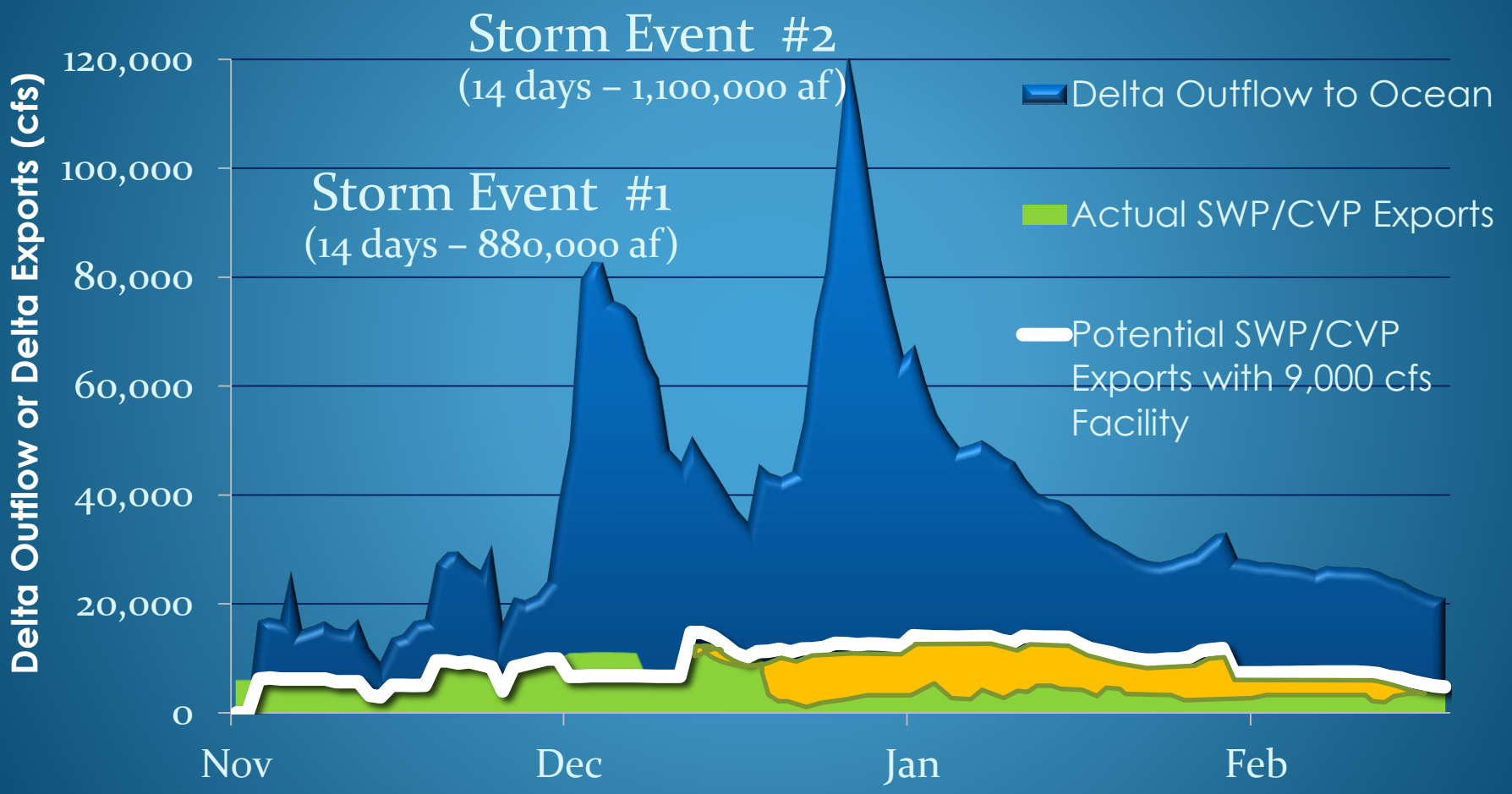
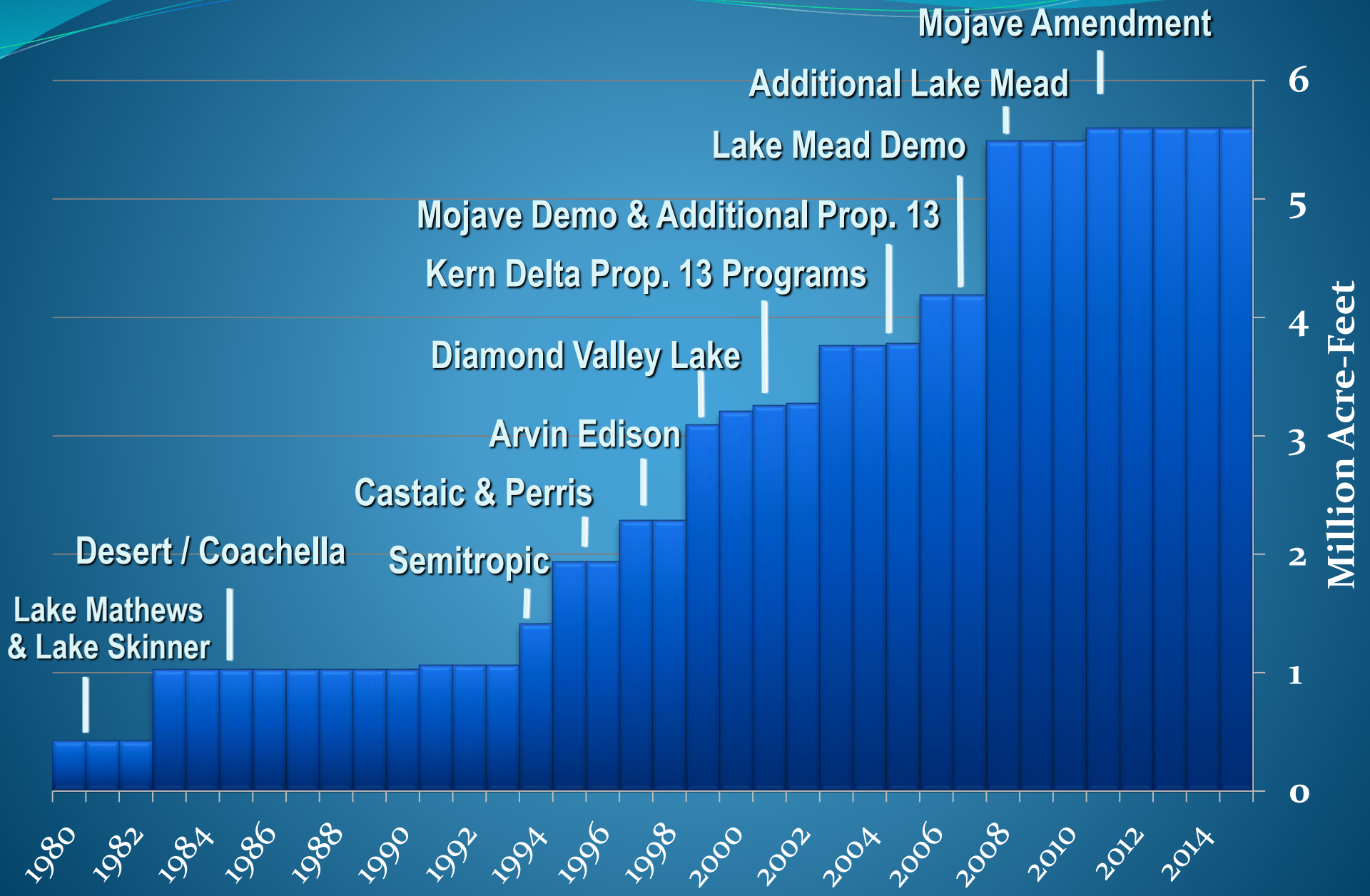
Can we still build big projects?

Analysis of Excess Storm Flow
Winter 2012-2013



Increased export with California WaterFix ~ 781,000 acre-feet (thru Feb 17)
SWP/CVP export losses due to BioOp ~ 800,000 AF (larger amount of SWP loss)
Analysis by State Water Contractors – Feb 2013

Storage Detail



Strategic Land Purchases

$415 M Land Acquisitions

Palo Verde Lands

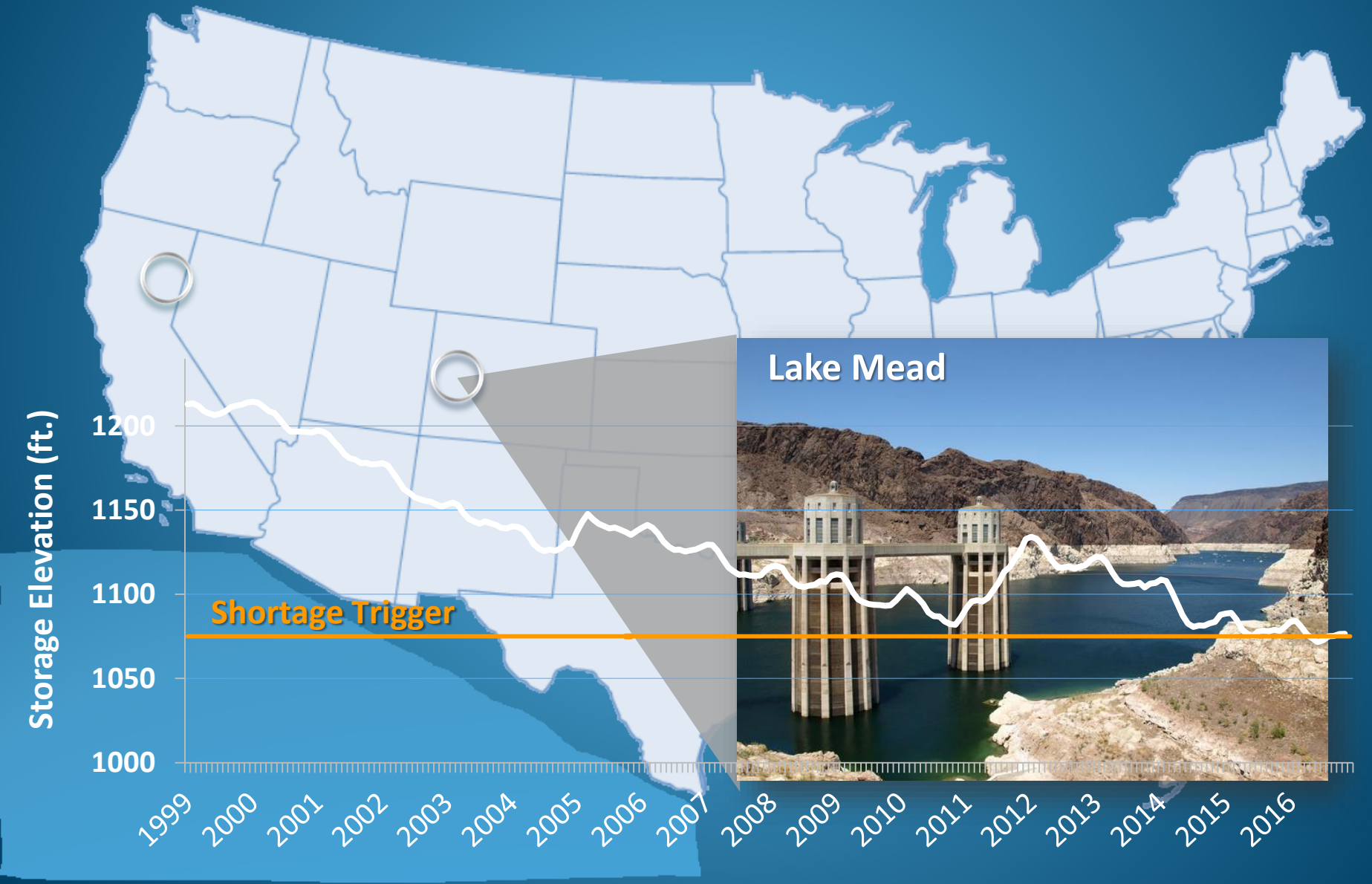
Keep farmers farming through Conservation lease incentives

Delta Islands

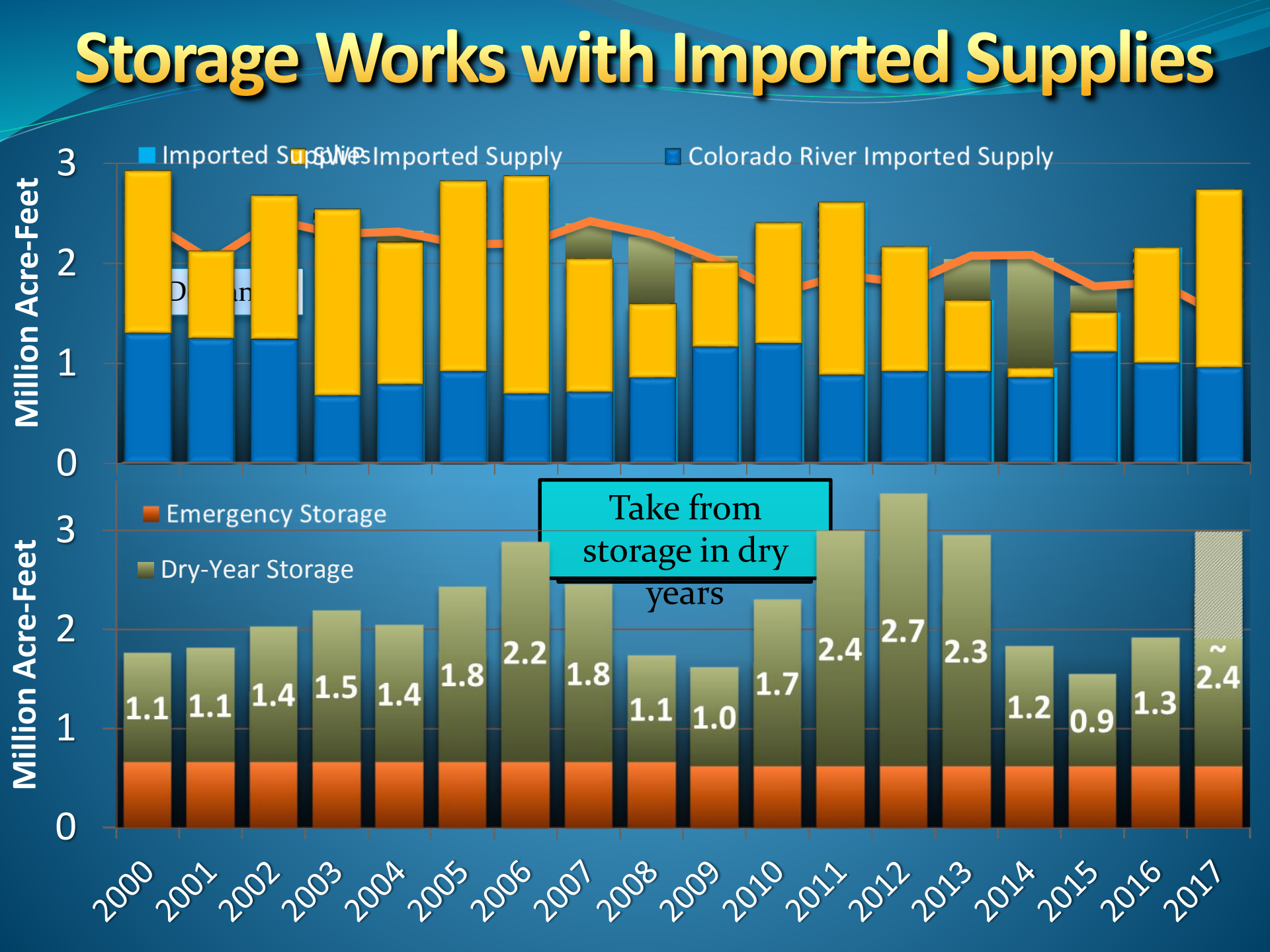
Kick-start science, environmental mitigation, address multiple stressors impacting species

Supports Water Supply Reliability

Demands on Lake Mead and persistent dry conditions are driving that system closer to shortage



Storage Works with Imported Supplies



Modernize State Infrastructure

Billions invested

Diamond Valley Lake and Inland Feeder

Cal Water Fix

$10.8 / $17 B

- Seismic
- Subsidence
- Climate Change
- Fish Protection
- Flow Patterns
- Water Quality

~ $5 month/ household

Capture water when plentiful