

# Balancing California's Water and Land Use through Water Markets and Groundwater Management

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# California Water Action Plan

## Ten Priority Actions

1. Make conservation a California way of life

**2. Increase regional self-reliance and integrated water management across all levels of government**

3. Achieve the co-equal goals for the Delta

4. Protect and restore important ecosystems

**5. Manage and prepare for dry periods**

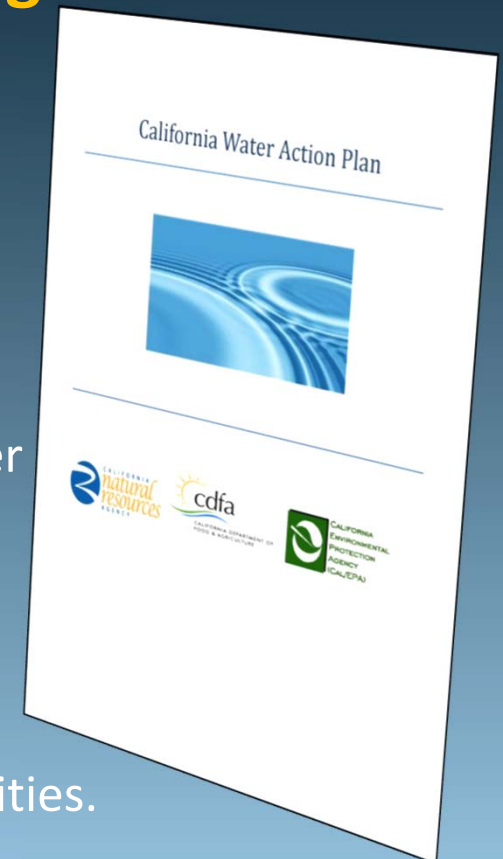
6. Expand water storage capacity and improve groundwater management

7. Provide safe water for all communities;

8. Increase flood protection;

9. Increase operational and regulatory efficiency;

10. Identify sustainable and integrated financing opportunities.



# Observations on Cross-Delta Water Transfers

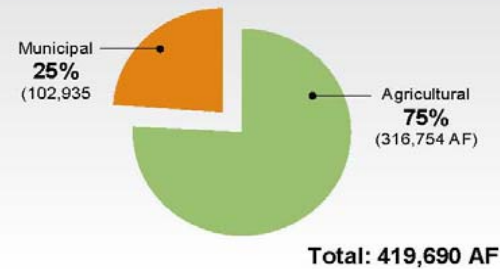
- Background and History of Water Transfers - 1995 to Present
- Occur About 1/3 to 1/2 of the Time
  - 1995 - 2007 (13 years) Only 2 Years of Non-EWA Transfers
  - Conveyance Capacity Limited
- DWR's Role has Changed - Water Market Matured
- 2014 - >400 TAF - Most Since 1991 Water Bank
- Water Transfer Processes are Improved
- 2015 Drier than 2014 - Fewer Water Transfers



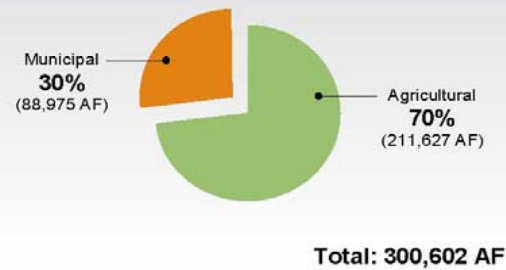
# 2014/15 Transfer Activity Through Delta

## Water Transfers by Use Type from North of Delta to South and West

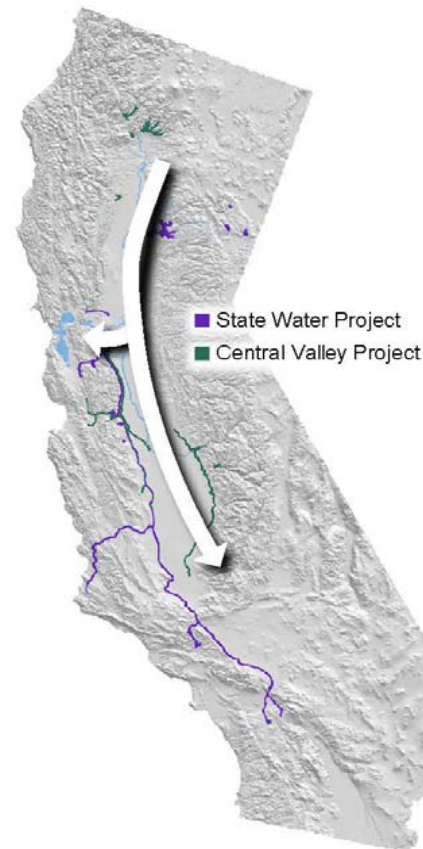
### 2014 North to South and West of the Delta



### 2015 North to South and West of the Delta

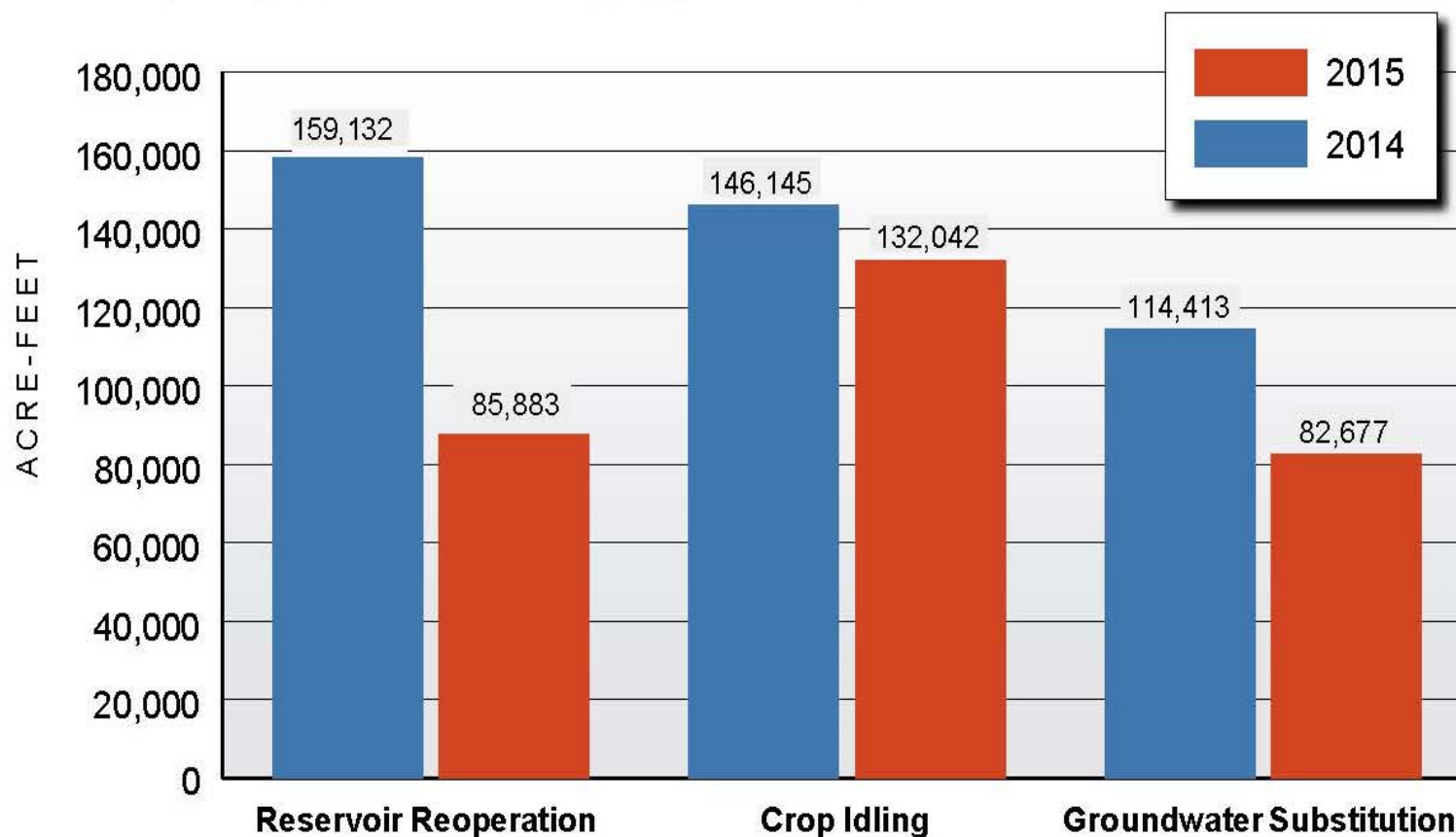


### 2014 and 2015 Comparison

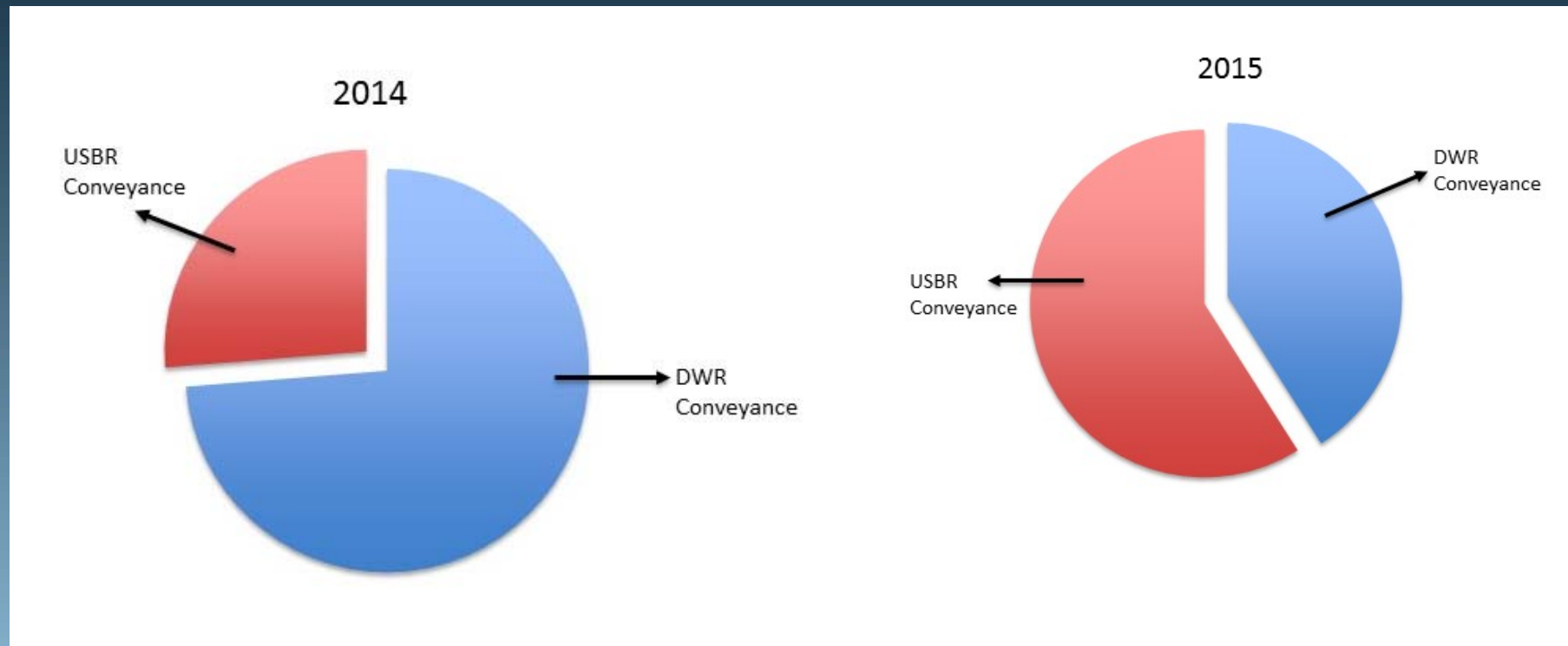


## Water Transfers by Type from North of Delta to South and West

Comparing 2014 and 2015 by Type of Water Transfer



# Water Transfer Conveyance



# Basic Rules on Water Transfers

- **Water Rights - “No Injury Rule”**
  - Applies to Both Pre and Post 1914 Water Rights (WC1706)
  - State Water Board (WC 1702, 1707, 1725, 1735)
  - DWR (WC 1810)
- **Fish and Wildlife - No Unreasonable Effects**
  - State Water Board (WC 1725, 1735)
  - DWR (WC 1810)
- **Economy - No Unreasonable Effects on Overall Economy of the County from Which the Water is Transferred**
  - DWR (WC 1810)

# Protecting Water Rights

- **Water Rights - “No Injury Rule”  
Applies to Every Transfer**
  - 25+ Years of Experience with Water Transfers
  - Measures to Protect other Legal Water Users from Injury, Including Local Groundwater Users
    - Monitoring and Avoidance Measures by Local Agencies
    - Verification in the Field by DWR, USBR and Local Districts



# Protecting the Environment

- **Every Cross-Delta Transfer Reviewed**
  - State Water Board, if Changes Needed
  - DWR or USBR, if Conveyance Used
  - CEQA by Sellers and Buyers, Unless WC 1725 Used
  - NEPA, if USBR Conveyance or Approval Needed
- **Environmental Protection Measures**
  - CEQA, NEPA, ESA, State Water Board, DWR (WC 1810)
  - White Paper Identifies Actions and Monitoring to Avoid Effects
- **Water Transfers Can Help Address Environmental Issues**
  - YCWA, SJR Pulse Flows, Sacramento Temperature

# Cumulative Effects of Temporary Transfers

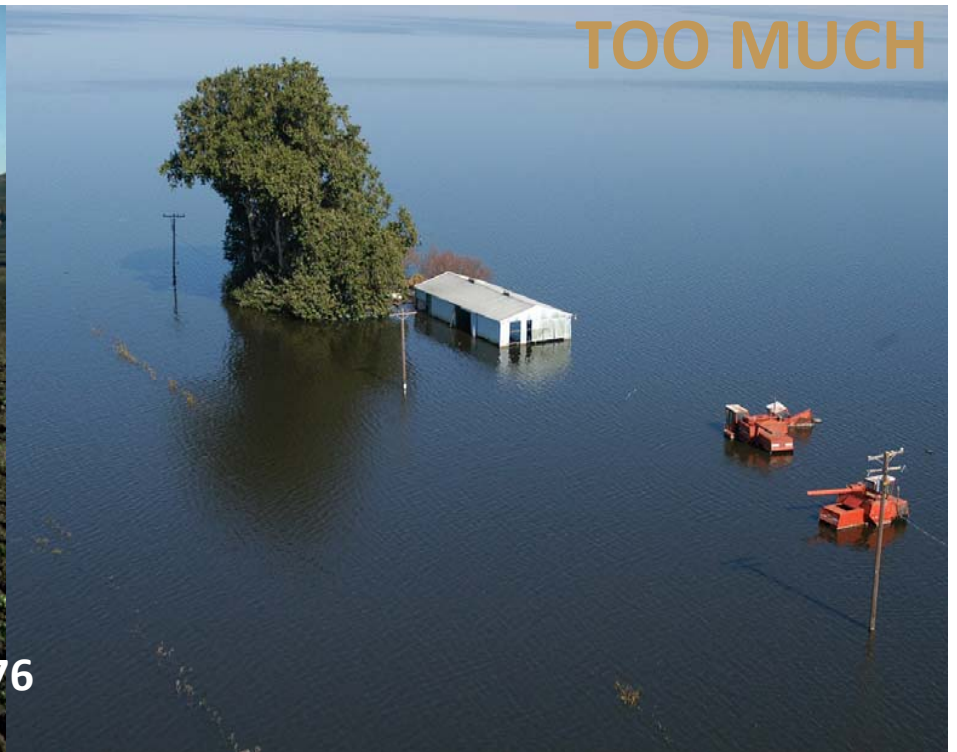
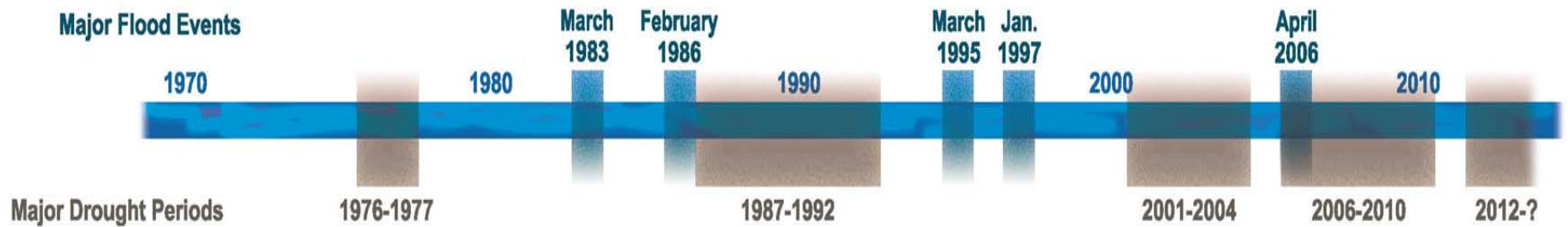
- **Each Year is Different**
  - Amounts, Buyers, Sellers, Timing
- **USBR EIS/R Evaluated for Long-term Effects**
  - Cumulative Impact Avoidance Measures Same as the DWR/USBR White Paper
- **BiOps Limits Evaluated 600 to 800 TAF of Water Transfers**
  - Water Transfer Window of July - Sept
  - Only Expanded if Federal Fish Agencies Concur
- **2015 - Water Supply Limited**

# Groundwater Management





# California's Water Management Challenge: A Tale of Two Extremes



# SGMA: What Does it Really Mean?

Sustainable



Requires focus on outcomes that support sustainability

Groundwater



Requires direct connection between land use and water use

Management



Requires new governance and more comprehensive water budgets

Act



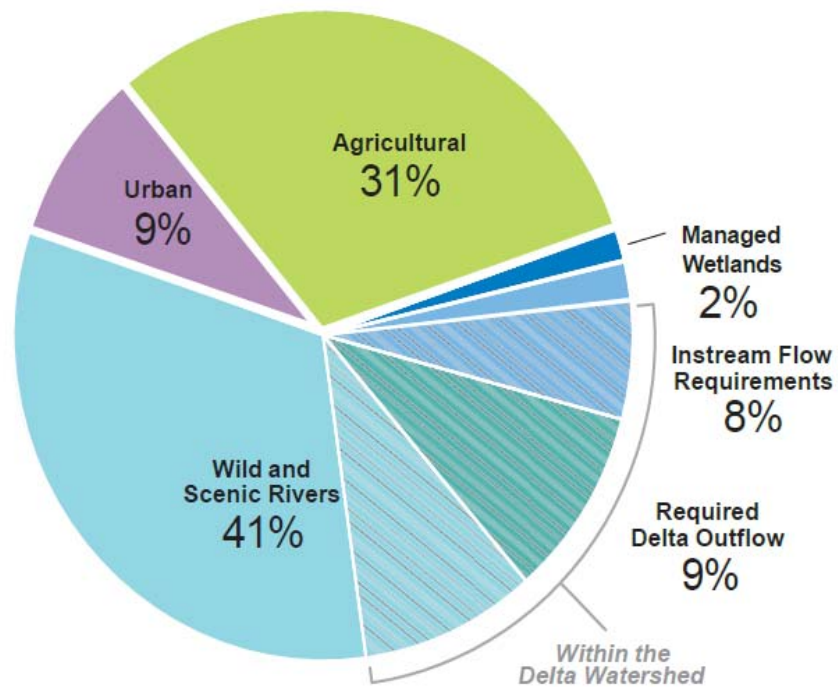
Requires us to become smarter at working within complex systems



# Water Use in California During Wet and Dry Years

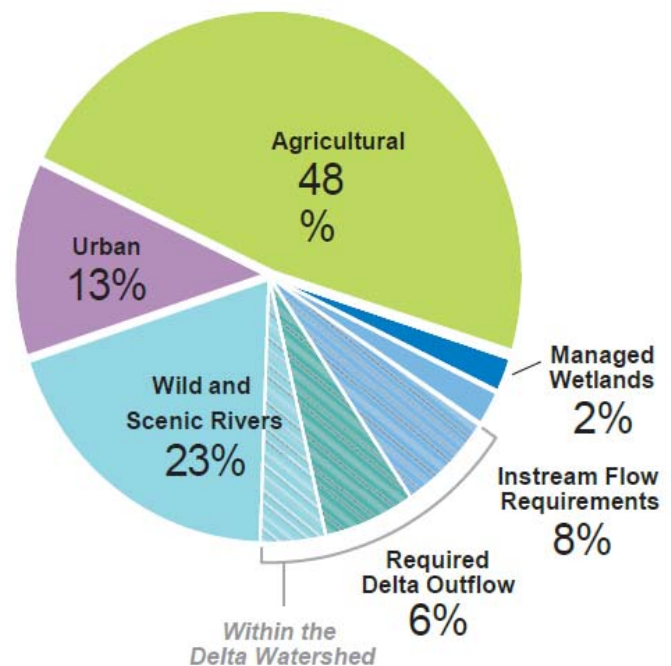
Water Year 2006 (Wet)

108 MAF



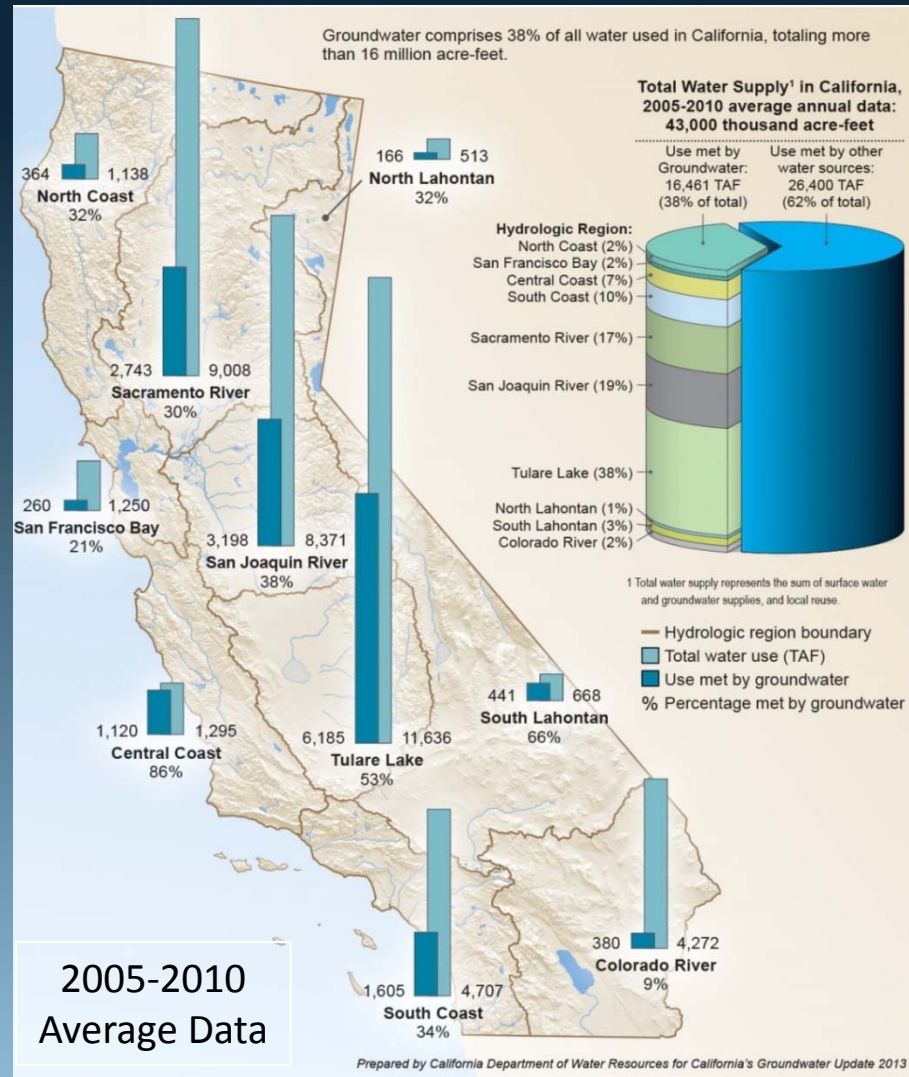
Water Year 2007 (Dry)

77 MAF

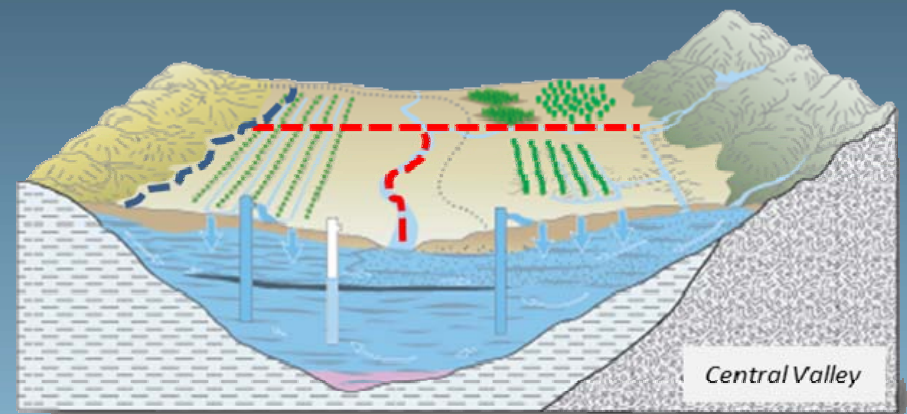


Source: CA DWR California Water Plan Update, 2013

# What is Groundwater and why is it important?



- 38% of total water supply (statewide average)
- 60% during drought years
- Many communities are 100% reliant upon GW



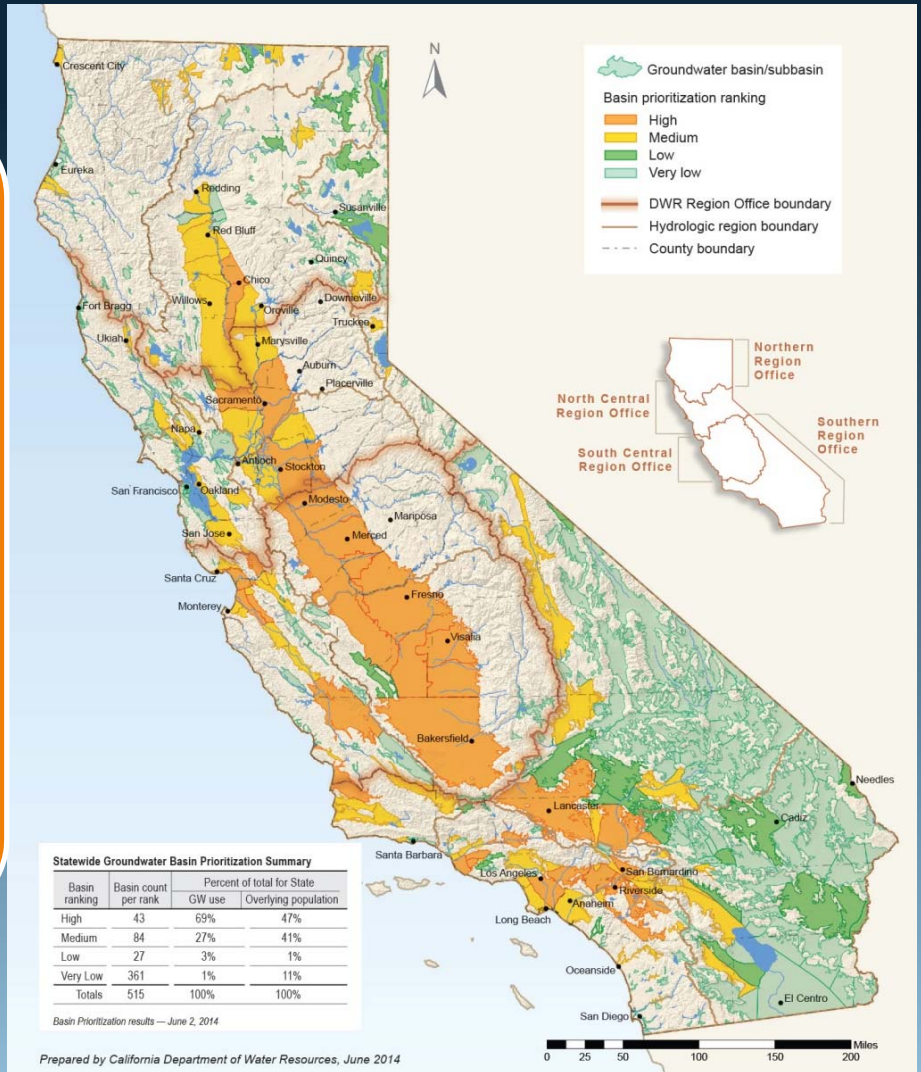
# SGMA Basin Prioritization

## Update Basin Prioritization

Used existing Prioritization - January 2015

Re-prioritization following basin boundary revisions in 2017

Consider adverse impacts on local habitat and local streamflows.





# Groundwater Sustainability Plan Regulations

Governance

Coordination

Land Use

State of the Basin

Sustainability  
Goal

Measurable  
Objectives &  
Undesirable  
Results

Monitoring Plan

Implementation  
& Reporting

Alternative  
Plans & Fringe  
Areas

## Groundwater Sustainability



*Undesirable Results:  
Significant and Unreasonable...*



Surface Water  
Depletion



Reduction  
of Storage



Degraded  
Quality



Seawater  
Intrusion

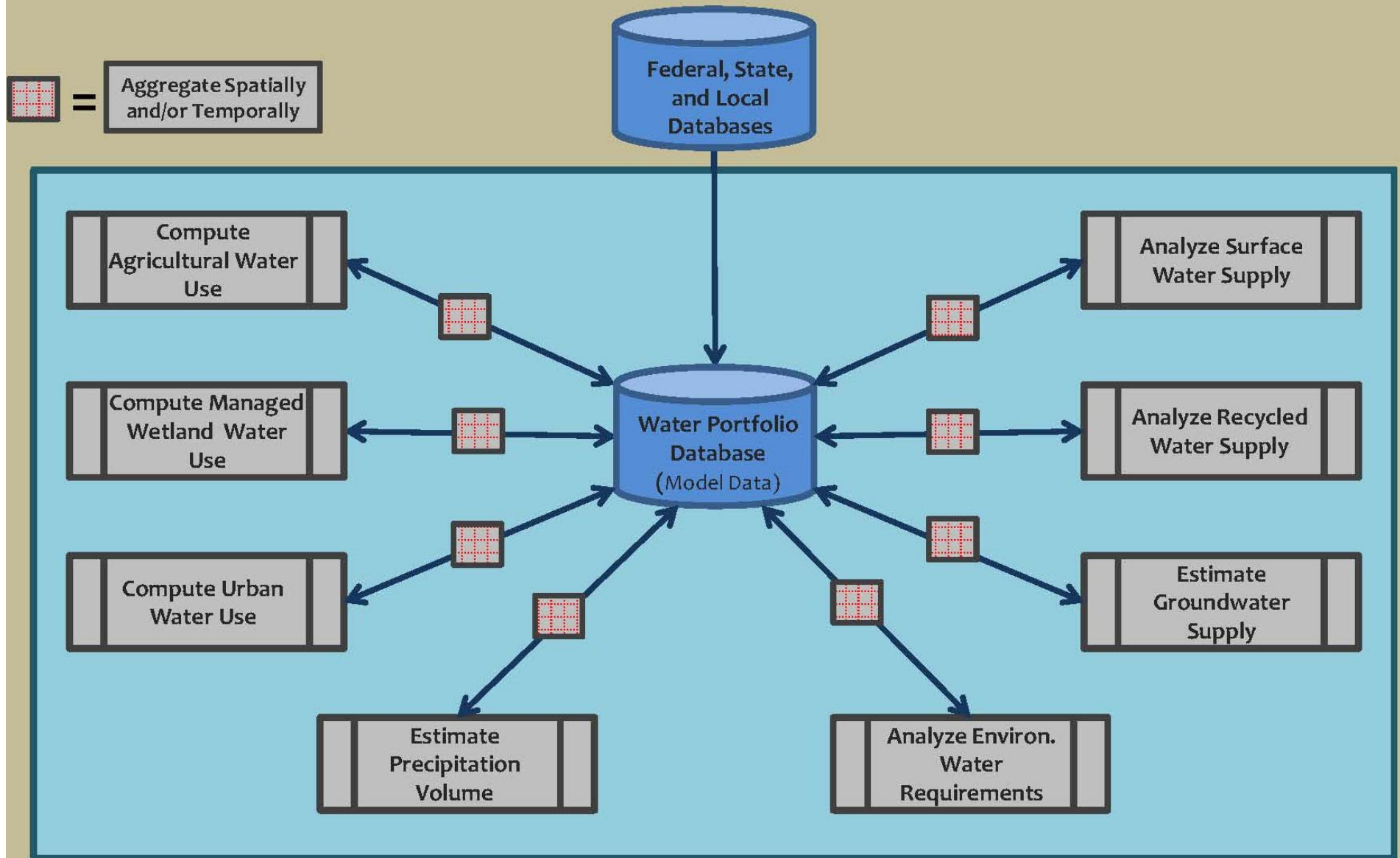


Land  
Subsidence



Lowering  
GW Levels

# Importance of Water Balance

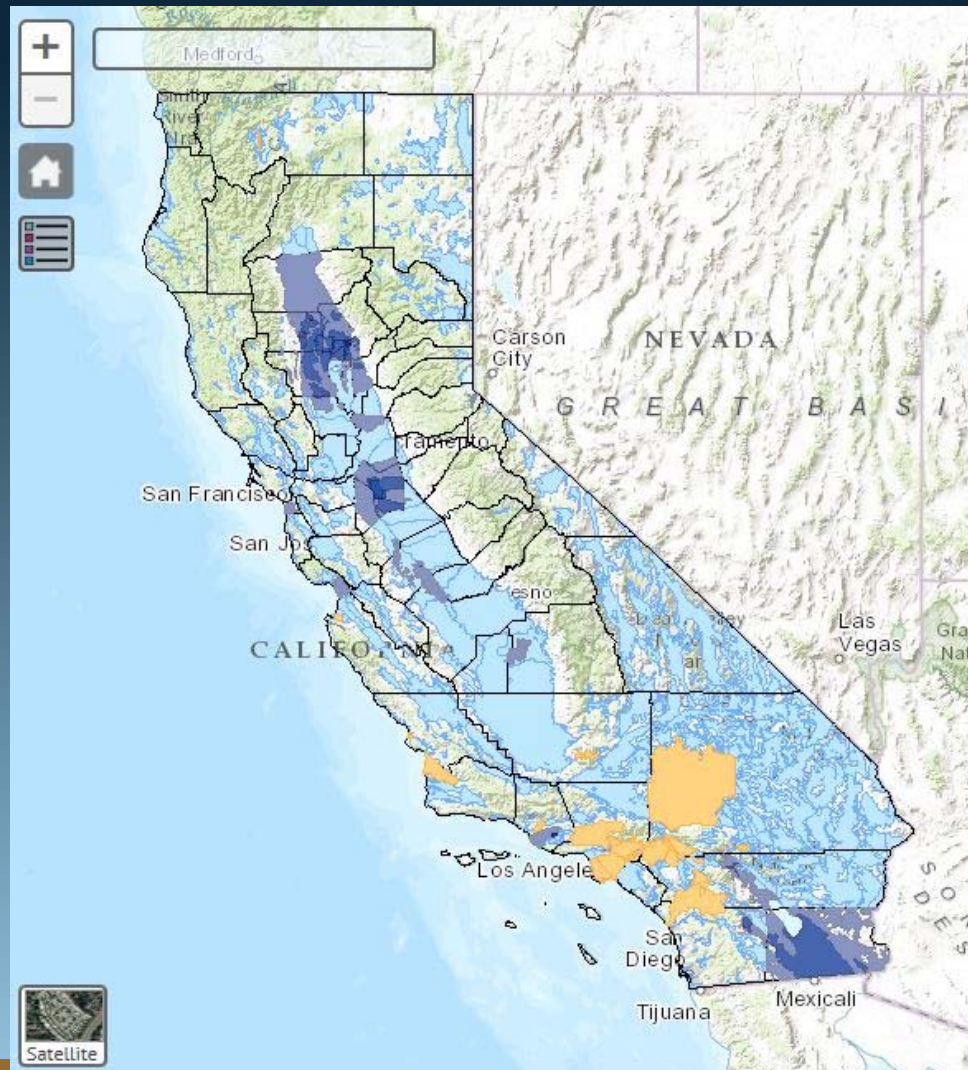




# ***GSA Formation***

## **New SB 13 Requirements**

- **Complete Notifications**
- **No Overlapping Jurisdictions**
- **134 GSA Notifications**  
(as of January 29, 2016)





# Balancing California Water Management through better Water Markets



# Transfer Procedural Steps

Scope of Transfer
<b>Market Based</b>
1. Intra-GSA
2. Inter-GSA
<b>Public Trust</b>
3. Drought/Health & Safety
4. Environmental Flows



Water Rights Type
1. Pre-1914
2. Post-1914
3. Riparian



Type of Transfer
1. GW Substitution
2. Crop Idling/Shifting
3. Stored Water
4. Change in Pt. of Diversion



Type of Agreement
1. Short-Term
2. Long Term (>1 year)



Transfer Method
1. Intra-GSA
2. Inter-GSA
3. Through-Delta: Inter-GSA
4. Through-Delta: wholesaler

# Steps Towards Better Water Markets





# Thank You!



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