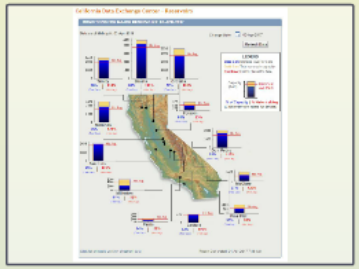
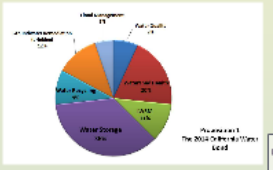
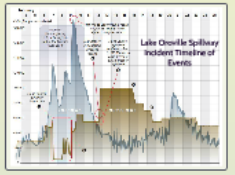
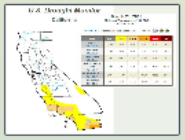


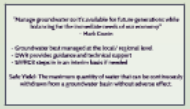


Prop 1
$7.5 billion water bond
Implementation of the Water Action Plan

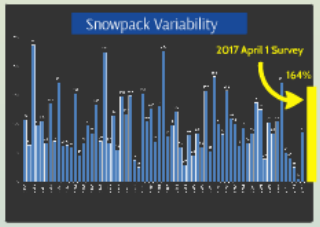


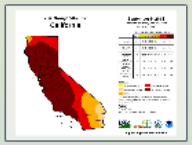
Sustainable Groundwater Management Act, 2014



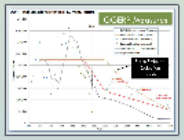


Department of Water Resources:
- $510M Integrated Regional Water Management
- $100M Water Use Efficiency and Conservation
- $5.5M Desalination
- $100M Groundwater Management Planning
- $395 Flood Management (DWR and the Central Valley Flood Protection Board)

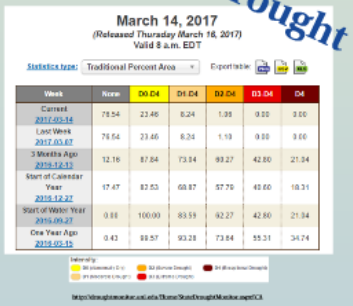


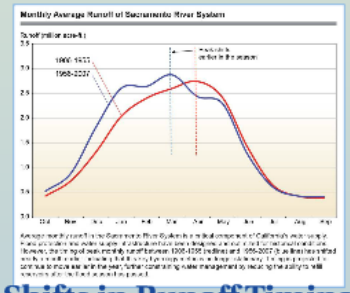


California WaterFix

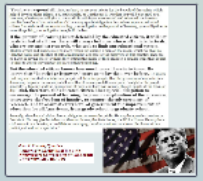


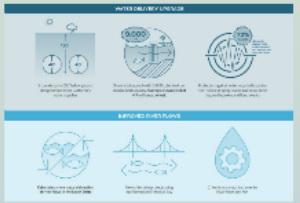
Drought





Shifts in Runoff Timing



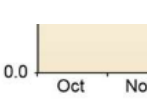


Turbulence and Leadership in California's Dynamic Hydrology

Climate change is felt in our hydrology

2016-09-27						
One Year Ago 2016-03-15	0.43	99.57	93.28	73.64	55.31	34.74

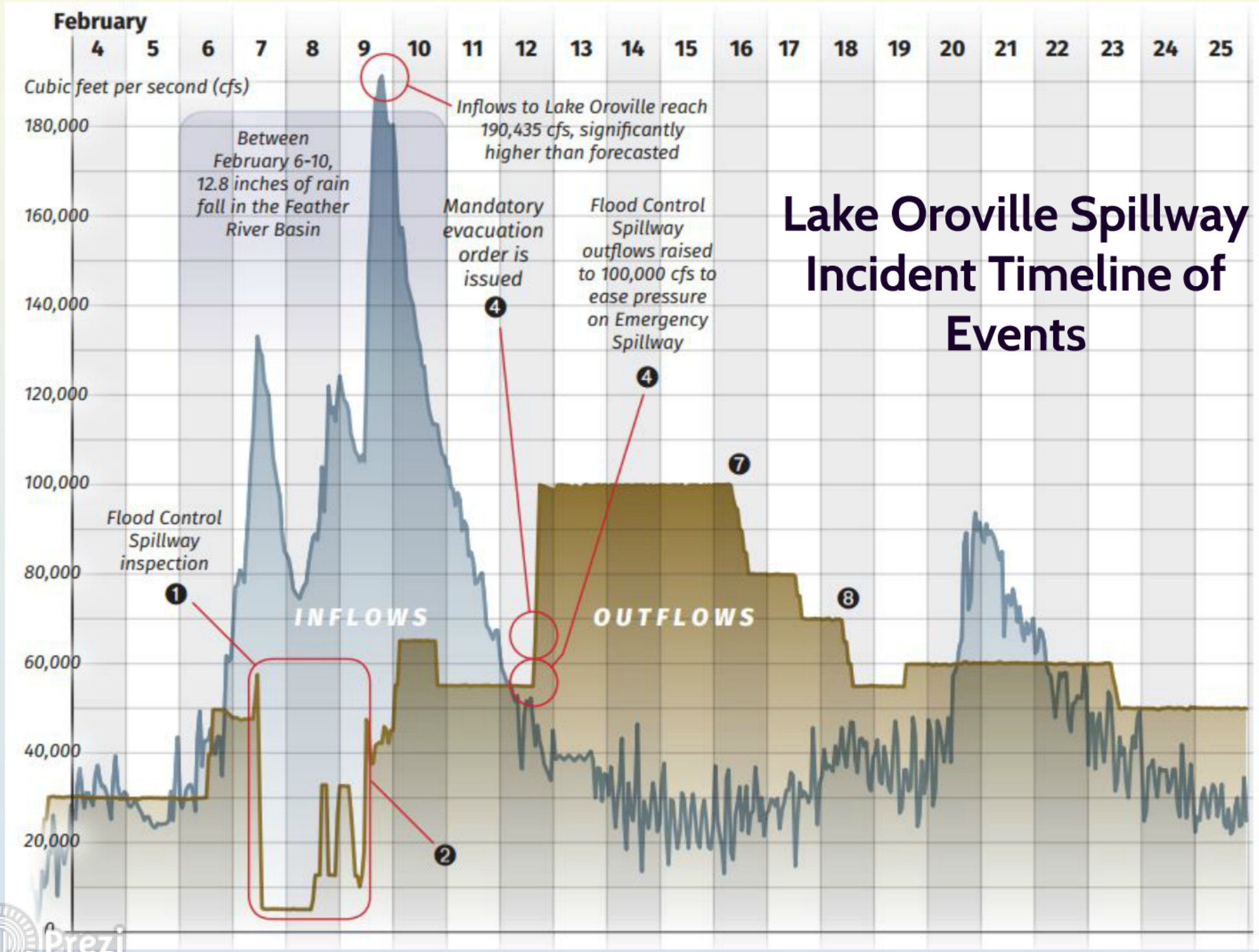
http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?CA



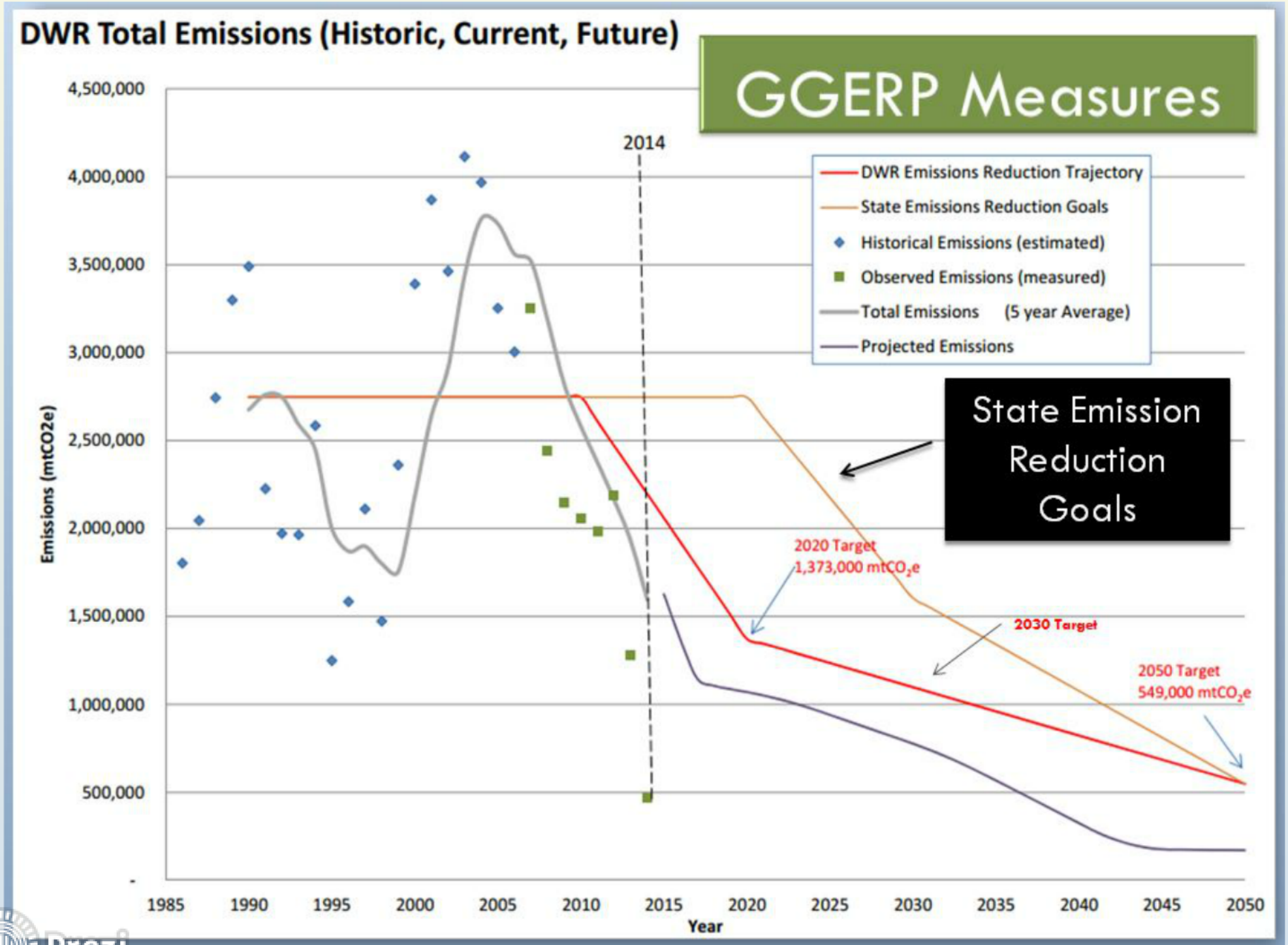
Average monthly r
Flood protection a
However, the timin
nearly a month ea
continue to move
reservoirs after the

Shift

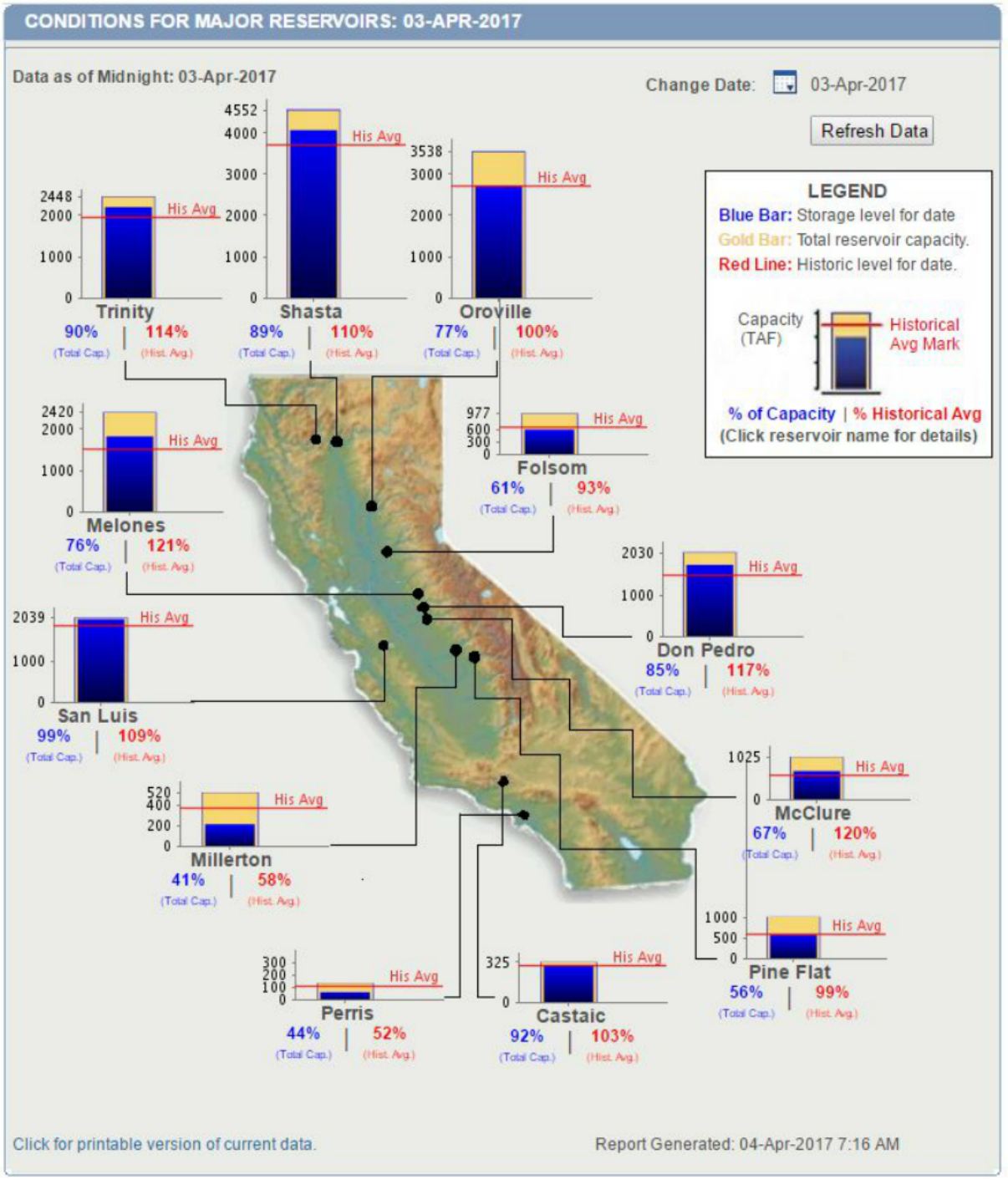
Turbulence and Leadership in California's Dynamic Hydrology



Lake Oroville Spillway Incident Timeline of Events


DWR Total Emissions (Historic, Current, Future)
GGERP Measures
2014
DWR Emissions Reduction Trajectory
State Emissions Reduction Goals
Historical Emissions (estimated)
Observed Emissions (measured)
Total Emissions (5 year Average)
Projected Emissions
State Emission Reduction Goals
2020 Target
1,373,000 mtCO2e
2030 Target
2050 Target
549,000 mtCO2e
Emissions (mtCO2e)
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
-
1985
1990
1995
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
Year

California Data Exchange Center - Reservoirs



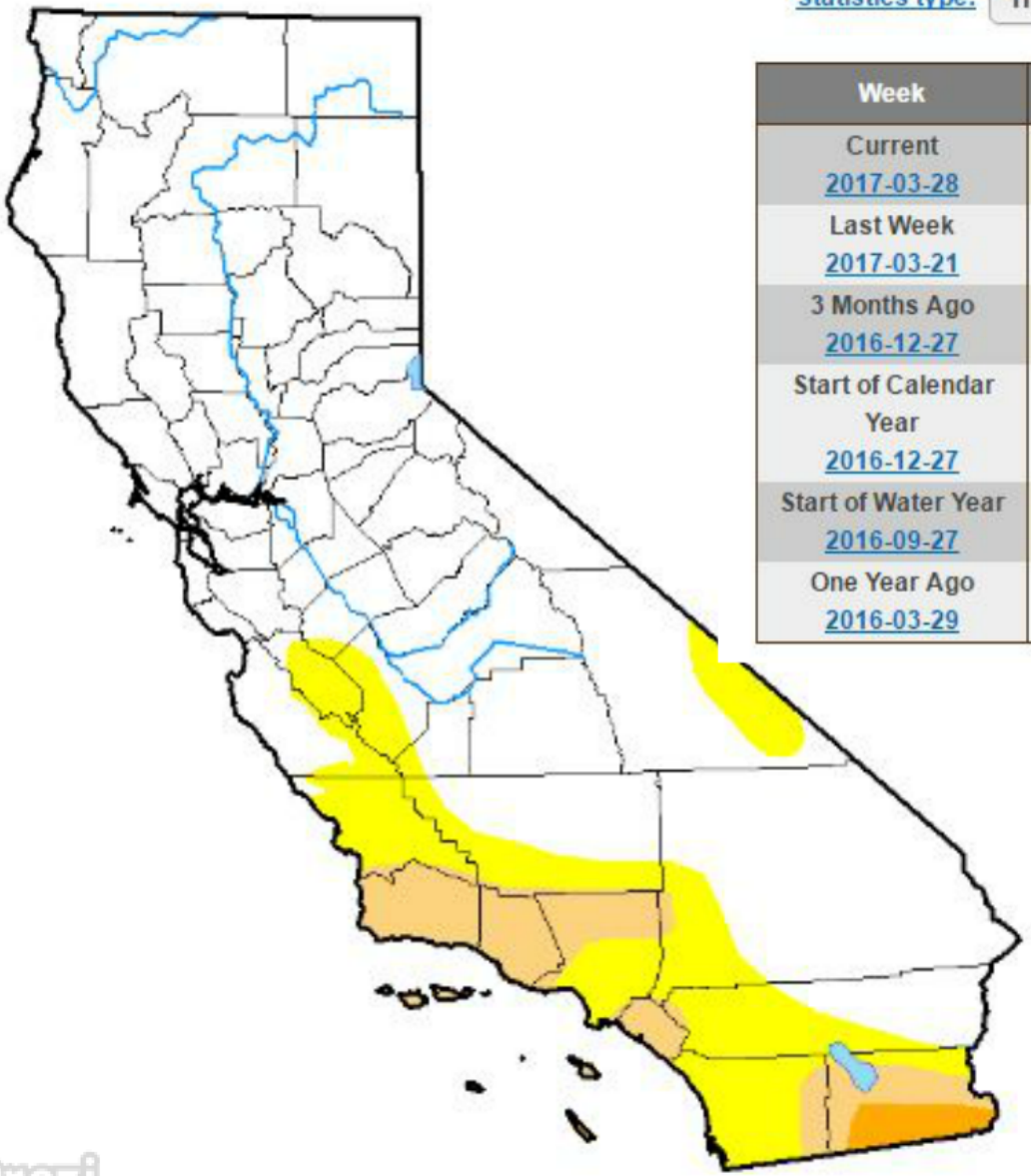
U.S. Drought Monitor

California

March 28, 2017

(Released Thursday March 30, 2017)

Valid 8 a.m. EDT

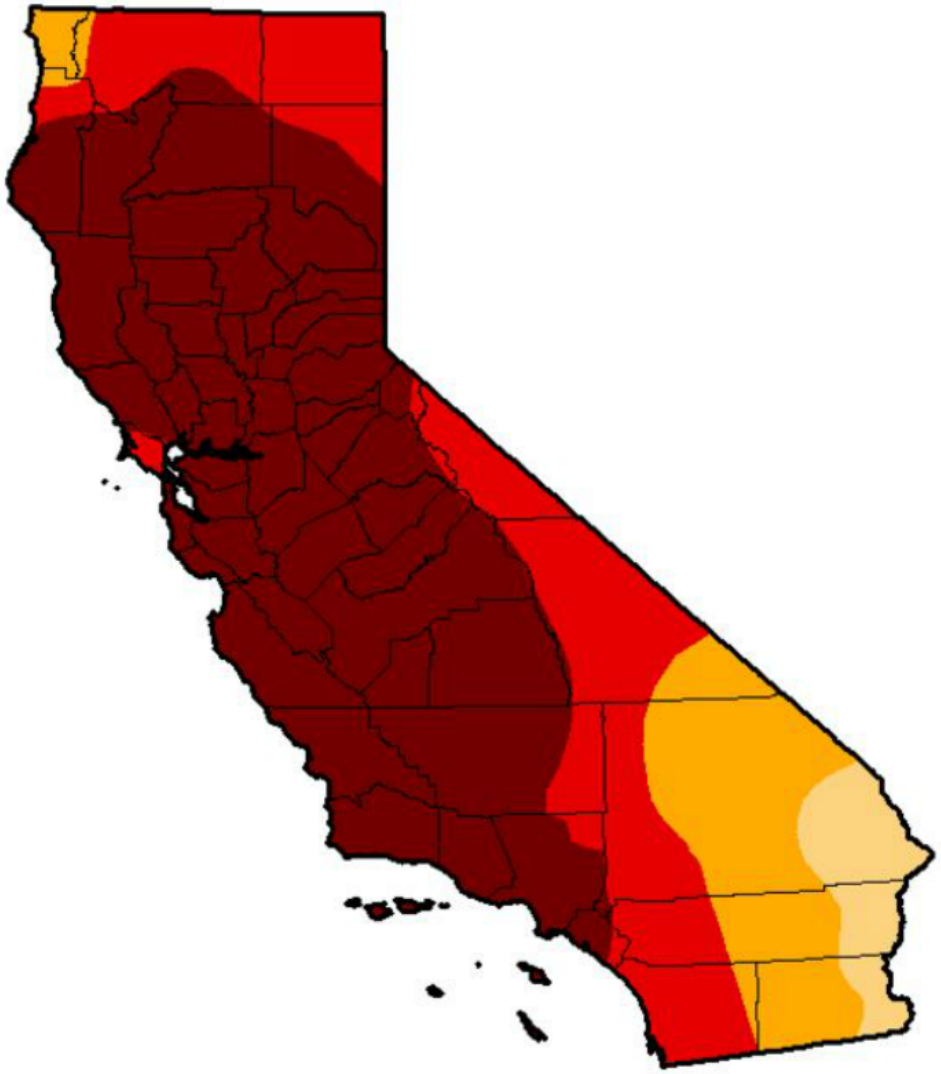


Statistics type: Traditional Percent Area

Export table: PNG CSV XLS

Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current 2017-03-28	76.54	23.46	8.24	1.06	0.00	0.00
Last Week 2017-03-21	76.54	23.46	8.24	1.06	0.00	0.00
3 Months Ago 2016-12-27	17.47	82.53	68.87	57.79	40.60	18.31
Start of Calendar Year 2016-12-27	17.47	82.53	68.87	57.79	40.60	18.31
Start of Water Year 2016-09-27	0.00	100.00	83.59	62.27	42.80	21.04
One Year Ago 2016-03-29	3.55	96.45	90.58	72.82	55.25	34.74

U.S. Drought Monitor
California



September 9, 2014

(Released Thursday, Sep. 11, 2014)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	95.42	81.92	58.41
Last Week 9/2/2014	0.00	100.00	100.00	95.42	81.92	58.41
3 Months Ago 6/10/2014	0.00	100.00	100.00	100.00	76.68	24.77
Start of Calendar Year 12/31/2013	2.61	97.39	94.25	87.53	27.59	0.00
Start of Water Year 10/1/2013	2.63	97.37	95.95	84.12	11.36	0.00
One Year Ago 9/10/2013	0.00	100.00	97.08	92.94	11.36	0.00

Intensity:

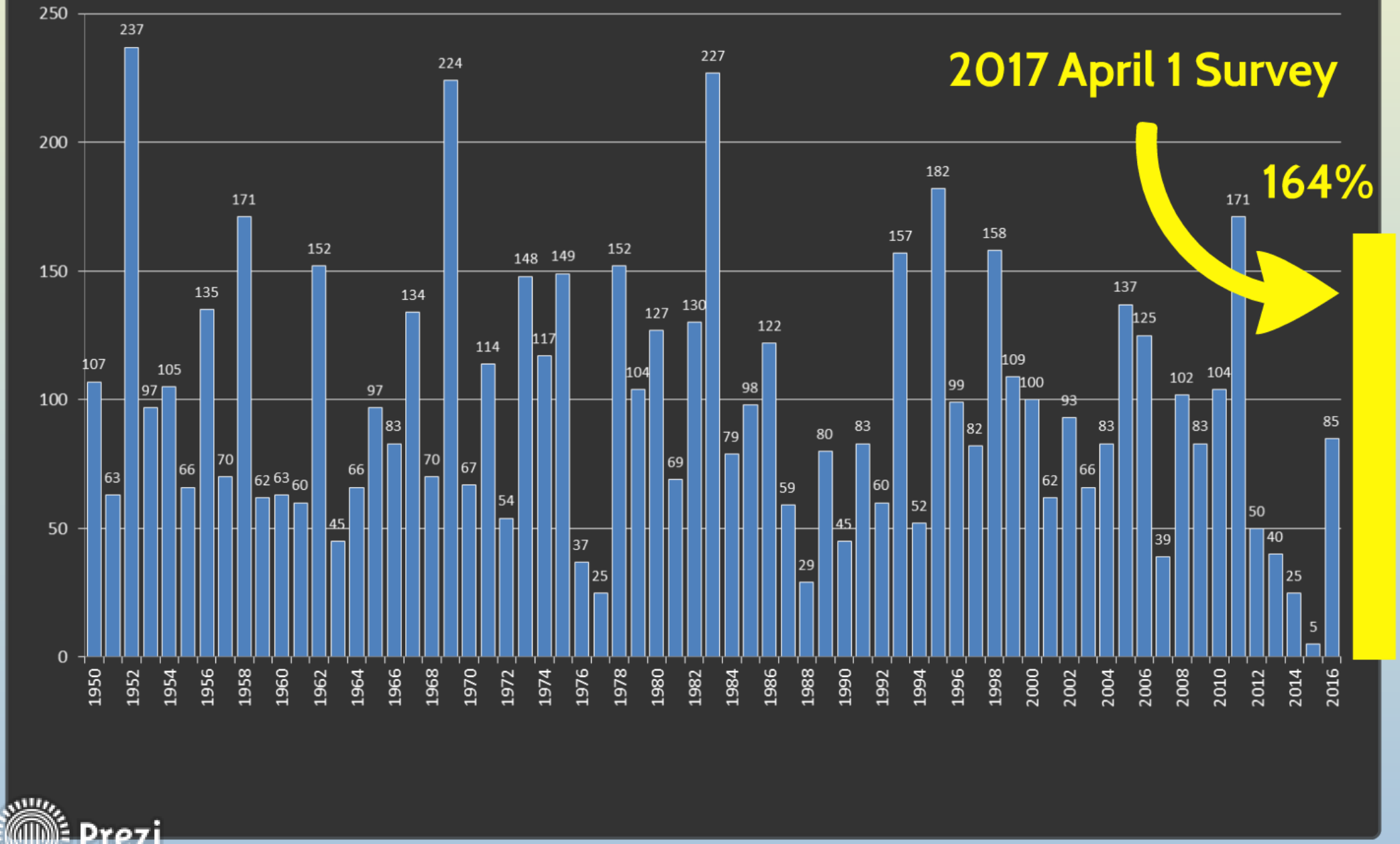
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Brian Fuchs
National Drought Mitigation Center

http://droughtmonitor.unl.edu/

Snowpack Variability



Prezi

California Water Action Plan

1. Make conservation a California way of life

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

3. Achieve 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

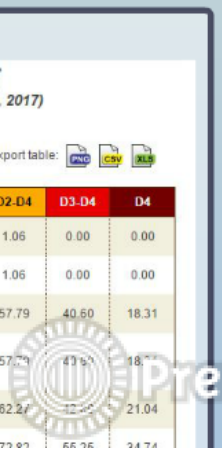
7. Provide safe water for all communities

8. Increase flood protection

9. Increase operational and regulatory efficiency

10. Identify sustainable and integrated financing opportunities

Sustainable Groundwater Management Act, 2014



"Manage groundwater so it's available for future generations while balancing for the immediate needs of our economy"
- Mark Cowin

- Groundwater best managed at the local/ regional level
- DWR provides guidance and technical support
- SWRCB steps in in an interim basis if needed

"Manage groundwater so it's available for future generations while balancing for the immediate needs of our economy"
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- Groundwater best managed at the local/ regional level
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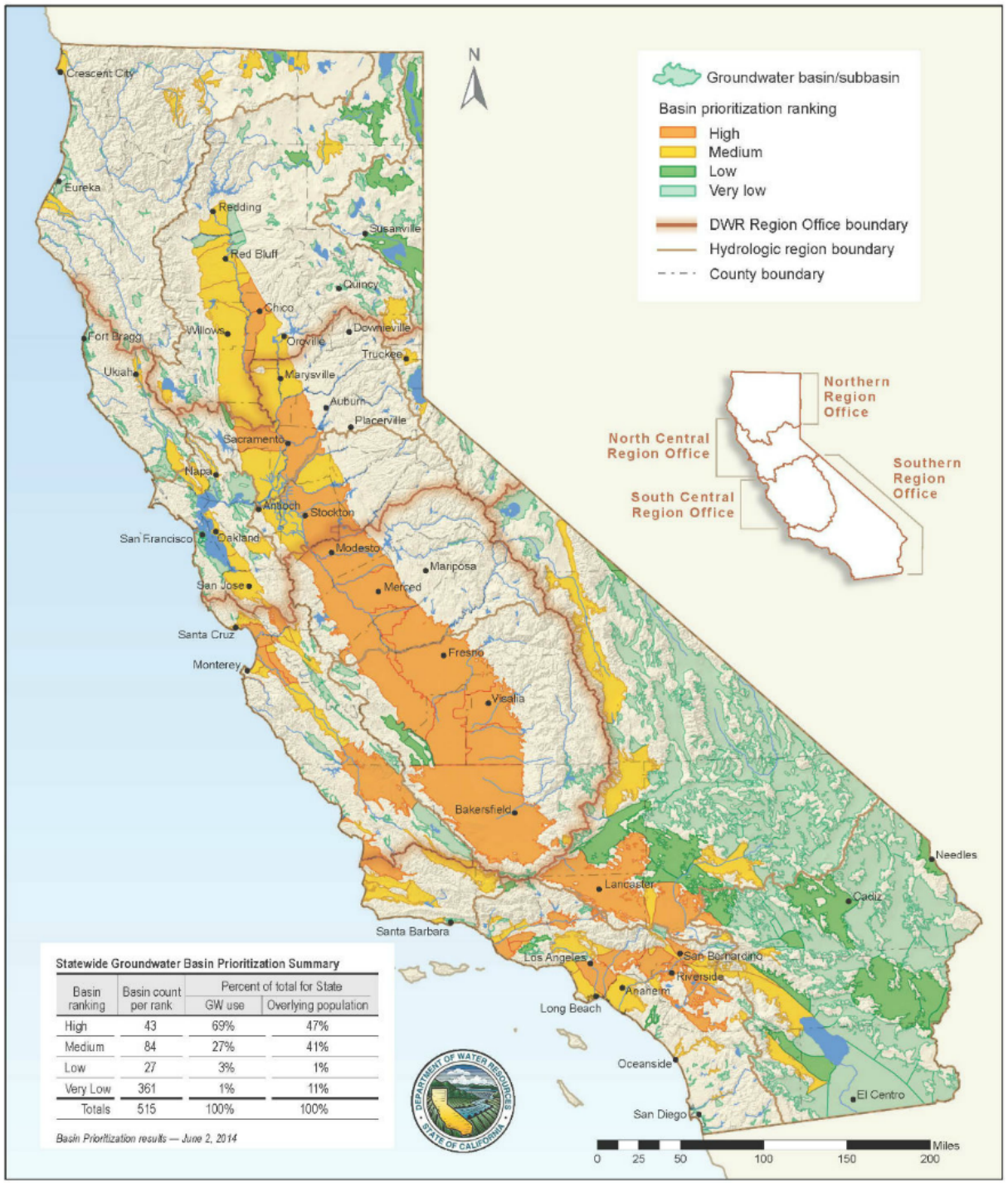
Safe Yield- The maximum quantity of water that can be continuously withdrawn from a groundwater basin without adverse effect.

CASGEM Groundwater Basin Prioritization



Statewide Groundwater Basin Prioritization Summary

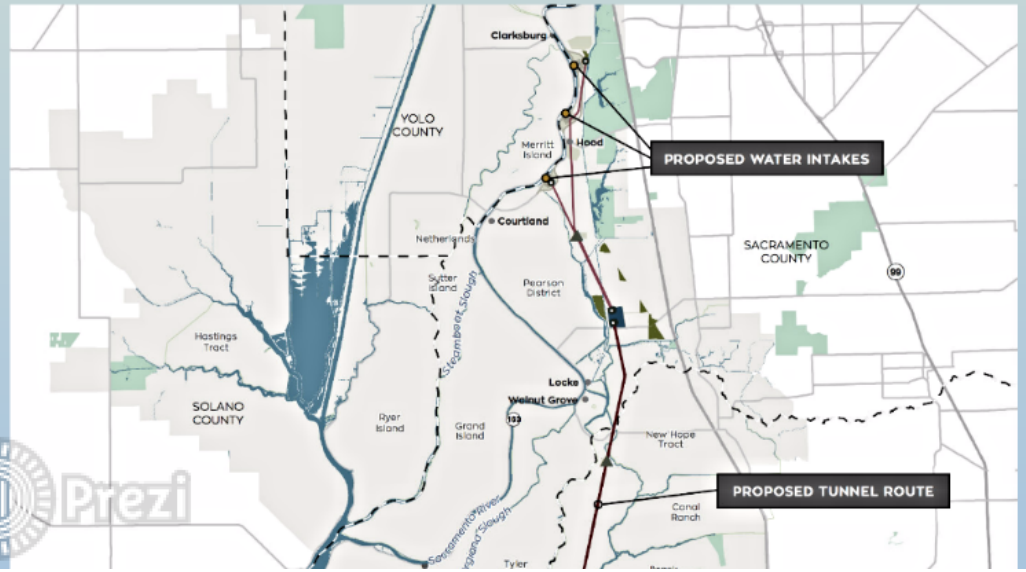
Basin ranking	Basin count per rank	Percent of total for State	
		GW use	Overlying population
High	43	69%	47%
Medium	84	27%	41%
Low	27	3%	1%
Very Low	361	1%	11%
Totals	515	100%	100%

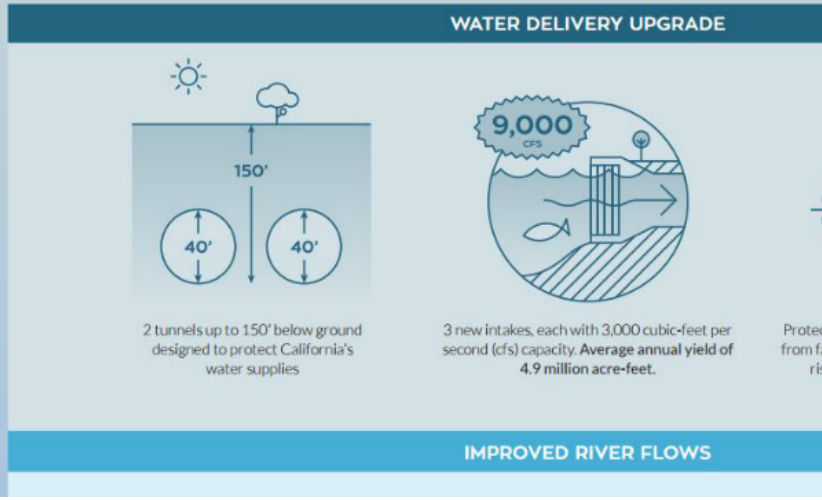
Basin Prioritization results — June 2, 2014

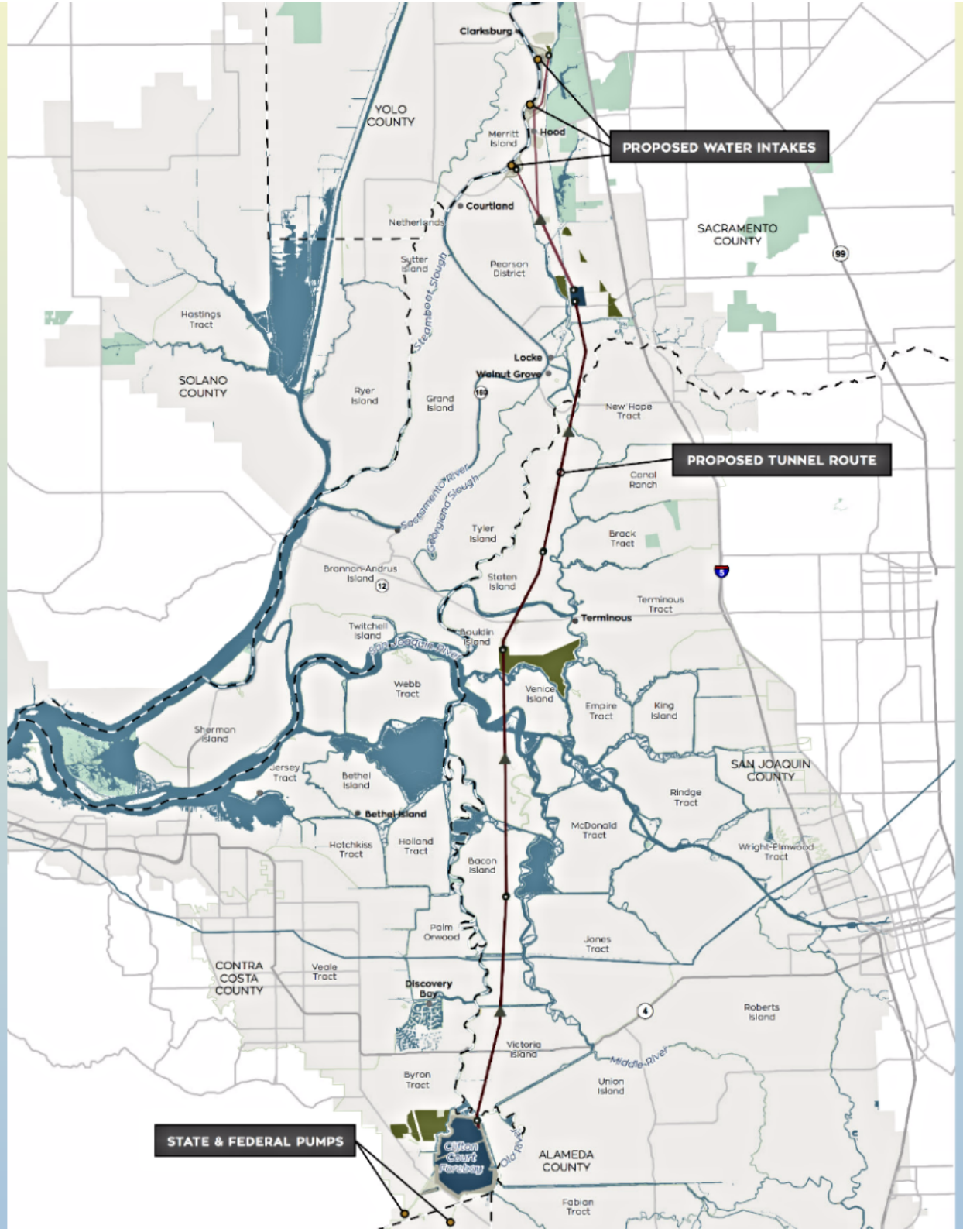
- $395 Flood Management (DWR and the Central Valley Flood Protection Board)

DEPARTMENT OF WATER RESOURCES
STATE OF CALIFORNIA

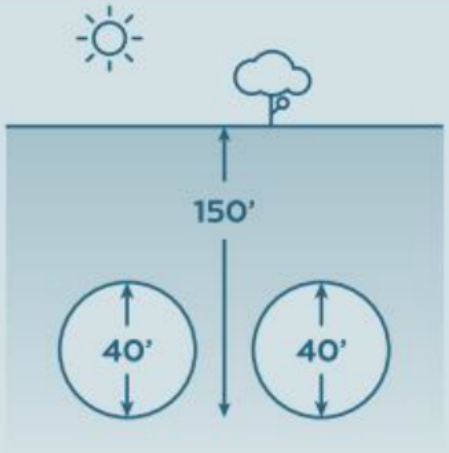
California WaterFix



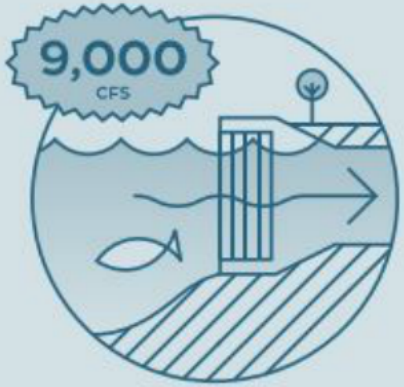



PROPOSED WATER INTAKES
PROPOSED TUNNEL ROUTE
STATE & FEDERAL PUMPS
Clarksburg
YOLO COUNTY
Merritt Island
Hood
Courtland
Netherlands
Sutter Island
Pearson District
SACRAMENTO COUNTY
Hastings Tract
Steamboat Slough
Locke
Walnut Grove
SOLANO COUNTY
Ryer Island
Grand Island
New Hope Tract
Canal Ranch
Sacramento River
Georgiana Slough
Tyler Island
Brack Tract
Brannan-Andrus Island
Staten Island
Terminous Tract
Terminous
Twitchell Island
Bouldin Island
San Joaquin River
Webb Tract
Venice Island
Empire Tract
King Island
Sherman Island
Jersey Tract
Bethel Island
SAN JOAQUIN COUNTY
Rindge Tract
Bethel Island
McDonald Tract
Hotchkiss Tract
Holland Tract
Bacon Island
Wright-Elmwood Tract
Palm Orwood
Jones Tract
CONTRA COSTA COUNTY
Veale Tract
Discovery Bay
Roberts Island
Victoria Island
Middle River
Byron Tract
Union Island
Clifton Court Forebay
Old River
ALAMEDA COUNTY
Fabian Tract

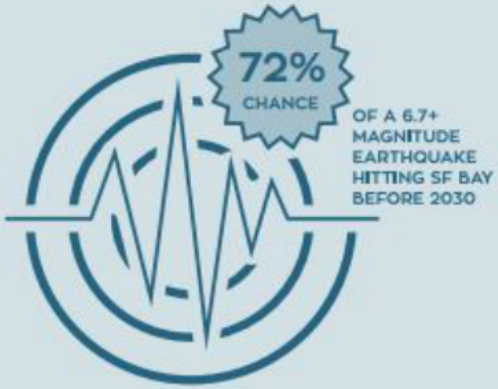
WATER DELIVERY UPGRADE



2 tunnels up to 150' below ground designed to protect California's water supplies



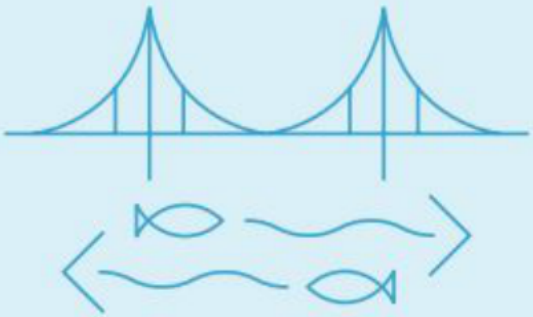
3 new intakes, each with 3,000 cubic-feet per second (cfs) capacity. **Average annual yield of 4.9 million acre-feet.**



Protection against water supply disruption from failure of aging levees due to sea-level rise, earthquakes and flood events

IMPROVED RIVER FLOWS

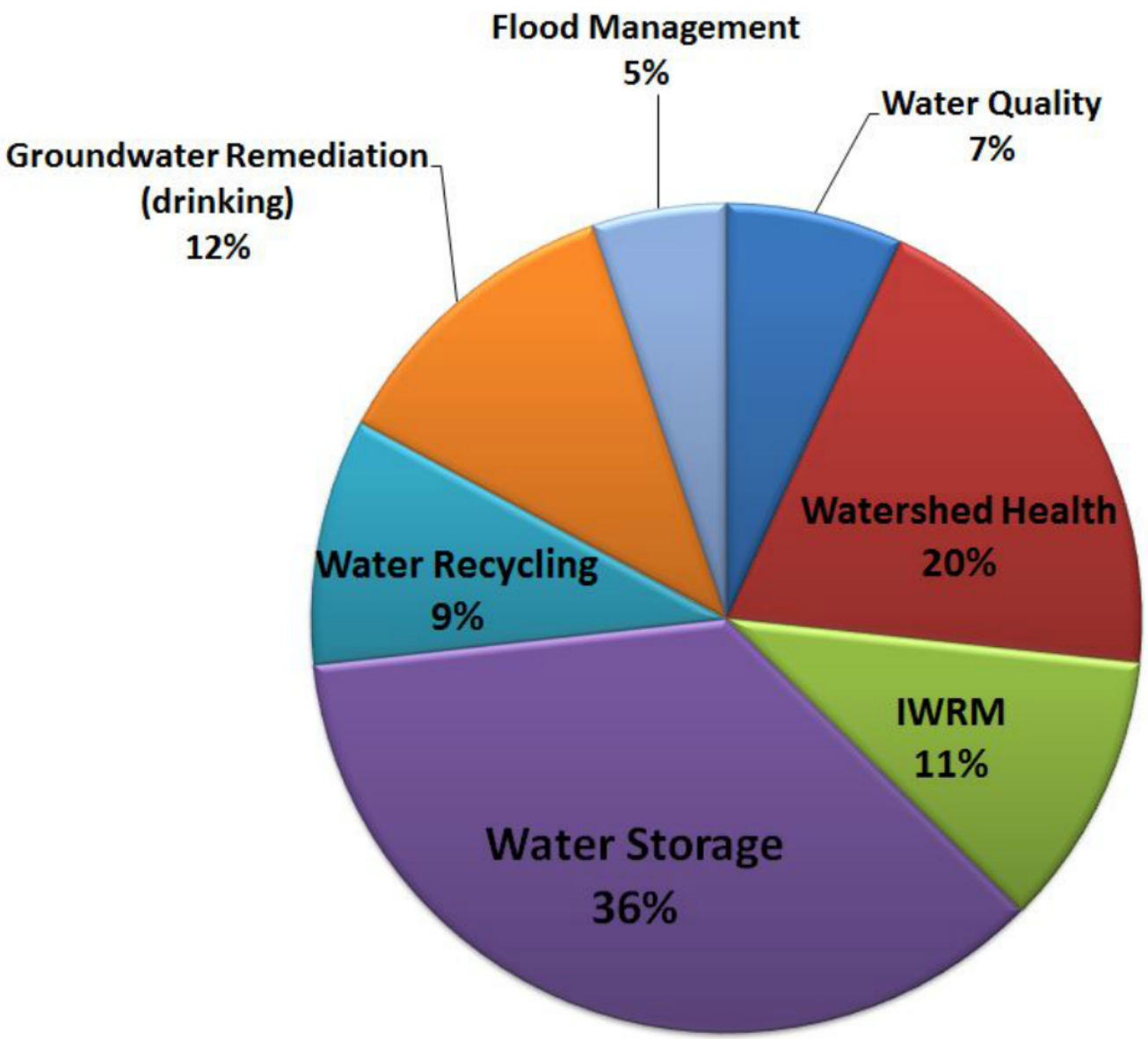
Reinstate a more natural direction of river flows in the South Delta



New criteria to protect spring outflow to San Francisco Bay

Criteria to protect Sacramento River flows and fish

Prop 1
$7.5 billion water bond
Implementation of the Water Action Plan



Proposition 1
The 2014 California Water Bond

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- $510M Integrated Regional Water Management

- $100M Water Use Efficiency and Conservation

- $5.5M Desalination

- $100M Groundwater Management Planning

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The Big Ask

Work With Us

SGMA

Flooding

Water Storage

Ecosystem Services

Carbon Sequestration

Healthy Soils

Data Management

Modeling

Ocean Health

"**You have responsibilities**, in short, to use your talents for the benefit of the society which helped develop those talents. You must decide, as Goethe put it, whether you will be an anvil or a hammer, whether you will give to the world in which you were reared and educated the broadest possible benefits of that education. Of the many special obligations incumbent upon an educated citizen, I would cite three as outstanding: your obligation to the pursuit of learning, your obligation to serve the public, your obligation to uphold the law.

If the pursuit of learning is not defended by the educated citizen, it will not be defended at all. For there will always be those who scoff at intellectuals, who cry out against research, who seek to limit our educational system. Modern cynics and skeptics see no more reason for landing a man on the moon, which we shall do, than the cynics and skeptics of half a millennium ago saw for the discovery of this country. They see no harm in paying those to whom they entrust the minds of their children a smaller wage than is paid to those to whom they entrust the care of their plumbing.

But the educated citizen knows how much more there is to know. He knows that "knowledge is power," more so today than ever before. He knows that only an educated and informed people will be a free people, that the ignorance of one voter in a democracy impairs the security of all, and that if we can, as Jefferson put it, "enlighten the people generally ... tyranny and the oppressions of mind and body will vanish, like evil spirits at the dawn of day." **And, therefore, the educated citizen has a special obligation to encourage the pursuit of learning, to promote exploration of the unknown, to preserve the freedom of inquiry, to support the advancement of research, and to assist at every level of government the improvement of education for all Americans, from grade school to graduate school.**

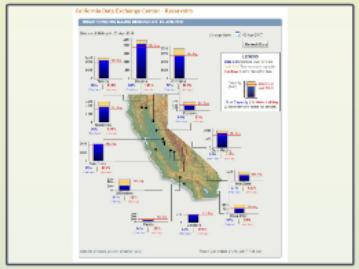
Secondly, the educated citizen has an obligation to serve the public. He may be a precinct worker or President. He may give his talents at the courthouse, the State house, the White House. He may be a civil servant or a Senator, a candidate or a campaign worker, a winner or a loser. But he must be a participant and not a spectator."

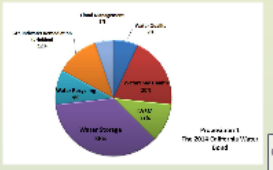
John F. Kennedy Speeches

Remarks in Nashville at the 90th Anniversary Convocation of Vanderbilt University, May 18, 1963

Jennifer Morales
Environmental Scientist
Climate Change Program

559-230-3381
Jennifer.Morales@water.ca.gov





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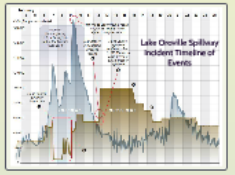
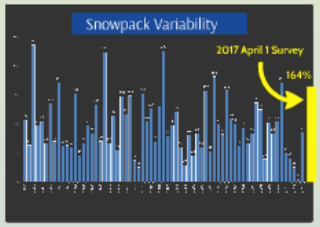
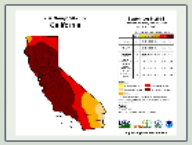
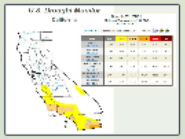
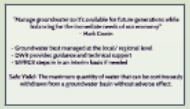


Sustainable Groundwater Management Act, 2014

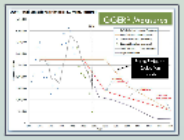




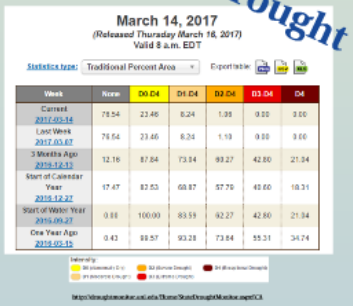


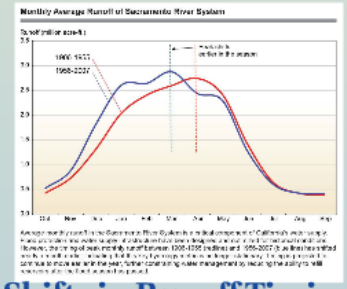


California WaterFix

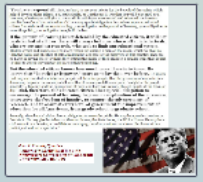


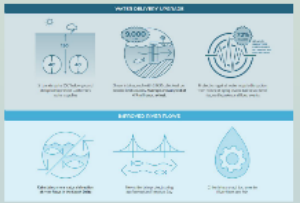
Drought





Shifts in Runoff Timing





Turbulence and Leadership in California's Dynamic Hydrology

Climate change is felt in our hydrology

Drought

March 14, 2017

(Released Thursday March 16, 2017)

Valid 8 a.m. EDT

Statistics type: Traditional Percent Area

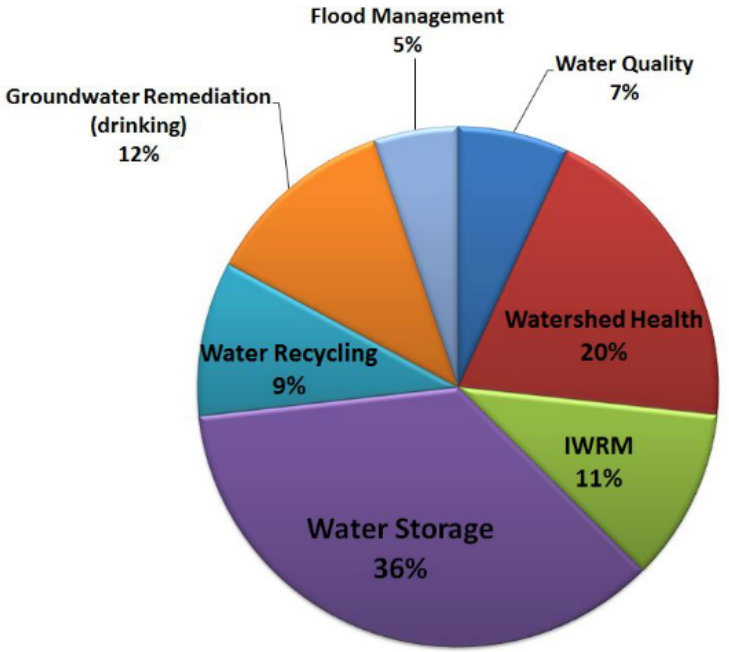
Export table: PNG CSV XLS

Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current 2017-03-14	76.54	23.46	8.24	1.06	0.00	0.00
Last Week 2017-03-07	76.54	23.46	8.24	1.10	0.00	0.00
3 Months Ago 2016-12-13	12.16	87.84	73.04	60.27	42.80	21.04
Start of Calendar Year 2016-12-27	17.47	82.53	68.87	57.79	40.60	18.31
Start of Water Year 2016-09-27	0.00	100.00	83.59	62.27	42.80	21.04
One Year Ago 2016-03-15	0.43	99.57	93.28	73.64	55.31	34.74

Intensity:

- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)

http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?CA



Proposition 1
The 2014 California Water Bond

Prop 1
$7.5 billion water bond Implementation of the Water Action Plan

Department of Water Resources:

- $510M Integrated Regional Water Management

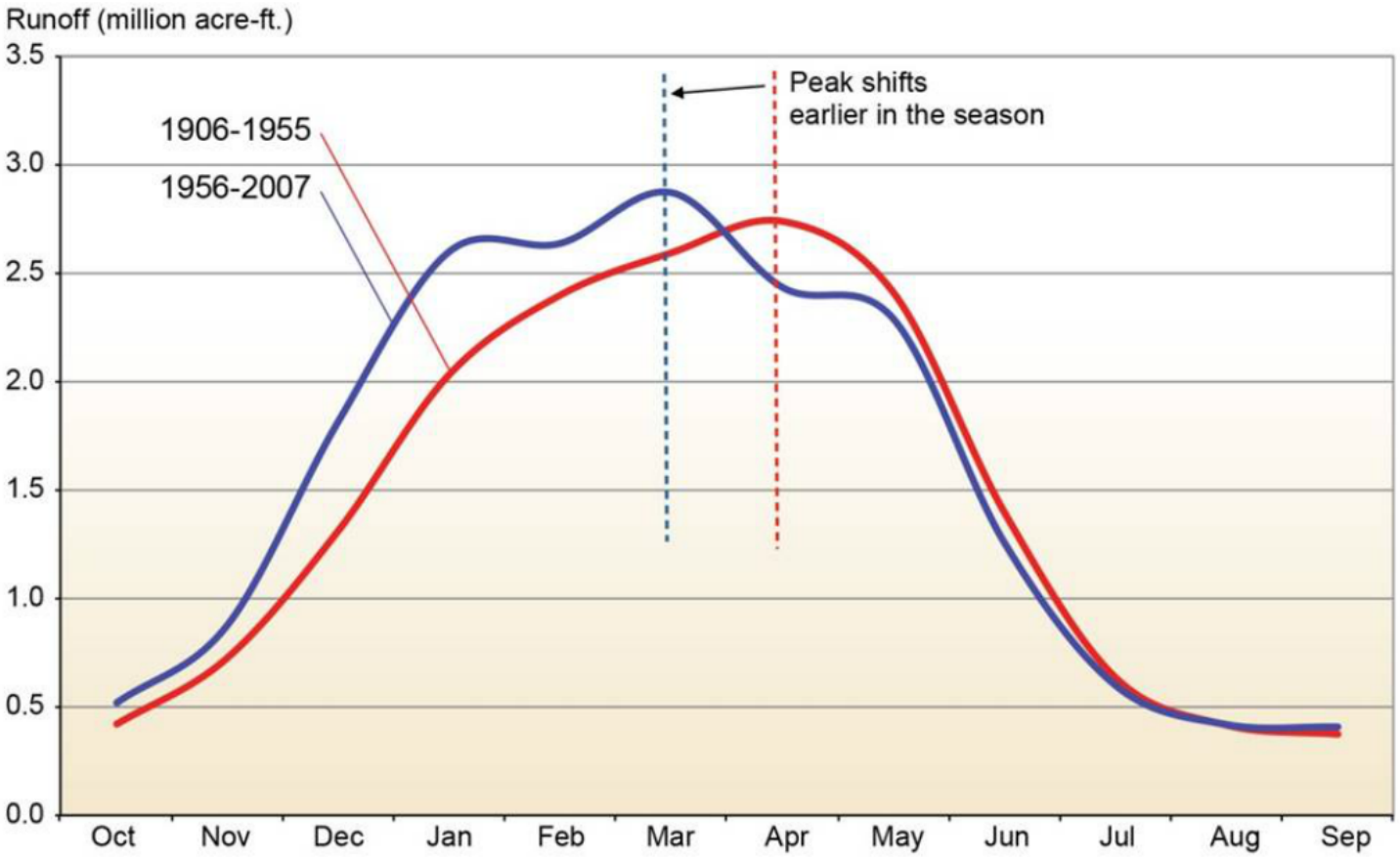
- $100M Water Use Efficiency and Conservation

- $5.5M Desalination

- $100M Groundwater Management Planning

- $395 Flood Management (DWR and the Central Valley Flood Protection Board)

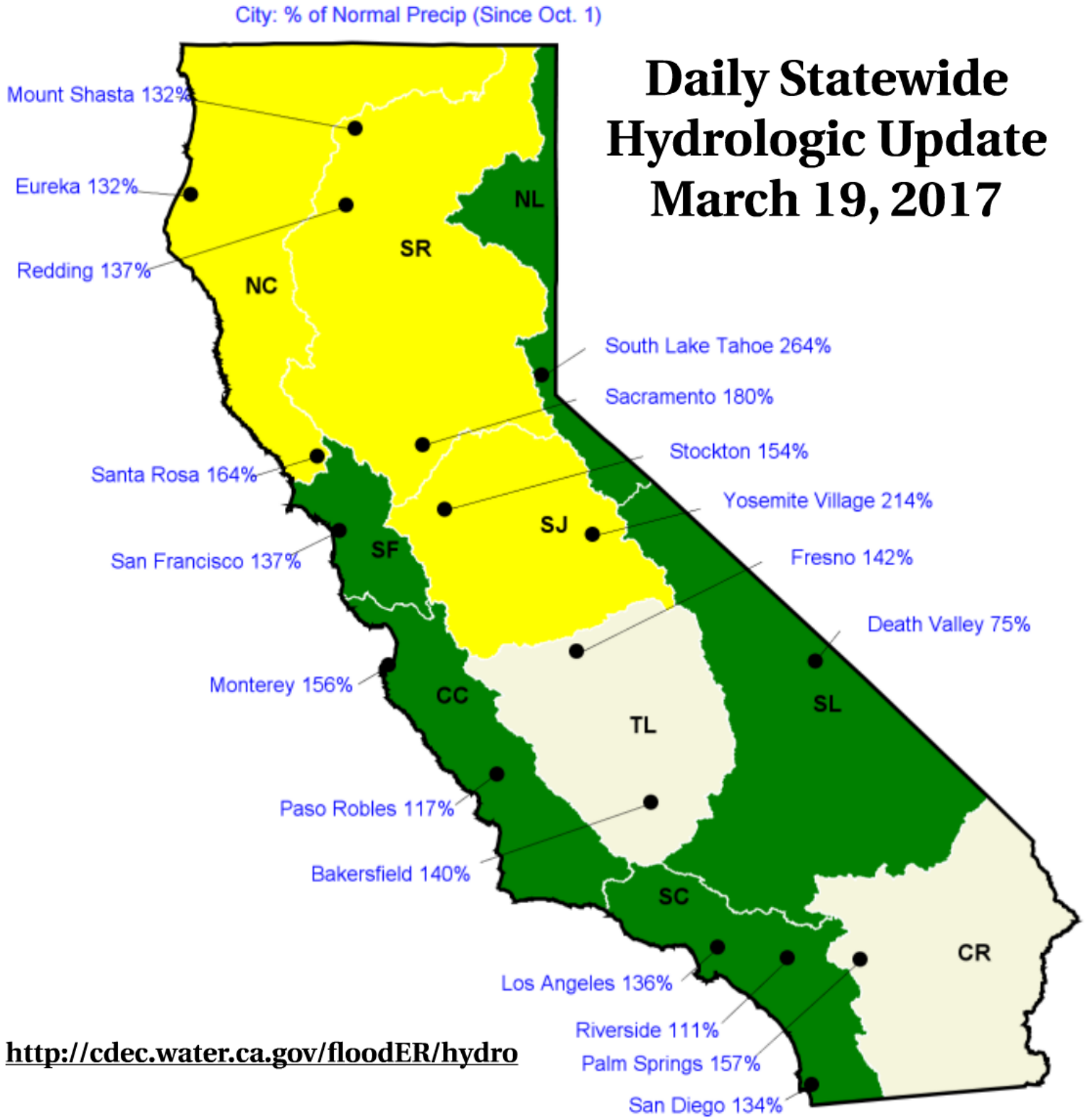
Monthly Average Runoff of Sacramento River System



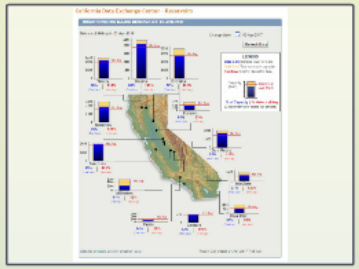
Average monthly runoff in the Sacramento River System is a critical component of California's water supply. Flood protection and water supply infrastructure have been designed and optimized for historical conditions. However, the timing of peak monthly runoff between 1906-1955 (redline) and 1956-2007 (blue line) has shifted nearly a month earlier indicating that this key hydrology metric is no longer stationary. Timing is projected to continue to move earlier in the year, further constraining water management by reducing the ability to refill reservoirs after the flood season has passed.

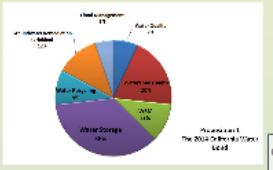
Shifts in Runoff Timing

Daily Statewide Hydrologic Update March 19, 2017

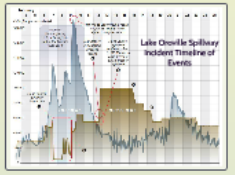


http://cdec.water.ca.gov/floodER/hydro

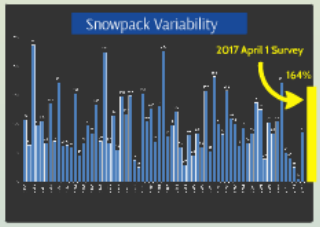


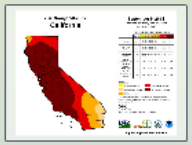


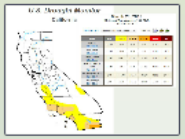
Prop 1
$7.5 billion water bond
Implementation of the Water Action Plan

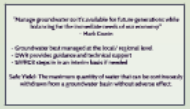


Sustainable Groundwater Management Act, 2014

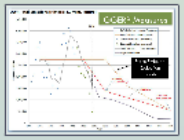




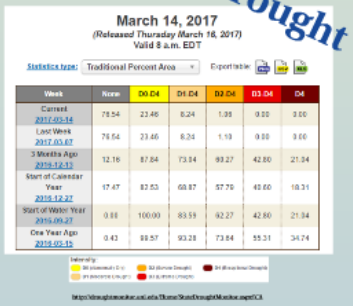


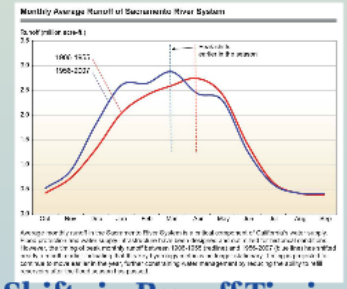


California WaterFix

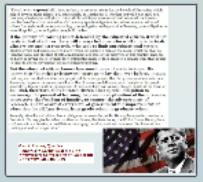


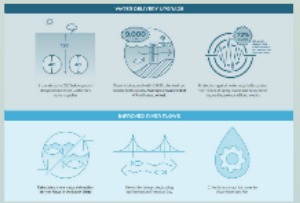
Drought





Shifts in Runoff Timing





Turbulence and Leadership in California's Dynamic Hydrology

Climate change is felt in our hydrology