



CALIFORNIA  
**WATER FIX**  
RELIABLE. CLEAN. WATER.

# PROJECT OVERVIEW & BACKGROUND

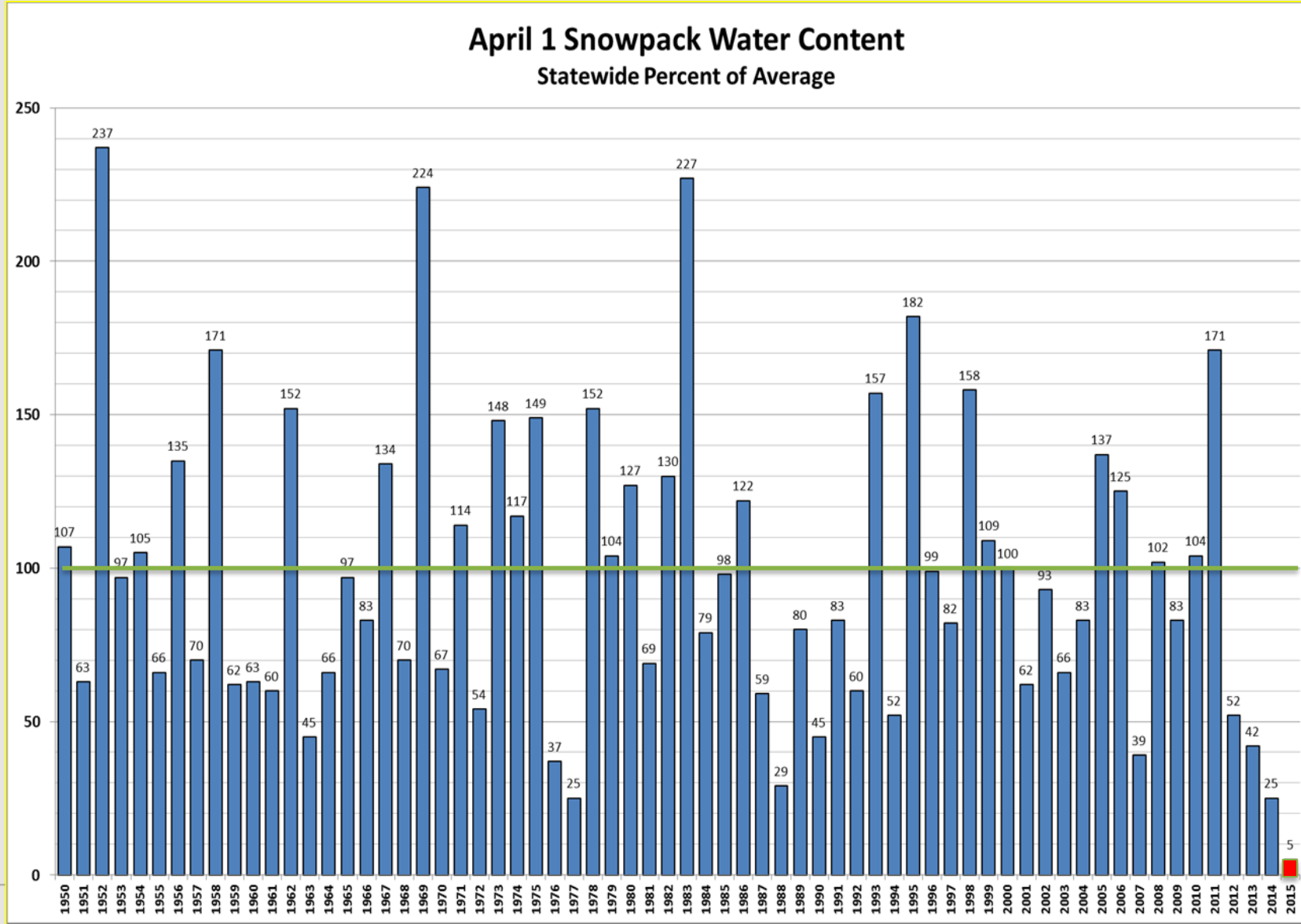
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B.G. Heiland, P.E.

June 2015



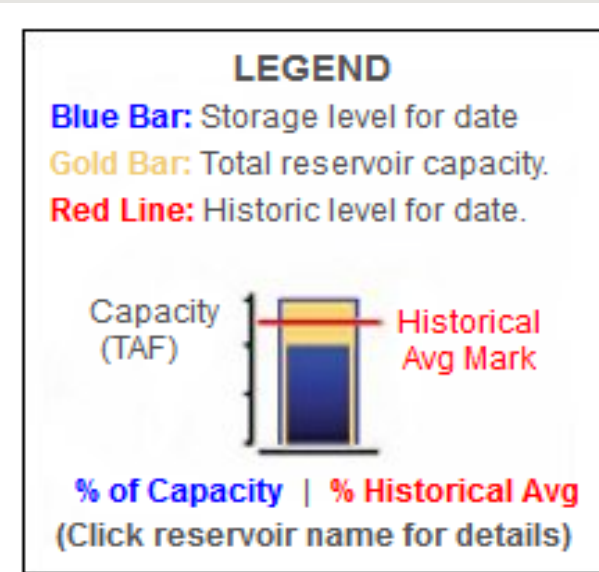
# HISTORIC SNOWPACK





# CA Reservoir Storage

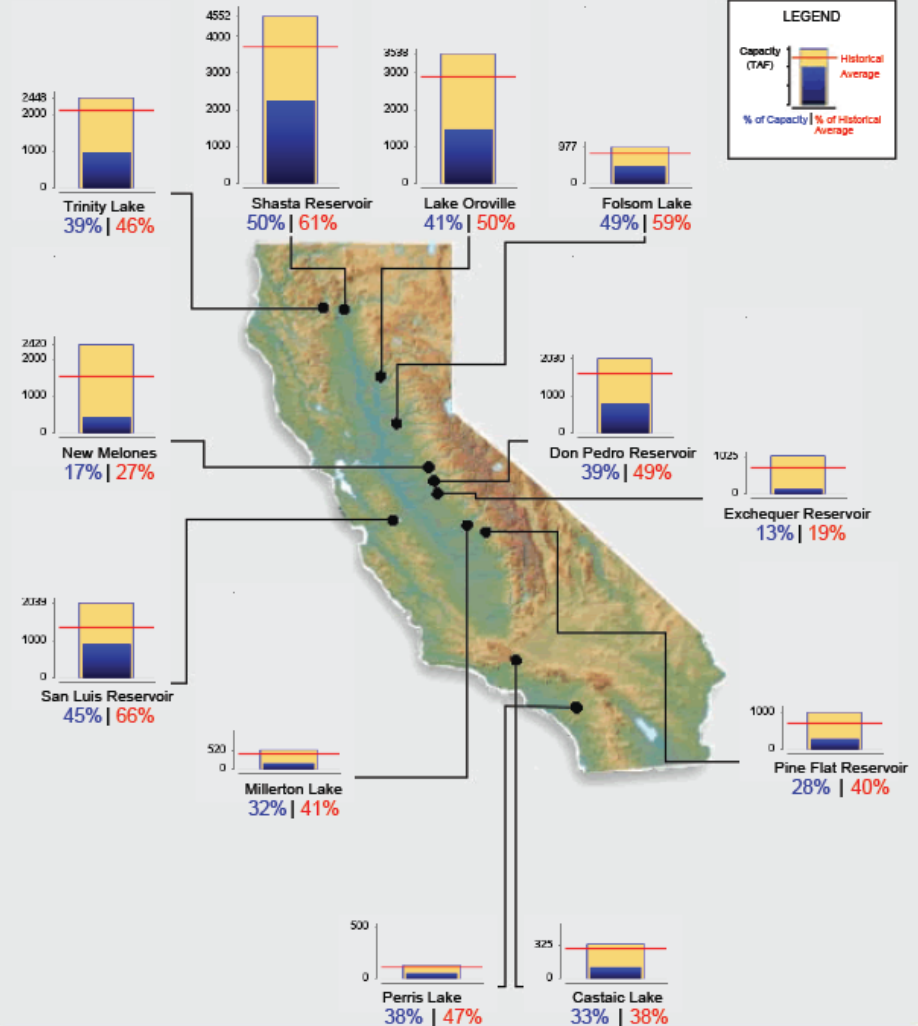
June 21, 2015




## Reservoir Conditions

Ending At Midnight - June 21, 2015

### CURRENT RESERVOIR CONDITIONS



Graph Updated 06/22/2015 09:45 AM



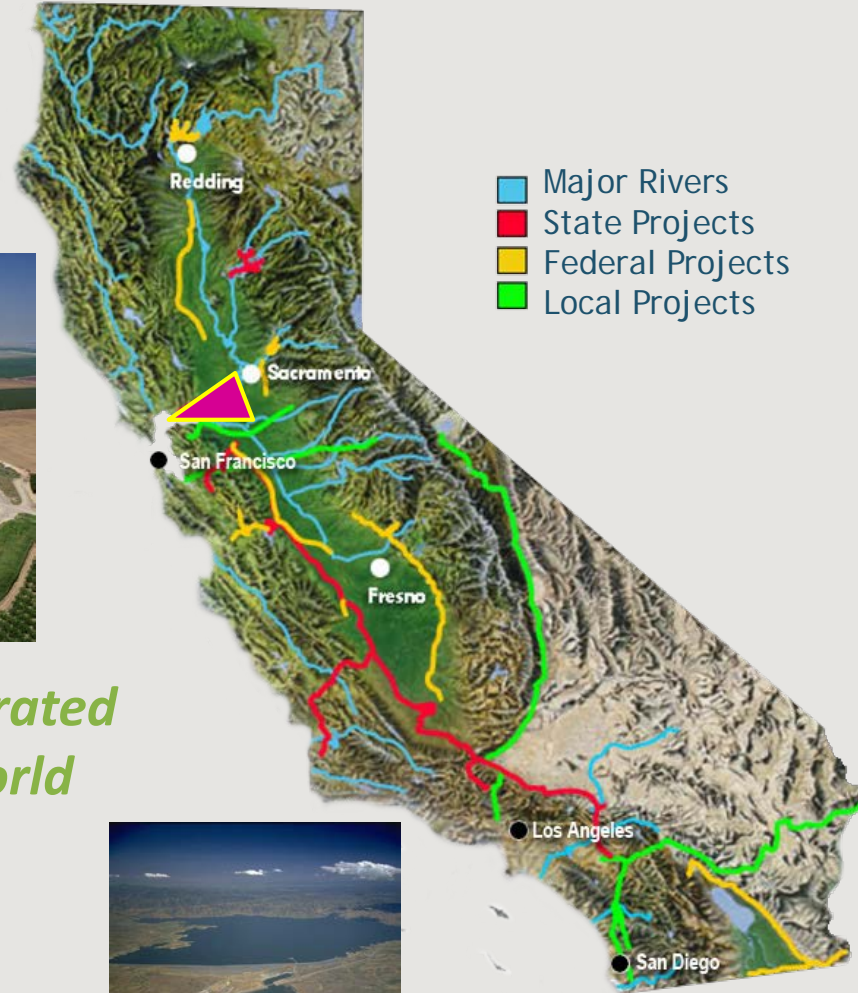
# CALIFORNIA WATER PROJECTS

- 54 reservoirs and lakes
- 1,200 miles of canals and pipelines
- 16 hydro facilities



*Largest publically-built and operated water supply project in the world*

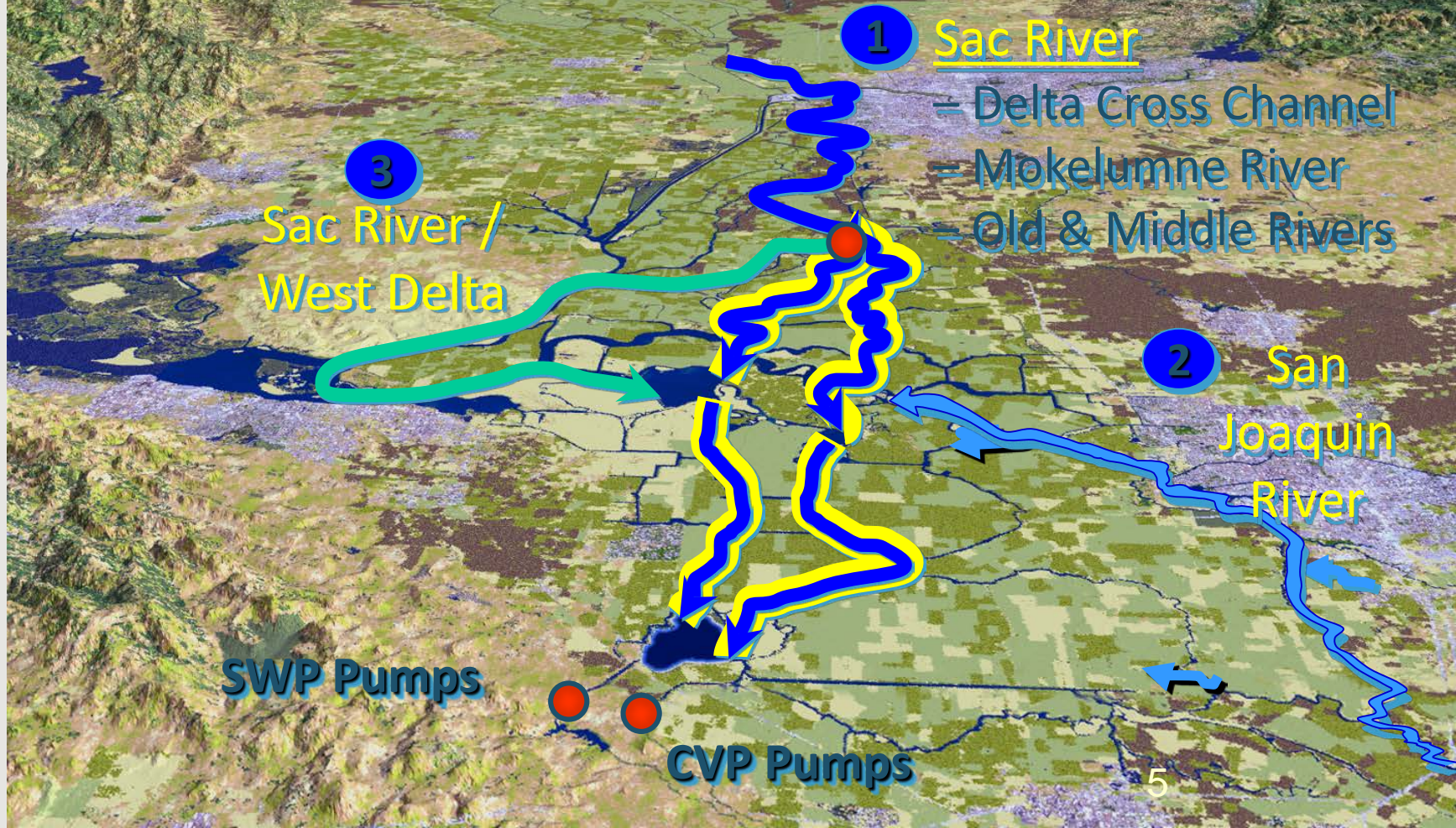
*Bay-Delta is the hub of this infrastructure*







# HOW WATER GETS TO STATE AND FEDERAL PUMPS







# EXAMPLES OF BARRIERS USED IN THE DELTA



**Permanent Barrier:**  
Delta Cross Channel Gates  
(photo courtesy of USBR)



**Temporary Barrier:**  
Old River at Tracy Blvd.

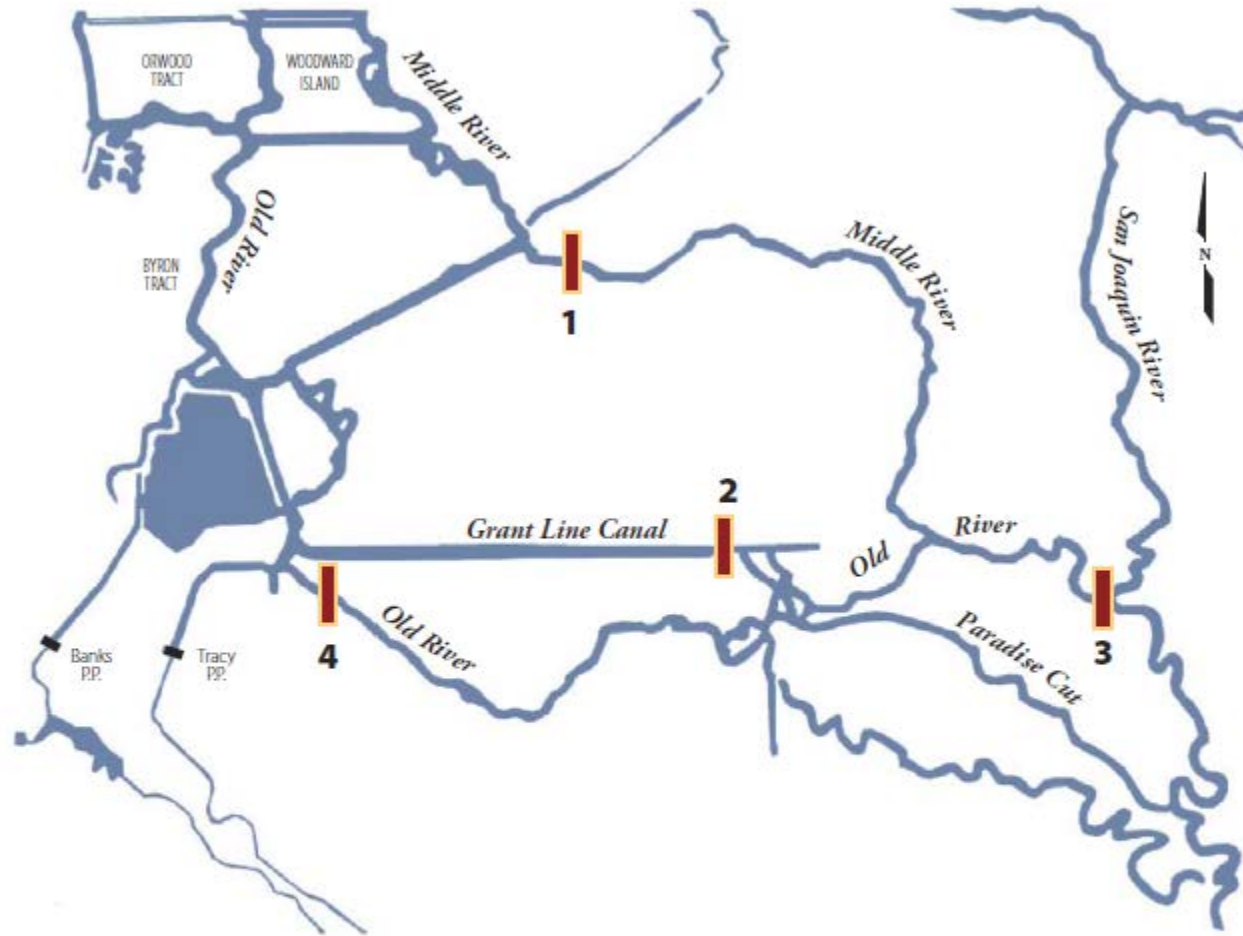


**Temporary Barrier:**  
Middle River



**Temporary Barrier:**  
Grant Line Canal

# SOUTH DELTA BARRIERS LOCATIONS



## Legend

- 1 = Middle River barrier
- 2 = Grant Line Canal barrier
- 3 = Head of Old River barrier
- 4 = Old River at Tracy barrier

- Began 1991
- Objectives
  - Increase water levels
  - Improve water circ.
  - Improve water quality
- HORB – fish barrier
  - Apr-May, Sep-Nov
- Others – agric. barriers
  - 4/15-11/30



# Bay-Delta Standards **DRAFT**

Contained in D-1641

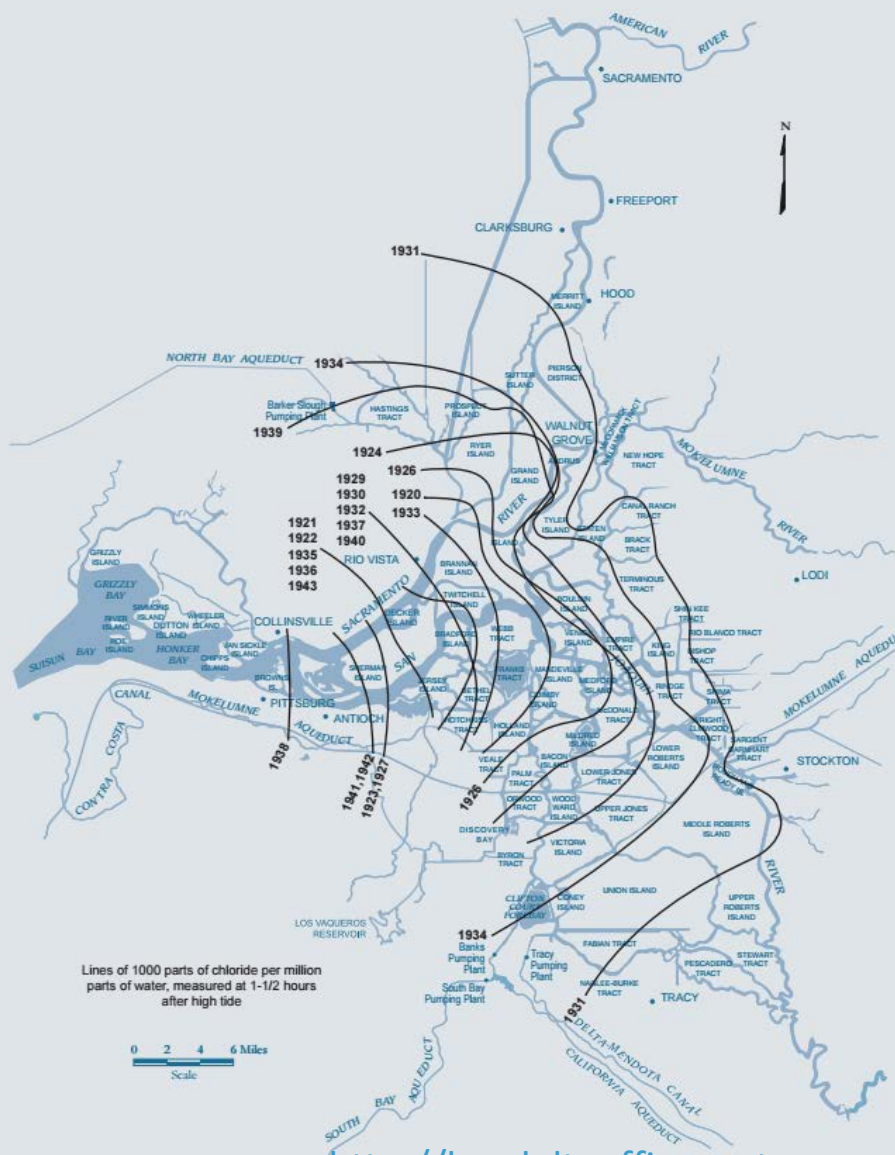
CRITERIA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
<b>FLOW/OPERATIONAL</b>													
<b>• Fish and Wildlife</b>													
SWP/CVP Export Limits					1,500cfs <sup>[1]</sup>								
Export/Inflow Ratio <sup>[2]</sup>	65%	35% of Delta Inflow <sup>[3]</sup>					65% of Delta Inflow						
Minimum Delta Outflow	[4]								3,000 - 8,000 cfs				
Habitat Protection Outflow			7,100 - 29,200 cfs										
Salinity Starting Condition <sup>[6]</sup>	[6]												
River Flows:													
@ Rio Vista									3,000 - 4,500 cfs				
@ Vernalis - Base			710 - 3,420 cfs <sup>[8]</sup>				[8]						
- Pulse				[9]					+28TA				
Delta Cross Channel Gates	[10]	Closed				[11]						Conditional <sup>[19]</sup>	
<b>WATER QUALITY STANDARDS</b>													
<b>• Municipal and Industrial</b>													
All Export Locations	≤ 250 mg/l Cl												
Contra Costa Canal	150 mg/l Cl for the required number of days <sup>[12]</sup>												
<b>• Agriculture</b>													
Western/Interior Delta	Max.14-day average EC mmhos/cm												
Southern Delta <sup>[14]</sup>	1.0 mS		30 day running avg EC 0.7 mS						1.0 mS				
<b>• Fish and Wildlife</b>													
San Joaquin River Salinity <sup>[15]</sup>	14-day avg; 0.44												
Suisun Marsh Salinity <sup>[16]</sup>	12.6 EC	8.0 EC		11.0 EC						19.0	[17]	15.5	



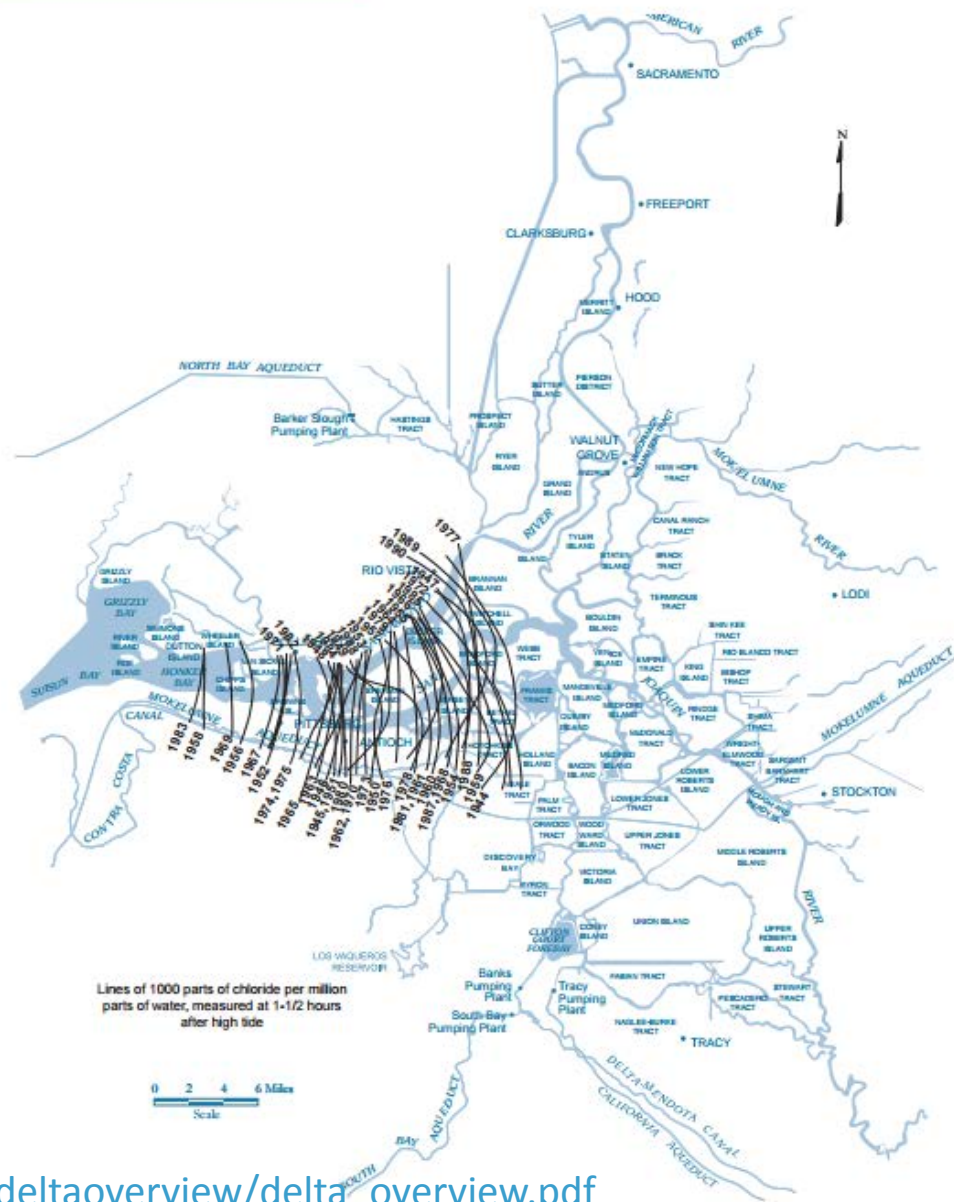


# HISTORIC SALINITY INTRUSION

Maximum Salinity Intrusion, 1921 - 1943



Maximum Salinity Intrusion 1944-1990

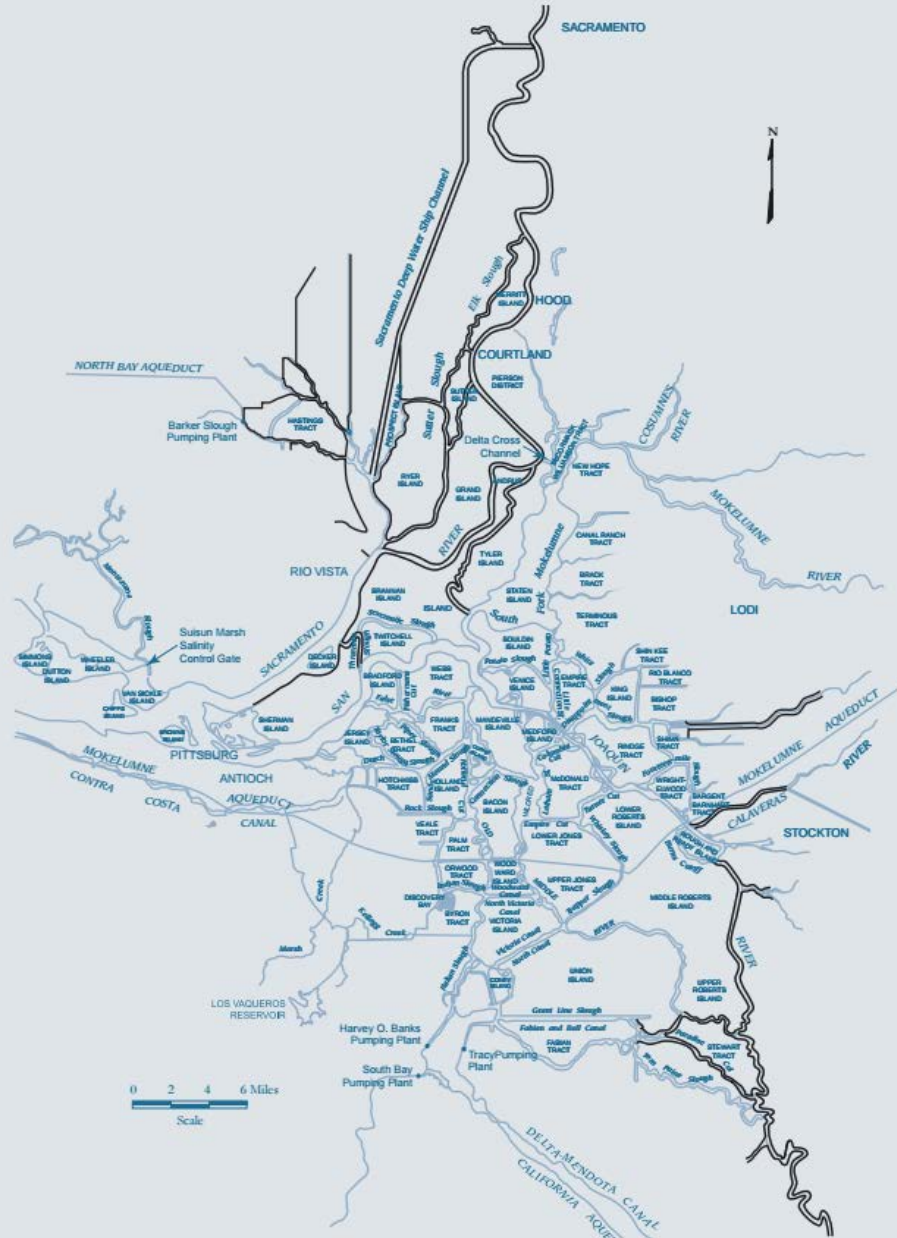




# PROJECT VS NON-PROJECT LEVELS

Federal Flood Control Project Levees

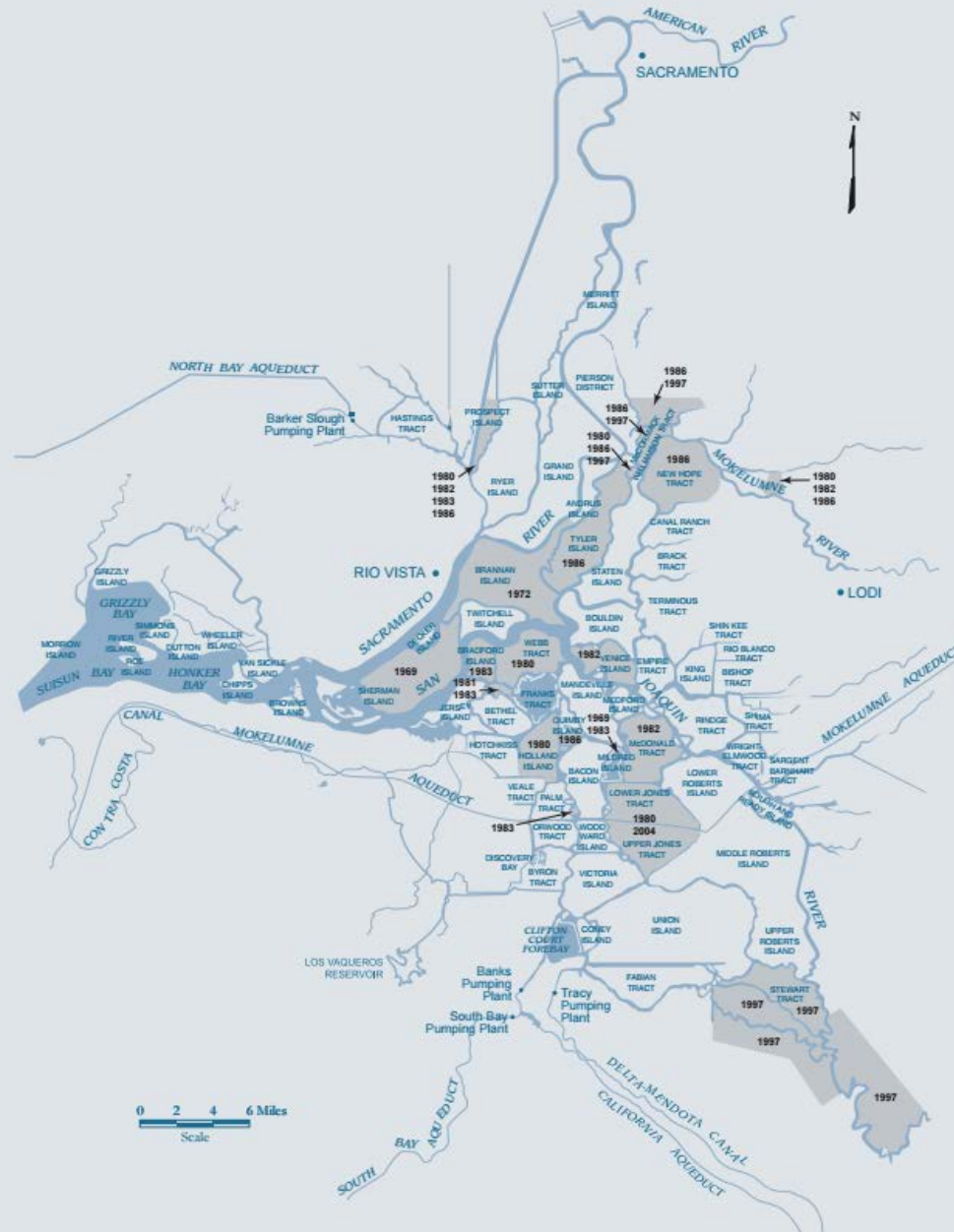
Local Flood Control Nonproject Levees







# HISTORIC FLOODING 1967-2004







# TWITCHELL ISLAND – HIGH WATER EVENT 2006





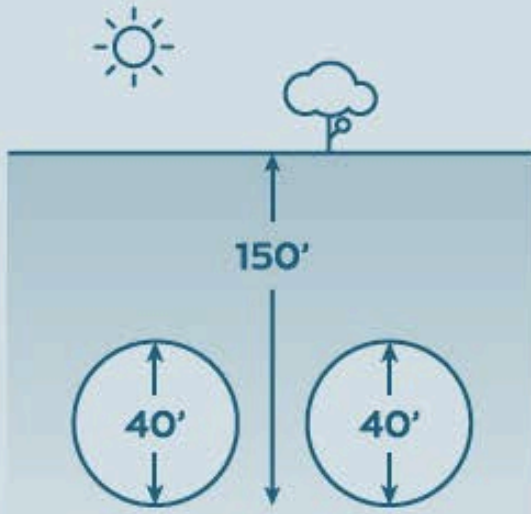
# PROTECTING CALIFORNIA'S WATER SUPPLIES

- The existing system is outdated, inefficient and in need of repair.
- Without fixes to our water supply infrastructure, the Delta and the state's economy face threats.

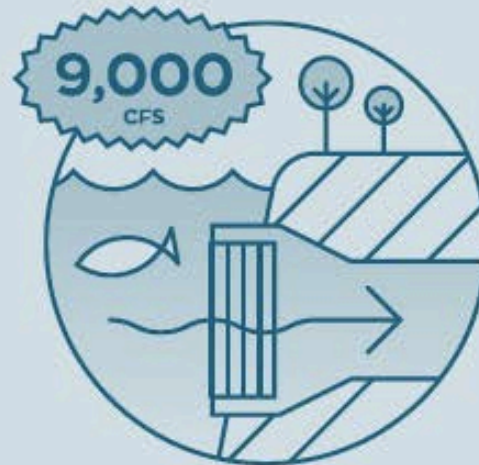
<p>①</p> <p>CLIMATE CHANGE</p>  <ul style="list-style-type: none"><li>• <b>Sea levels continue to rise</b>, putting pressure on aging levees, some protecting islands more than 20 feet below sea level.</li><li>• With warmer average temperatures expected, more intense storms and floods are likely, <b>increasing pressure on dirt levees.</b></li></ul>	<p>②</p> <p>SEISMIC RISK</p>  <ul style="list-style-type: none"><li>• Five active fault lines and many more inactive <b>fault lines pose a threat to our existing water delivery system.</b></li><li>• A major earthquake or storm could cause flooding on as many as 20 islands at once and <b>jeopardize statewide water supplies.</b></li></ul>	<p>③</p> <p>ENVIRONMENTAL DECLINE</p>  <ul style="list-style-type: none"><li>• <b>Existing operations cause reverse river flows</b>, trap and kill migrating salmon, and have contributed to a severe decline in delta smelt.</li></ul>
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# 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.



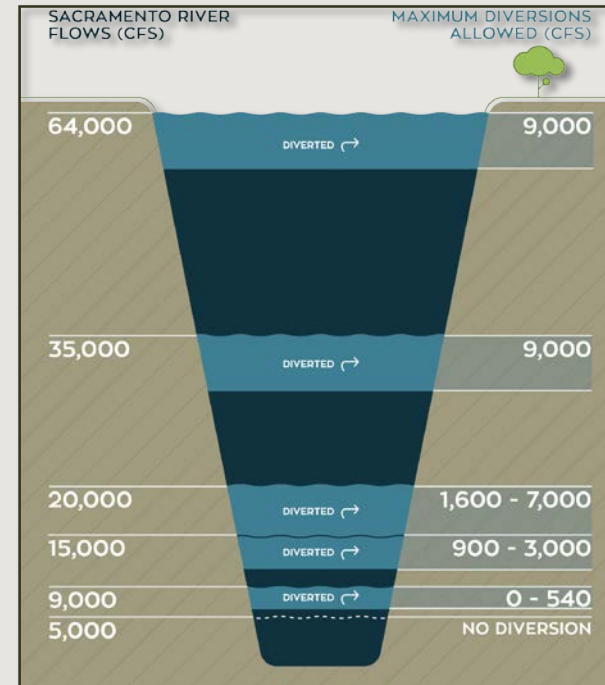
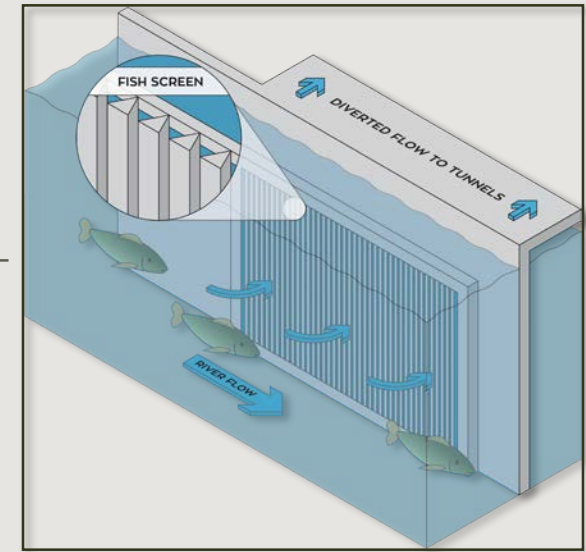
Protection against water supply disruption from failure of aging levees due to sea-level rise, earthquakes and flood events





# PROTECTING FISH

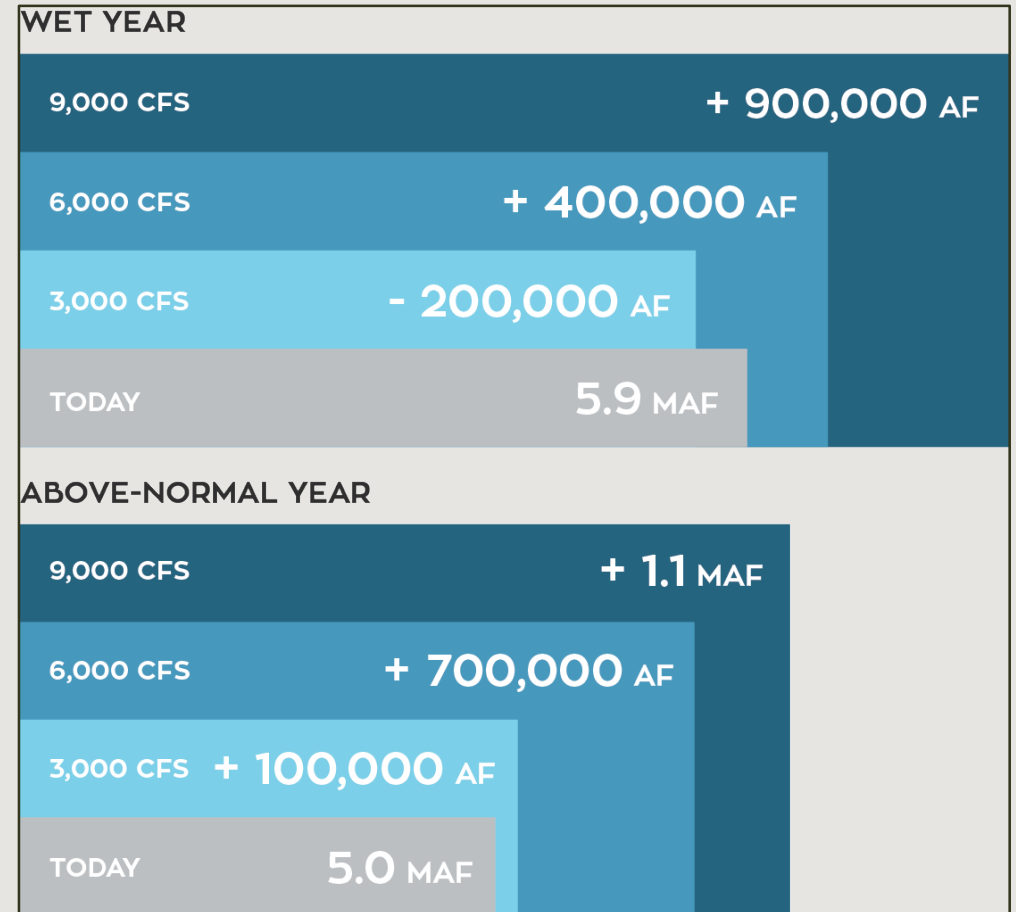
- A new water conveyance system can improve environmental flows over and above current conditions:
  - New criteria to protect spring outflow to San Francisco Bay
  - Improve flexibility to avoid water diversions at locations that harm fish
  - More natural direction of South Delta flows
  - Protect fish with state-of-the-art fish screens
  - Protect Sacramento River flows





## FACILITY SIZE & YIELD

- Proposed 9,000 cfs facility is the best option for:
  - Reducing reverse flows and minimizing the trapping of migrating fish
  - Enhancing the ability to store surplus outflows and reduce diversions during critical fish migration periods
  - Improve drinking water quality
  - Expand groundwater recharge and recycling
  - Protect against water outages





# ENVIRONMENTAL MITIGATION

Approximately 2,100 acres of habitat restoration to mitigate for construction and operation of new facilities.



**5 MILES**  
Improve habitat conditions along five miles of important juvenile salmon migration routes

Restore tidal and non-tidal wetland habitat to sustain habitat functions for native wildlife, such as the giant garter snake and salmon

Restore native riparian forest and scrub to support habitat for riverside species and improve linkages for terrestrial and other native species

Improve connectivity among existing patches of grassland and other natural habitats





# AFFORDABILITY

- Estimated project cost is \$14.9 billion – or about \$5 a month for urban water users.
- Paid for by public water agencies that rely on the supplies.



An Adaptive Management and Monitoring Program will guide real-time operations of the system.



Our communities – farms, businesses, homes – and economy depend upon reliable, affordable, high-quality water supplies.



The time to act is now. Californians cannot afford a broken and unreliable water delivery system.



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## CALIFORNIA ECORESTORE

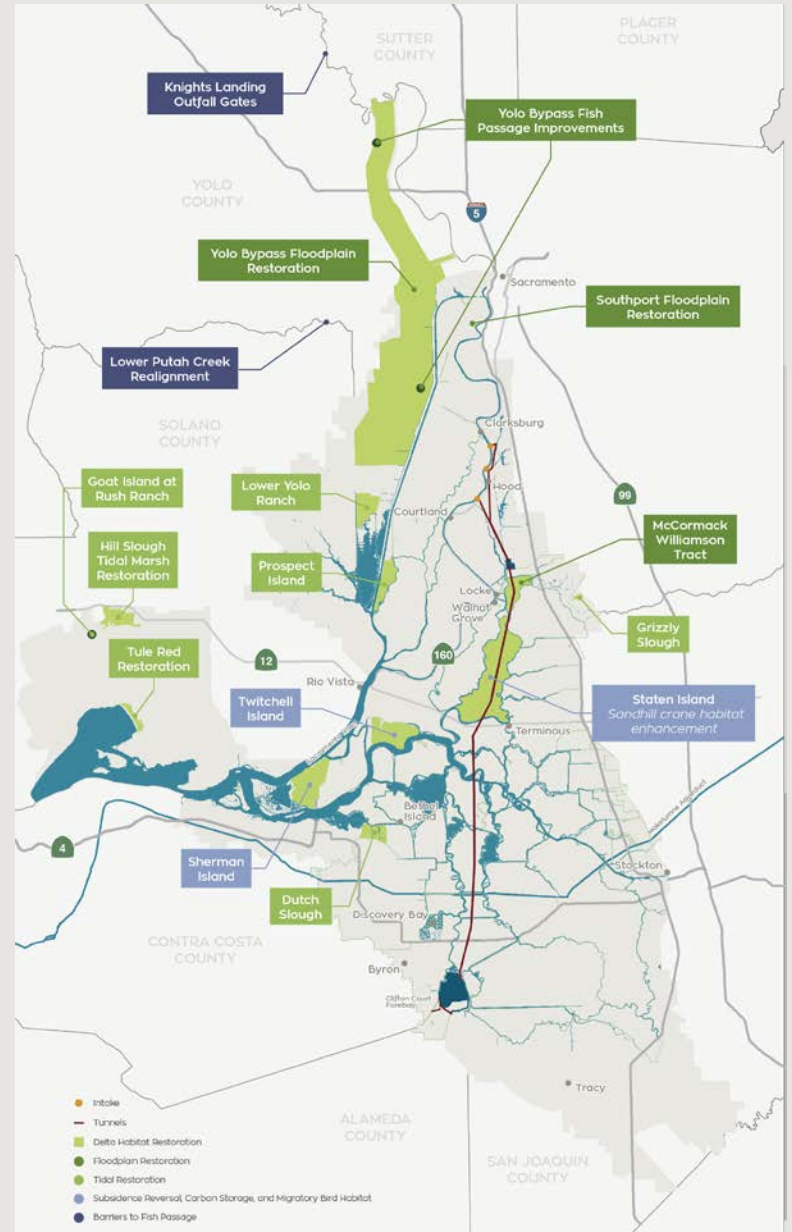
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- Program will accelerate and implement a comprehensive suite of habitat restoration actions.
- More than 30,000 acres over the next 5 years.
- Actions include critical Delta restoration and pre-existing regulatory requirements and enhancements to improve overall health of the Delta.
- Projects identified through locally-led process facilitated by the Delta Conservancy.
- Projects implemented by the Delta Conservancy in collaboration with local governments.
- Funding provided through multiple sources.



# RESTORATION OBJECTIVES BREAKING GROUND IN 2015/2016

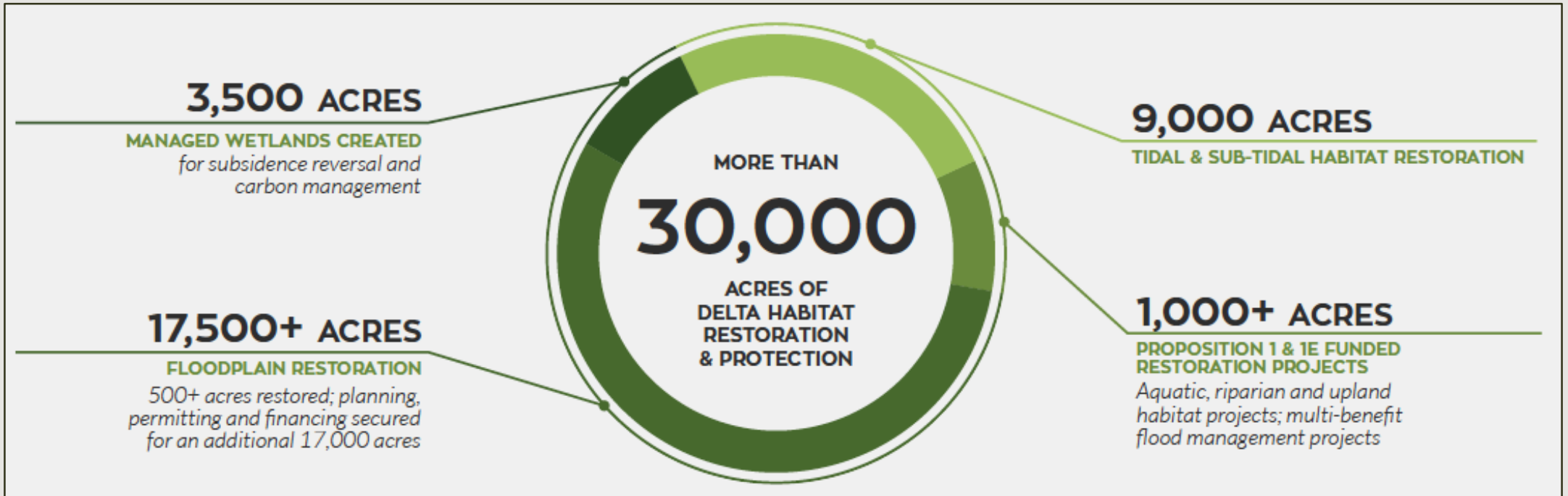
- 2015:
  - Dutch Slough
  - Knights Landing Outfall Gates
- 2016:
  - Southport
  - McCormack-Williamson Tract
  - Hill Slough
  - Goat Island at Rush Ranch
  - Tule Red Restoration







# PROJECT TYPES & ACREAGES






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## STAY INVOLVED

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[www.californiawaterfix.com](http://www.californiawaterfix.com)

 “CAWaterFix” / “CAEcoRestore”

 California WaterFix / California EcoRestore



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# QUESTIONS

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