

# Water Education Foundation

October 10, 2018



**NCWA**  
Northern California Water Association

# Sacramento Valley

**A truly unique and exceptional place**



# Sacramento Valley

What do you think about the Valley?





# The Sacramento Valley

*A unique mosaic of farm lands, wildlife refuges, managed wetlands and high quality rivers and streams that support waterfowl habitat and spawning grounds for numerous fish species and the cities and rural communities that make up this special region.*



# CALIFORNIA Water



The California Water Plan is a blueprint for the state's water future. It provides a framework for the state's water policy and is the basis for the state's water program. The plan is a living document that will be updated as the state's water needs and conditions change.



**Water Quality**  
The California Water Plan includes a goal to protect and improve the state's water quality. This includes protecting the state's watersheds and ensuring that water is clean and safe for drinking and recreation.



**Water Conservation**  
The California Water Plan includes a goal to promote water conservation and efficiency. This includes encouraging the use of water-saving technologies and practices in homes, businesses, and industries.



**Water Infrastructure**  
The California Water Plan includes a goal to invest in water infrastructure. This includes funding for the construction and maintenance of dams, levees, and water treatment plants.



**Water Access**  
The California Water Plan includes a goal to ensure that all Californians have access to clean, safe water. This includes investing in water infrastructure in rural and underserved areas.

**Water Security**  
The California Water Plan includes a goal to ensure the state's water security. This includes diversifying the state's water sources and improving the state's ability to respond to drought and other water-related challenges.



**Water Stewardship**  
The California Water Plan includes a goal to promote water stewardship. This includes encouraging the public to take responsibility for the state's water resources and to use water wisely.



**Water Equity**  
The California Water Plan includes a goal to promote water equity. This includes ensuring that all Californians have equal access to water and that water is distributed fairly.



**Water Innovation**  
The California Water Plan includes a goal to promote water innovation. This includes supporting research and development in water technology and infrastructure.



**Water Resilience**  
The California Water Plan includes a goal to promote water resilience. This includes improving the state's ability to withstand and recover from water-related disasters and climate change.

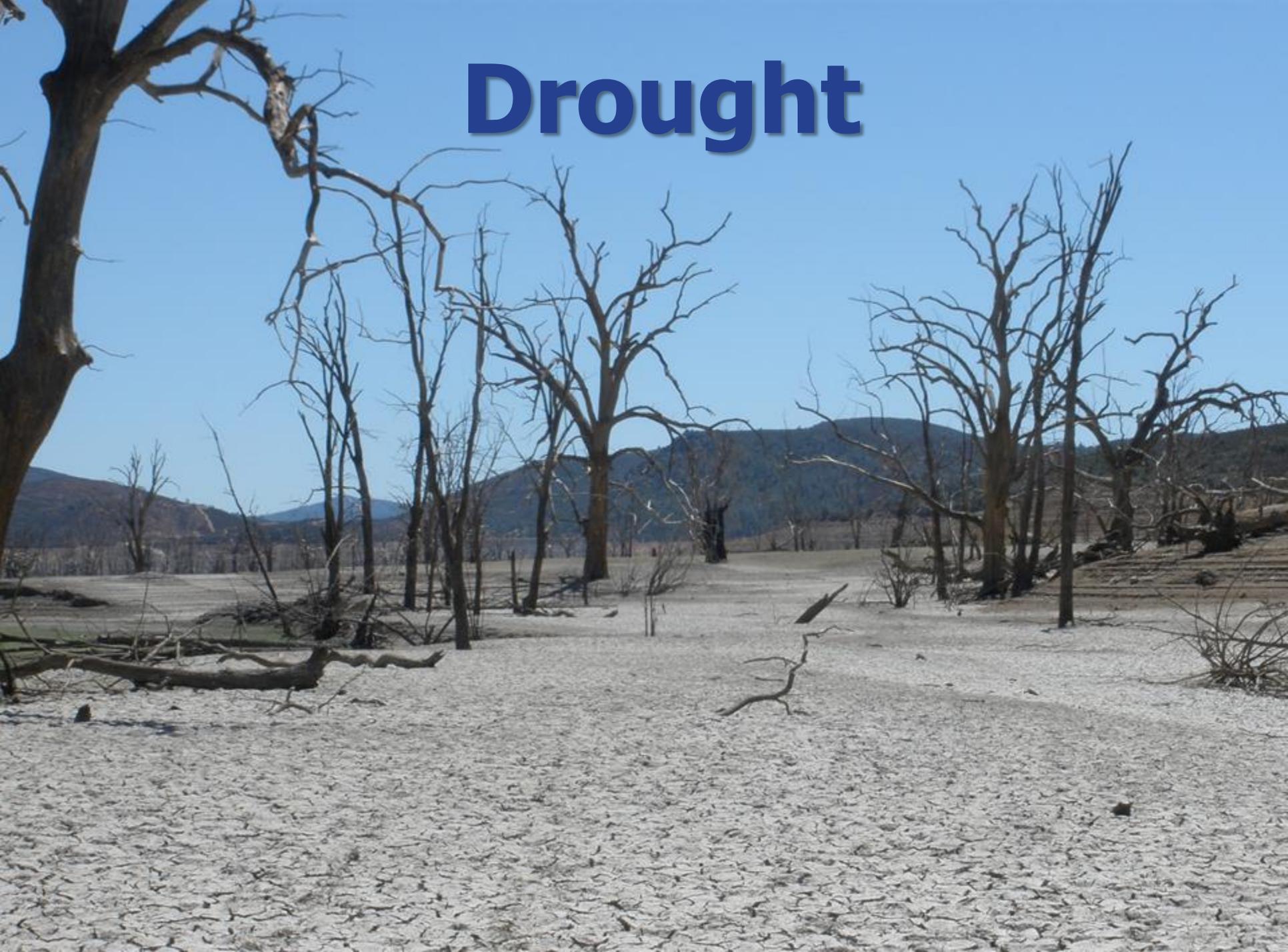


California State Water Resources Control Board  
1001 L Street, Sacramento, CA 95833  
916.227.2000  
www.cswrcb.com

# Flooding

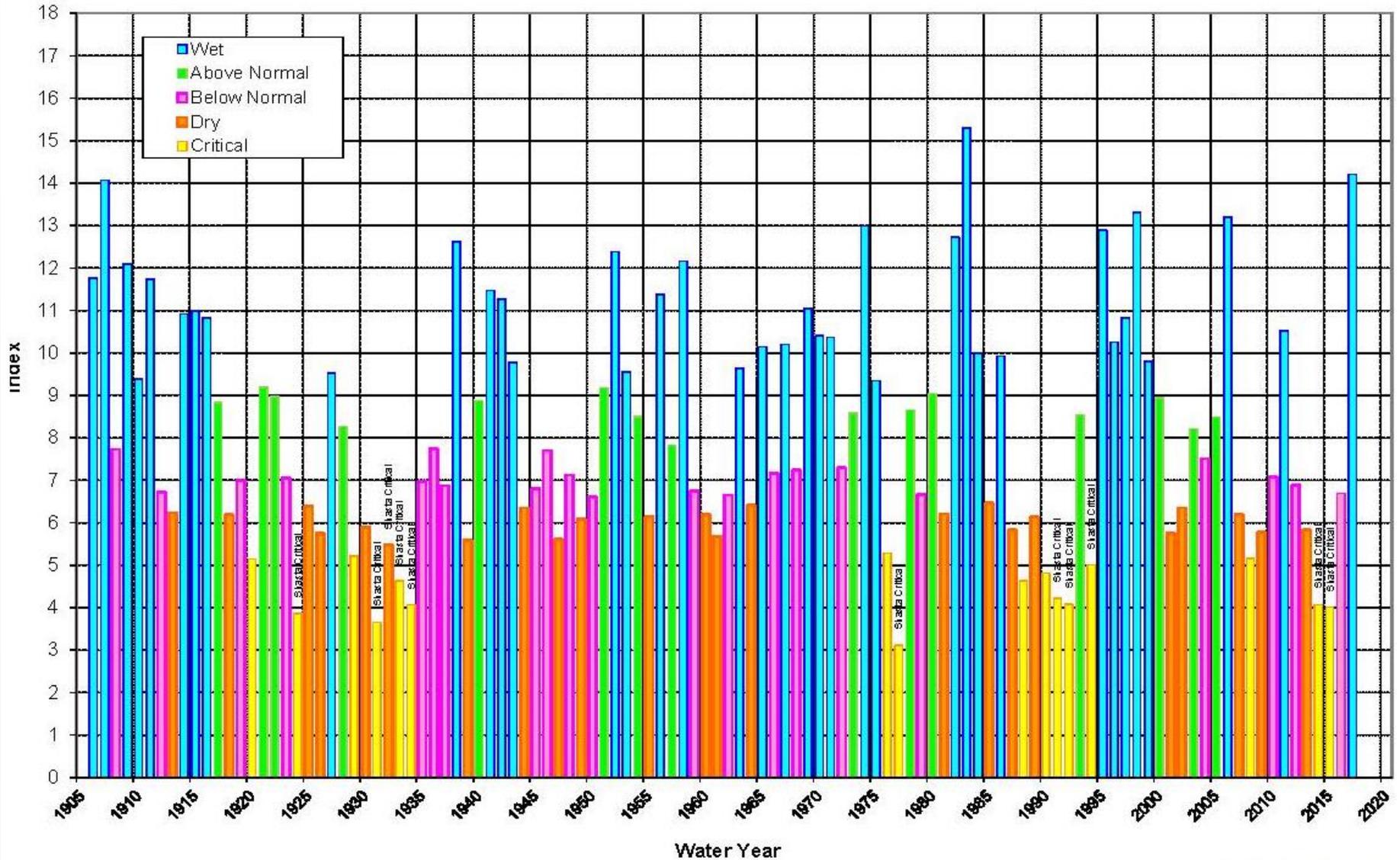


# Drought



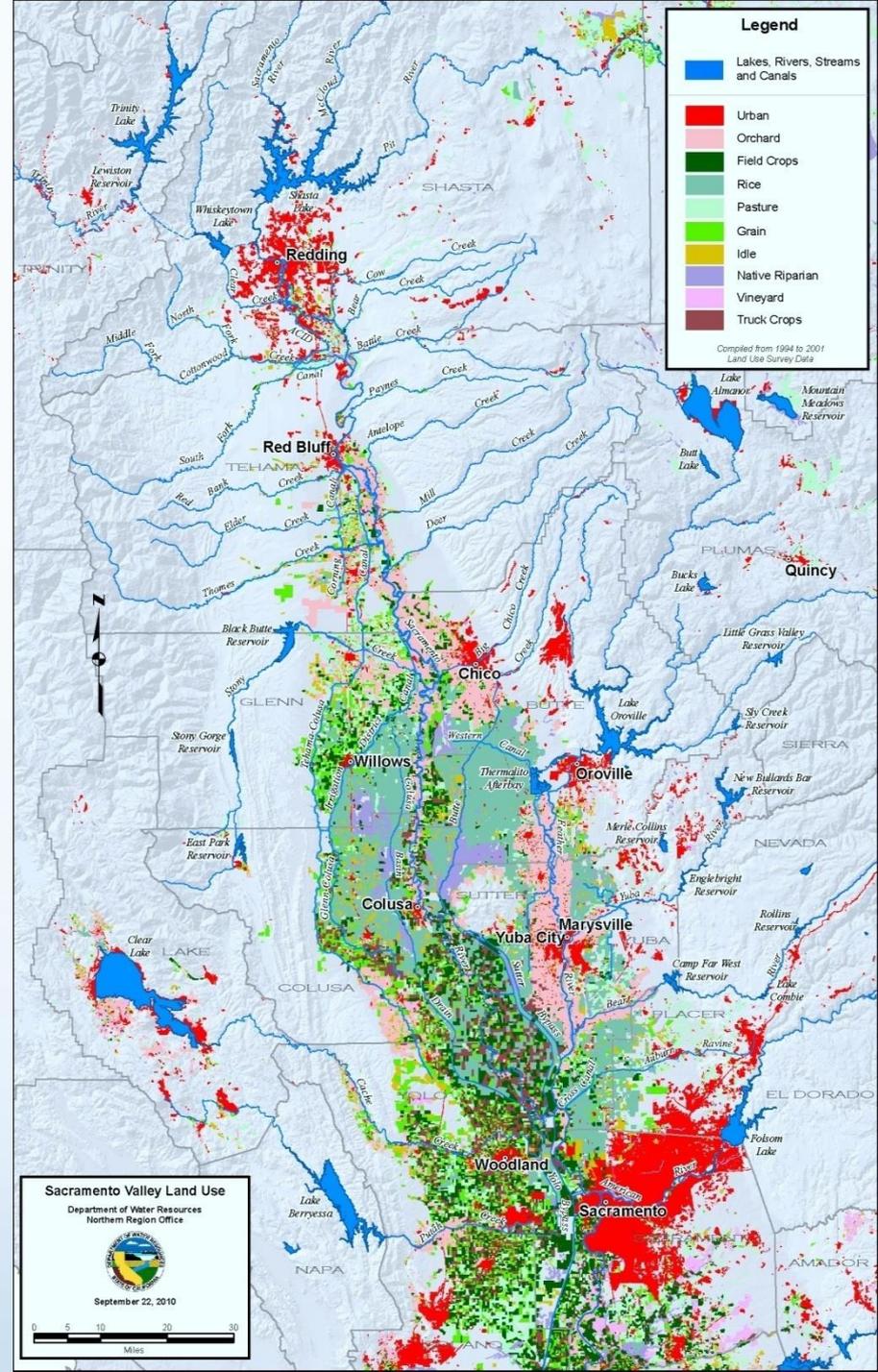
# Sacramento Valley Water Year Type Index (40-30-30) 1906 - 2017

Based on Observed Unimpaired Runoff

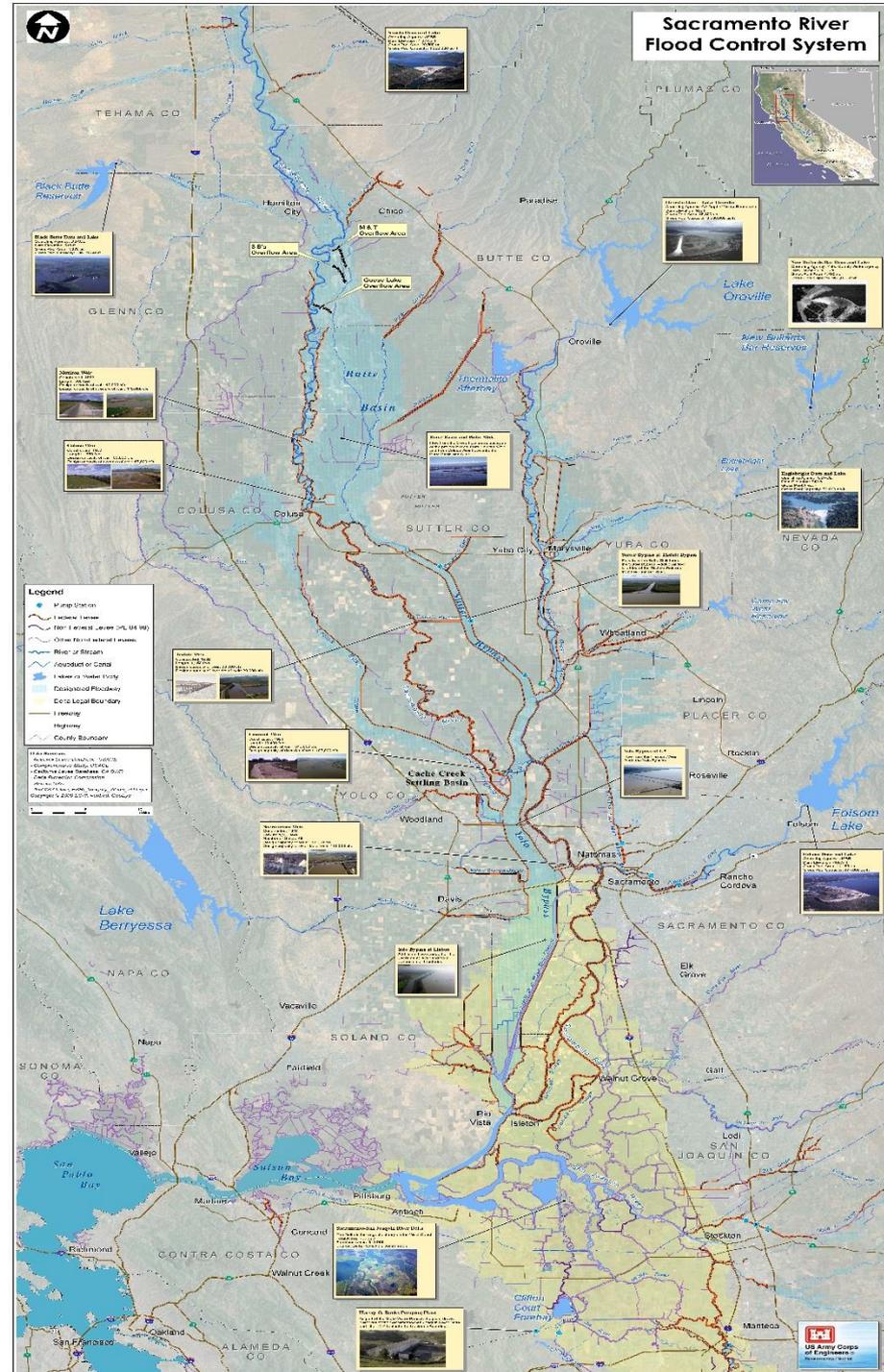


# Sacramento Valley Land Uses

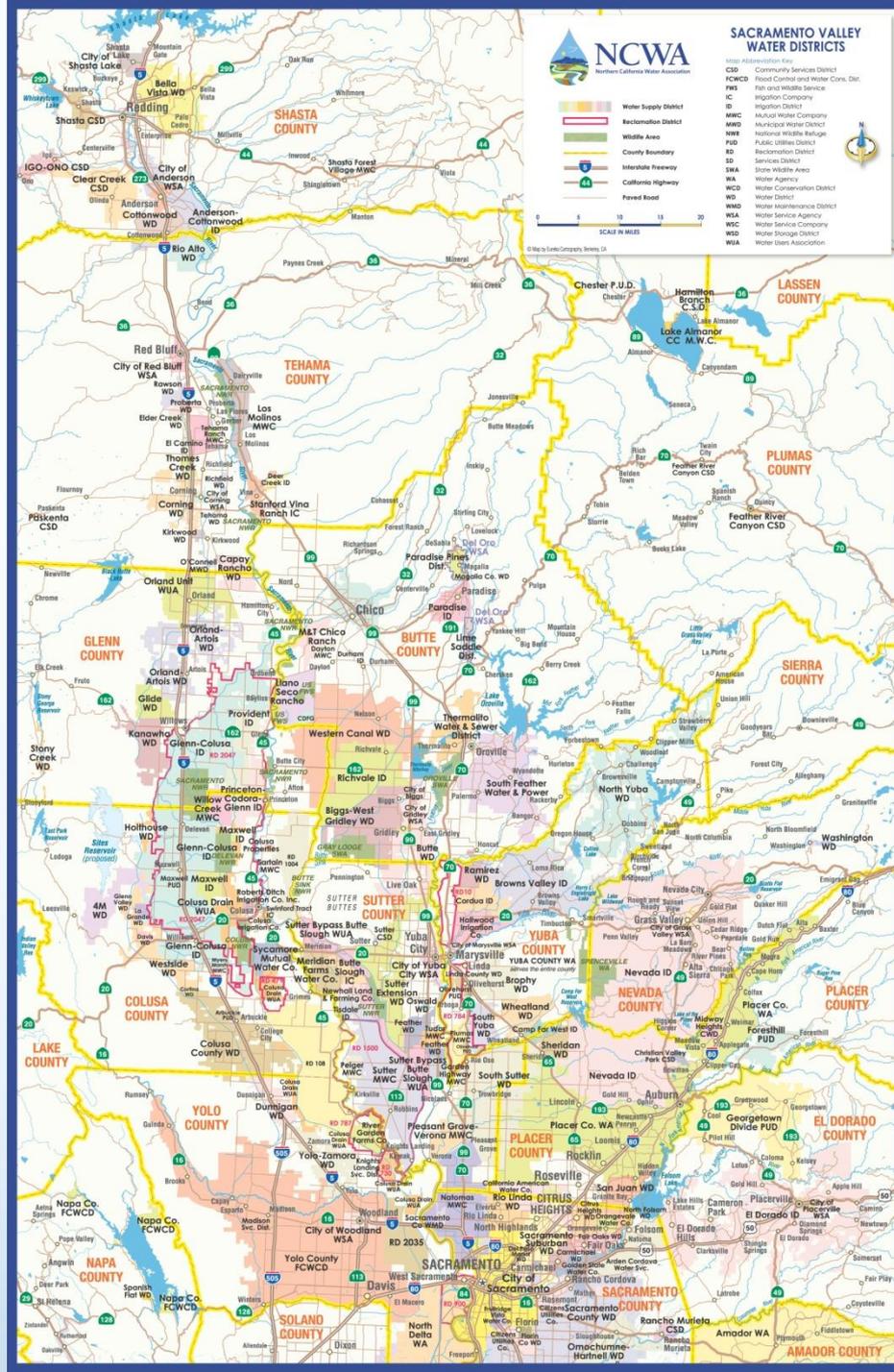
- **Urban**
- **Agriculture**
- **Wetlands**



# Sacramento River Flood System



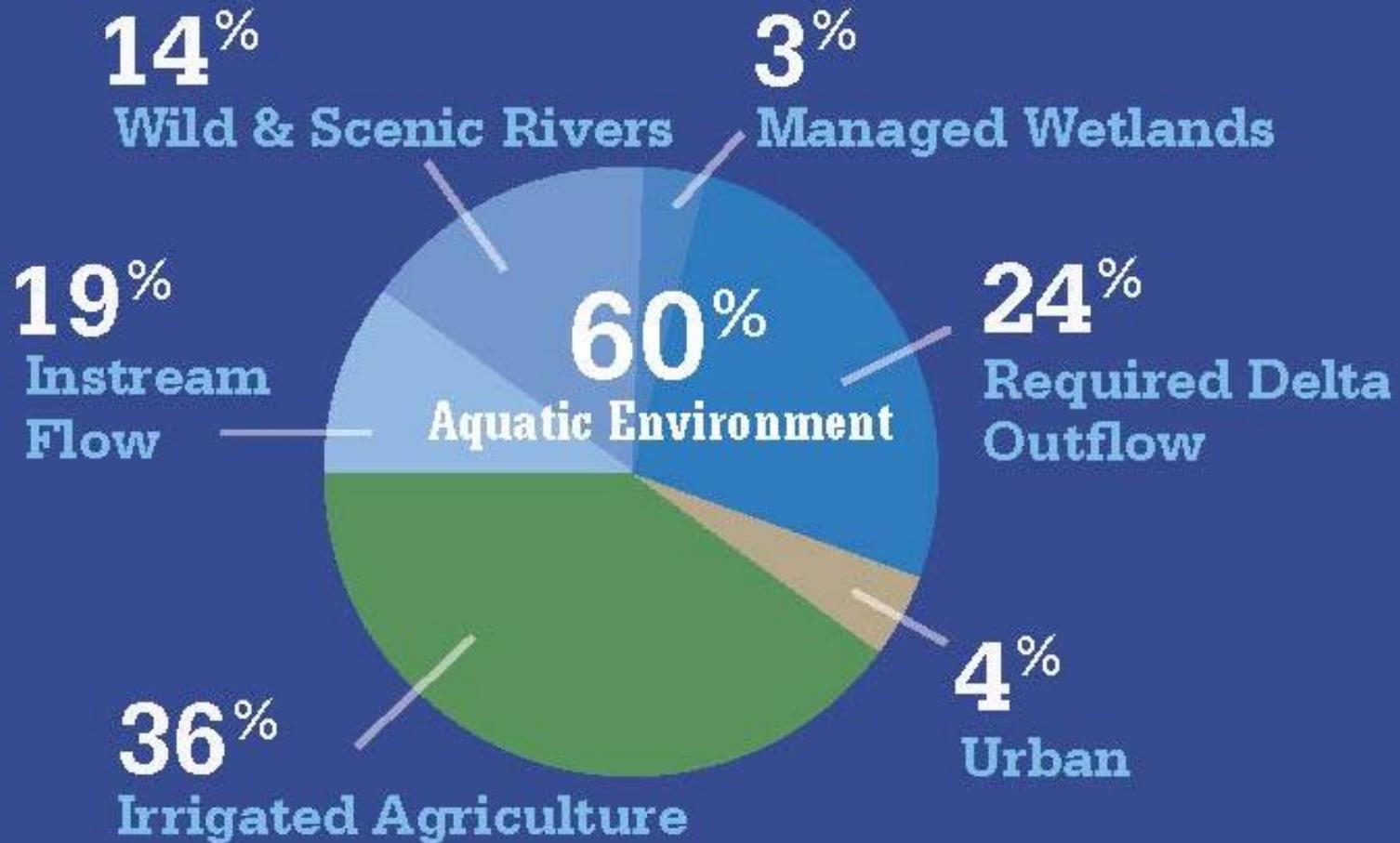
# Water Resources Management Entities



# Cornerstone for Central Valley/ State Water Projects



# Sacramento Valley Applied Water Use



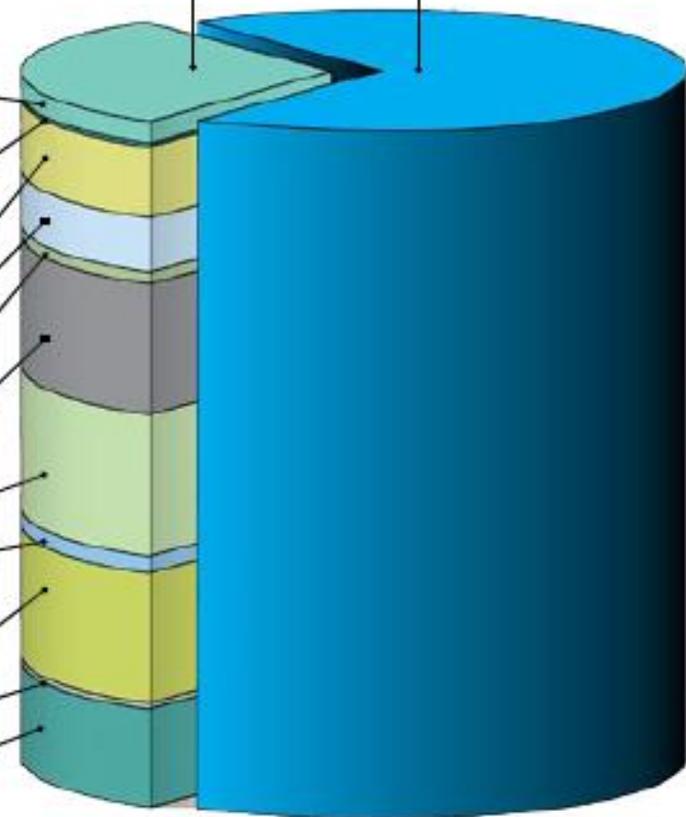
# Sacramento Valley Water Supplies

Use met by other water sources:  
6,265 TAF 70% of total

Use met by Groundwater:  
2,743 TAF 30% of total

## Planning Area:

- Shasta-Pit 3%
- Upper Northwest Valley <1%
- Lower Northwest Valley 10%
- Northeast Valley 8%
- Southwest 2%
- Colusa Basin 19%
- Butte-Sutter-Yuba 21%
- Southeast 2%
- Central Basin West 19%
- Sacramento Delta 1%
- Central Basin East 14%



# Sacramento Valley Hallmark

## Managing Water for Multiple Beneficial Uses





## Managing Water in the Sacramento Valley for Multiple Benefits

Water resources managers in the Sacramento Valley are actively implementing various multi-benefit programs and projects for the 21st century that “restores natural aquatic or riparian functions or wetlands habitat for birds and aquatic species, protects or promotes the restoration of endangered or threatened species, enhances the reliability of water supplies on a regional and inter-regional basis, and provides significant regional or statewide economic benefits.” – Proposition 68

The Sacramento Valley is a unique place. Bounded on the east by the Sierra Nevada and the west by the Coast Range, the Valley sweeps 150 miles from Redding to Sacramento.

A mosaic of beautiful, picturesque farmland, world-class wildlife reserves and thriving communities—interwoven with dynamic rivers and streams. Nowhere are natural and human resources more closely integrated and cared for than the Sacramento Valley.

The Sacramento Valley is a funnel that focuses water from the Sierra Nevada, Cascade and Coastal Range into a highly managed system that protects people from floods and makes water supplies available at the right time, with the same water serving multiple beneficial purposes for the natural and working landscape as it flows through the Valley.



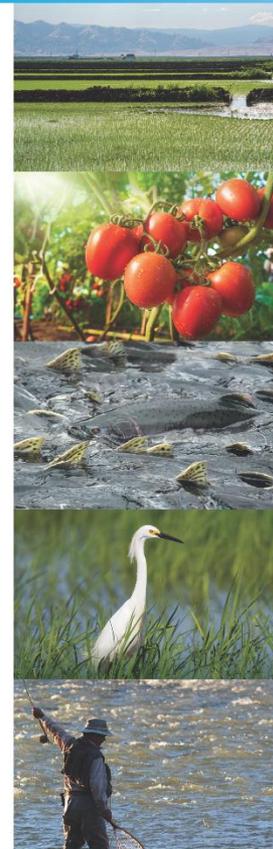
Families have built farms and communities based on the Sacramento Valley’s unique blessing of water, soil and sun. Today, **nearly two million acres of pastoral family farms**—world renowned ricelands, nuts, fruit, tomatoes, fresh produce and irrigated pasture—propel the Valley’s economic engine. The Valley’s farmland is unique in the way it provides habitat and food for salmon and birds along the Pacific Flyway.

The home for California’s capital and more than 3 million people. Half of these people live in the Sacramento metropolitan area, with the other half sprinkled in rural communities throughout the Valley. The Sacramento Valley has a deep connection between the urban and rural areas that is reflected in **Sacramento’s designation as America’s Farm to Fork Capital**.

Four runs of **salmon migrate and spawn in different parts of the Sacramento Valley**, with the winter-run and spring run considered endangered. Every part of the water system has been re-managed and will continue to be modernized over time to improve conditions for salmon through active collaboration as part of the [Sacramento Valley Salmon Recovery Program](#).

The Pacific Flyway is a resource of international significance. The Sacramento Valley has **seven National Wildlife Refuges, more than 50 state wildlife areas and ricelands that serve as habitat for nearly 250 species**. Water diversions for ricelands and refuges provide much-needed food and habitat for waterfowl, shorebirds and other species. The Flyway is heaven on earth for wildlife enthusiasts, naturalists and birdwatchers.

The forests and meadows in the numerous watersheds of the Sierra Nevada, Cascade and Coast Range that **provide recreation and serve as the vital headwaters** for the region.



### Like a human fingerprint, California’s Sacramento Valley is truly unique.

On the leading edge of ecological and economical sustainability, it’s also an exceptional place to live, work and raise a family. The Sacramento Valley joins together a world-renowned mosaic of natural abundance: productive farmlands, wildlife refuges and managed wetlands, cities and rural communities, and meandering rivers that support and feed fisheries and natural habitats. Through efficient management of the region’s water resources, the Sacramento Valley will continue to provide what’s essential to California’s future success and prosperity. Nourishment and sustenance from the fields, habitats for fish and wildlife, recreation and a special quality of life — the Sacramento Valley is home to all of this, and more.



# Sacramento Valley

Two million acres of **family farms** that provide the economic engine for the region through the production of rice, trees, and various row crops that serve as a working landscape and pastoral setting and provide valuable habitat for waterfowl along the Pacific Flyway.



# Sacramento Valley



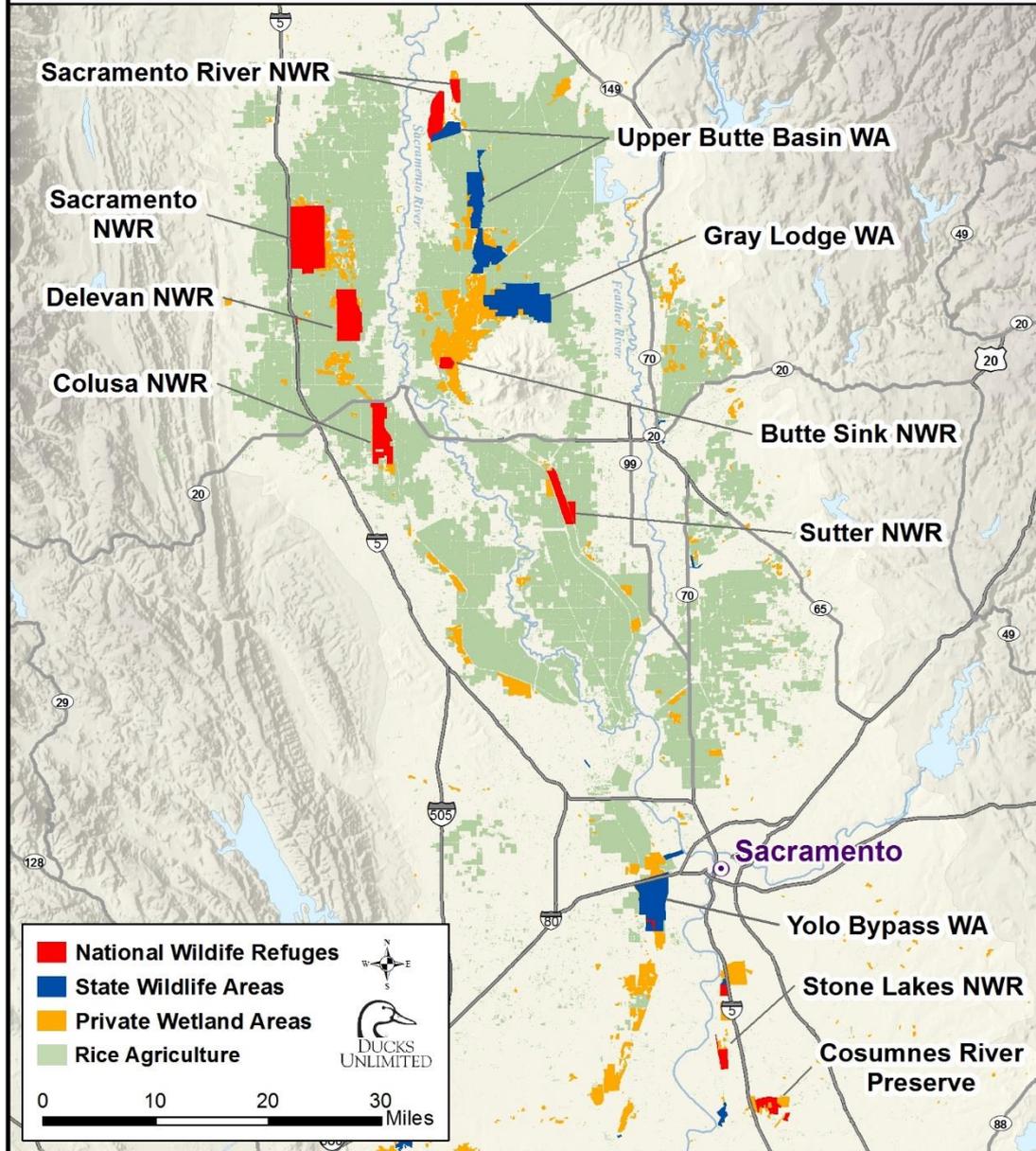
Habitat for 50% of  
the *threatened*  
*and endangered*  
species in  
California,  
including the  
winter-run and  
spring-run salmon,  
steelhead and  
many other fish  
species.

# **Sacramento Valley**

**six National Wildlife Refuges, more than fifty state Wildlife Areas and other privately managed wetlands that support the annual migration of waterfowl, geese and shore birds in the Pacific Flyway. These seasonal and permanent wetlands provide 65% of the North American Waterfowl Management Plan objectives;**



# Wetland Areas and Rice Fields in the Sacramento Valley of California





# Pacific Flyway Partners



# Sacramento Valley

**The small towns and rural communities** that form the backbone of the region, as well as the **State Capital** that serves as the center of government for the State of California.



# **Sacramento River Conservation Area**

**Established 1986 (SB1086)**

**A management plan to protect, restore and enhance the fisheries and riparian habitat along the Sacramento River from Keswick Dam down river to Verona. This effort is cooperative in nature and works to ensure that habitat restoration and management addresses not only the dynamics of riparian ecosystems, but also the realities of local agricultural and recreational issues associated with land use changes occurring along the river.**



# **Sacramento Valley Headwaters**

**The forests, meadows and canyons  
in the **watersheds** of the  
Sierra Nevada and Coast Range.**



# Water Management Opportunities

## Accounting for every drop. Water management in the Sacramento Valley.

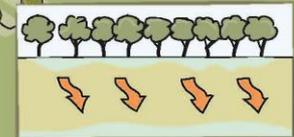
In the Sacramento Valley, a highly efficient "flow-through" system allows water to move from mountains to ocean. Water resources managers work with the Valley's unique topography, geology and hydrology to gather, use and reuse this precious resource.

This system is the heart of the Valley's healthy ecosystem, diverse economy and rich recreational opportunities.

Rice is grown on dense clay soil which prevents seepage and ensures water is available for re-use downstream.



The water not used in one district is a source of water for others downstream.



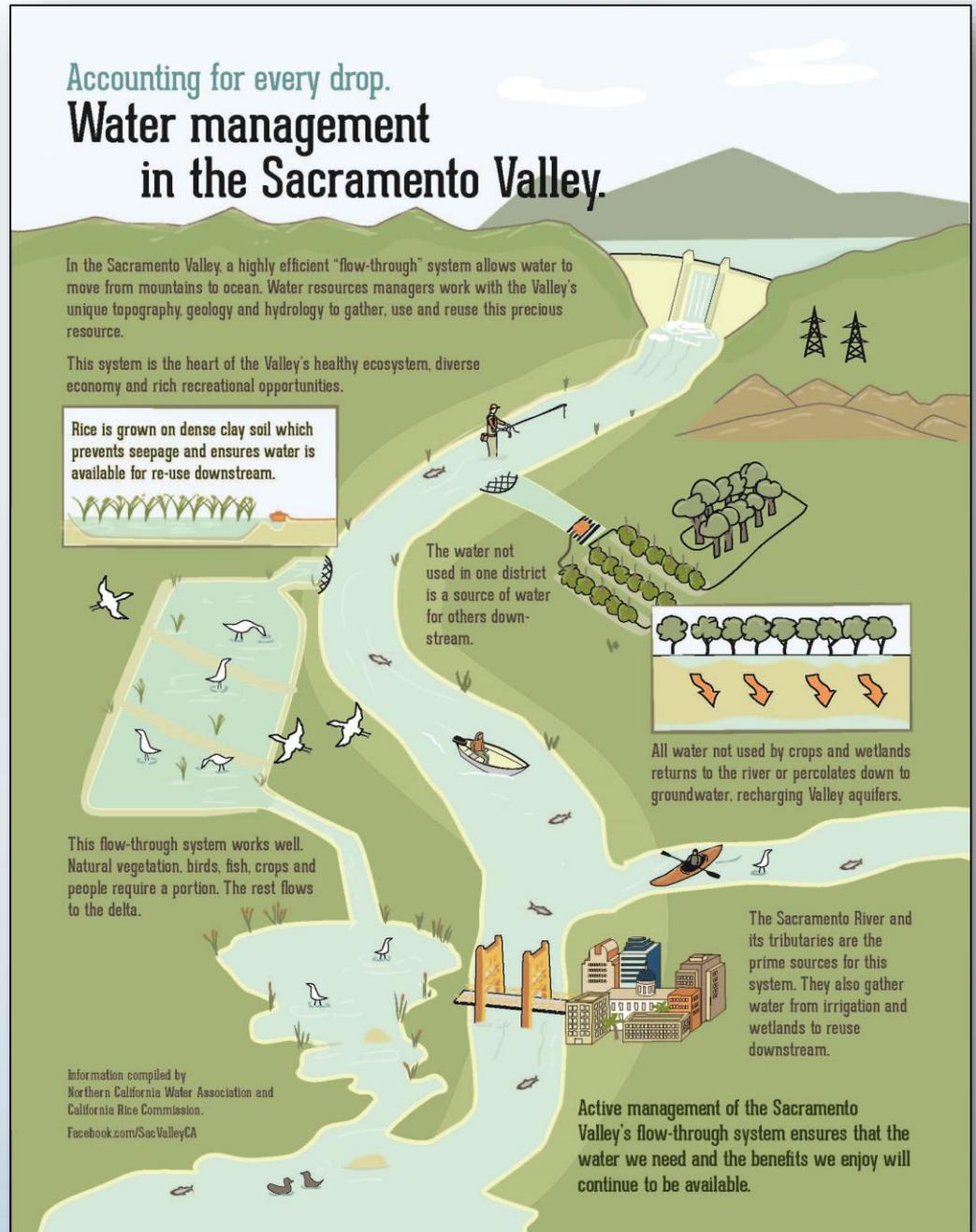
All water not used by crops and wetlands returns to the river or percolates down to groundwater, recharging Valley aquifers.

This flow-through system works well. Natural vegetation, birds, fish, crops and people require a portion. The rest flows to the delta.

Information compiled by  
Northern California Water Association and  
California Rice Commission.  
[Facebook.com/SacValleyCA](https://www.facebook.com/SacValleyCA)

The Sacramento River and its tributaries are the prime sources for this system. They also gather water from irrigation and wetlands to reuse downstream.

Active management of the Sacramento Valley's flow-through system ensures that the water we need and the benefits we enjoy will continue to be available.



3/26/94

# OTHER OPINIONS



'I do too know something about water! I drink Perrier!'

# Since 2000...

**There has been a concerted effort to implement the following types of programs and projects to improve salmon recovery in the Sacramento River Basin:**

- **flow arrangements;**
- **habitat enhancements;**
- **fish passage improvements;**
- **fish-food production projects; and**
- **studies to advance the science that informs management decisions.**

# BUTTE CREEK SALMON RECOVERY

## A Lesson in Functional Flows

The Butte Creek Fish Passage Improvement projects are located along the middle reach of Butte Creek, a tributary of the Sacramento River in California's Central Valley. The various projects together comprise one of the nation's most significant fisheries restoration efforts, with 90 miles of Butte Creek restored for the benefit of spring-run salmon. These projects also divert water for the benefit of farms, birds and other species along the Pacific Flyway.

### BUTTE CREEK FISH PASSAGE IMPROVEMENT PROJECTS:

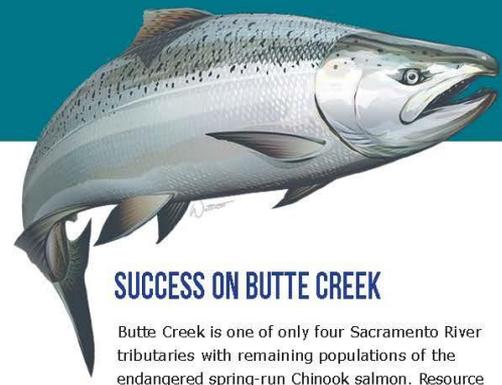


Photo: Ken "Creekman" Da...

### SUCCESS ON BUTTE CREEK

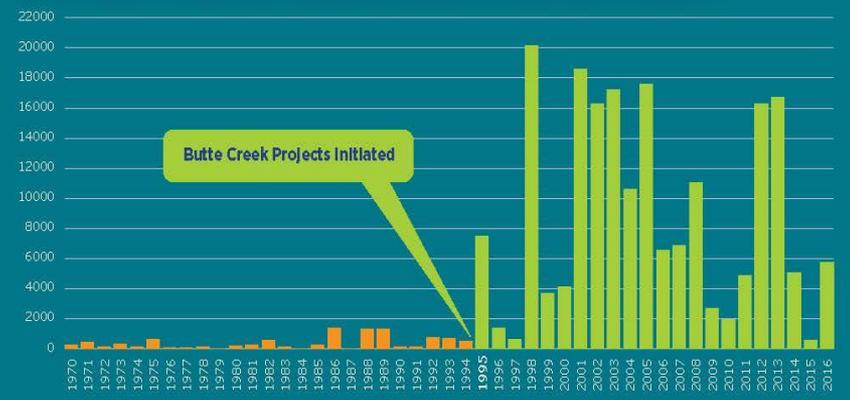
Butte Creek is one of only four Sacramento River tributaries with remaining populations of the endangered spring-run Chinook salmon. Resource agencies and conservation groups value Butte Creek as a keystone in preserving and recovering spring-run salmon, which in some years had dwindled to less than a 100 returning adults from 1970 to the early 1990s. Today, as a result of the Butte Creek Fish Passage Improvement projects, in tandem with a valuable food supply and safe rearing habitat in the Sutter Bypass wetlands, more than 10,000 spring-run salmon return on average to Butte Creek. These projects all provide multiple beneficial uses, serving water for fish, farms, birds and various other species.



Secretary of Interior Bruce Babbitt tearing down McPherrin Dam in 1998.

Pictured above: Central Valley Spring-Run Chinook Salmon Illustration by Paul Waters, courtesy of Cal Trout (Oncorhynchus tshawytscha).

### BUTTE CREEK SPRING-RUN CHINOOK SALMON POPULATION ESTIMATES



Source: CDFW



# Central Valley Salmon Habitat Partnership



# Delta Smelt Food Web Flow Action

Summer 2018



# Modern Flows for the Sacramento Valley

Sacramento Valley water suppliers are committed to the development of a comprehensive plan for the management of water resources that satisfies the co-equal goals of water supply reliability and ecosystem benefits. A priority for that plan is improving habitat for fish and birds, which is best achieved by providing functional and targeted flows that are directly tailored for specific purposes and benefits. This includes existing instream flow arrangements for salmon, as well as spreading water out and slowing it down over the Sacramento Valley landscape for both economic purposes and for returning fish and birds to habitats that more closely match their natural history. This will ultimately benefit the Sacramento Valley and the Delta.

Leaders in the region are making a concerted effort to re-establish the natural connection between water and the landscape. The following are examples of how functional flows that are purposely designed to benefit fish and birds have worked:



Credit: California Rice Commission/Leola Morris

## Birds

Water is spread throughout the region for ricelands and other farms, managed wetlands and wildlife refuges. These areas not only serve as the economic engine for the region, but also as a resting and food source for birds, garter snakes and other water-dependent species along the Pacific Flyway. These managed lands help compensate for the 95 percent of Central Valley wetlands lost over the years.

## Salmon

Over the past decade flows have been re-managed on nearly every watercourse in the Sacramento Valley, designed and tailored for the benefit of salmon. This includes pulse flows, which are being further explored to benefit migrating salmon. Additionally, knowing that food is the primary limiting factor, water managers are advancing a pilot program for producing fish food on farmland by gently inundating lands within the traditional flood plain then returning the food-rich waters to the rivers at a time when it most benefits migrating juvenile salmon.



Credit: Kari "Creekman" Davis

## Delta Smelt

Water suppliers worked with state and federal agencies in 2016 to re-route flows through the Colusa Drain and Yolo Bypass to provide the optimal conditions to create plankton, the critical food source for growing Delta smelt. Initial monitoring indicated that the strategy was effective in boosting downstream food resources for smelt, which could improve ecosystem conditions so more young Delta smelt survive and reproduce.



# Reactivating Floodplains

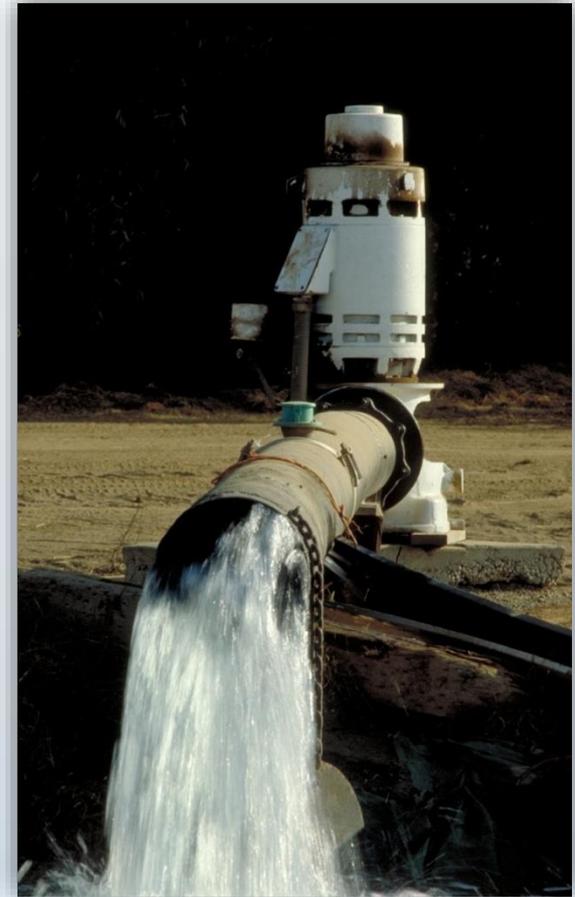


# Active Groundwater Management

## FACT SHEET: The State of Sacramento Valley Groundwater



July 1, 2017



# Public Benefits of Sites Reservoir

## The Sites Reservoir

Adds about 500,000 acre-feet of water annually to California's water system for...



Increases Northern California water storage by

**23%**

and

Can be filled from just one or two major storm events... even during dry years



**1.12 MILLION**

Acre-Feet of Water

Allows an additional 1.12 MILLION acre-feet of water to be stored in other Sacramento Valley reservoirs (i.e., Shasta, Trinity, Folsom, Oroville) during drought years.

## Restores Operational Flexibility to California's Primary Water System

- Captures and stores runoff supplies for use in dry and critical years
- Allows other reservoirs to hold more water later into the summer months
- Increases flood management opportunities
- Supports groundwater recharge

## Mitigates the Effects of Climate Change

- Guards against salinity intrusion in the Sacramento-San Joaquin Delta (Delta) due to sea level rise
- Ideally located to maximize the capture and storage of rain
- Contributes to the state's renewable energy goals
- Mitigates the negative economic and environmental impacts of historic drought conditions

## Provides up to 50% of water to environmental flows, creating a net benefit in:



Water quality improvements



Reduced salinity levels in the Delta



Improved Pacific Flyway habitat for migratory birds and other native species



More reliable cold water for the benefit of salmon in the Sacramento Valley river systems

Meets the Coequal Goals identified in the 2009 Delta Reform Act

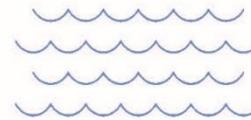
Balances human and environmental needs



## The Sites Project (cont.)

### The Sites Reservoir

holds more than **162 billion** gallons of water...



Enough to serve



**3.7 million**



**Californians**



**1.2 million**



Families, businesses and farms for **ONE YEAR**



### Creates and protects jobs

Thousands of regional and statewide jobs in urban and agricultural centers

### Is a cost effective solution to long-term water needs

Paid for by state and local funding, as well as committed project investors



## Is an Innovative and Modern Water Storage Project

Off-stream reservoir that will not dam an existing river or block fish migration on the Sacramento River, and will protect and enhance the **\$1 billion** in habitat investments made over the past two decades to improve and protect migratory corridors for endangered Salmon and the Pacific Flyway.

Building on two decades of investments for our environment



# Improving Water Quality

## A Regional Plan for Action

*The Sacramento Valley  
Water Quality Coalition*



# **Sacramento Valley Sustainability**

***Provide a sustainable water supply for the unique mosaic of farm lands, wildlife refuges, managed wetlands and high quality rivers and streams that support waterfowl habitat and spawning grounds for numerous fish species and the cities and rural communities that make up this special region.***



# Voices from the Valley

[norcalwater.org](http://norcalwater.org)

[sacramentovalley.org](http://sacramentovalley.org)

## Blogs from the Valley

### The Shift from "They Should" to "We Are"

By Todd Manley Over the years, I have witnessed (and, at times, have been personally guilty of) suggested strategies for addressing water management issues, particularly those with an environmental context, that have centered on proposals that start off with the phrase "They should." Prime examples of this are, "They should pay for it," "They should ..."

[Read Article »](#)

### Water | Food | Environment

The Blog of David Guy

This blog explores the intersection between water, food and the environment - with a focus on the increasing challenges facing California and our efforts to manage and preserve our natural resources for present and future generations.



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[Modern Flows for the Sacramento Valley](#)

[Accounting for Every Drop](#)

[Restoring the Salmon Runs](#)

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STORIES SITES RESERVOIR SALMON PLACES

SACRAMENTO VALLEY

## Water and the Sacramento Valley

There's no other place in the world like the Sacramento Valley. Here, family farms, small towns and the environment are in balance. Wise use of resources will help maintain this one-of-a-kind region for generations to come.

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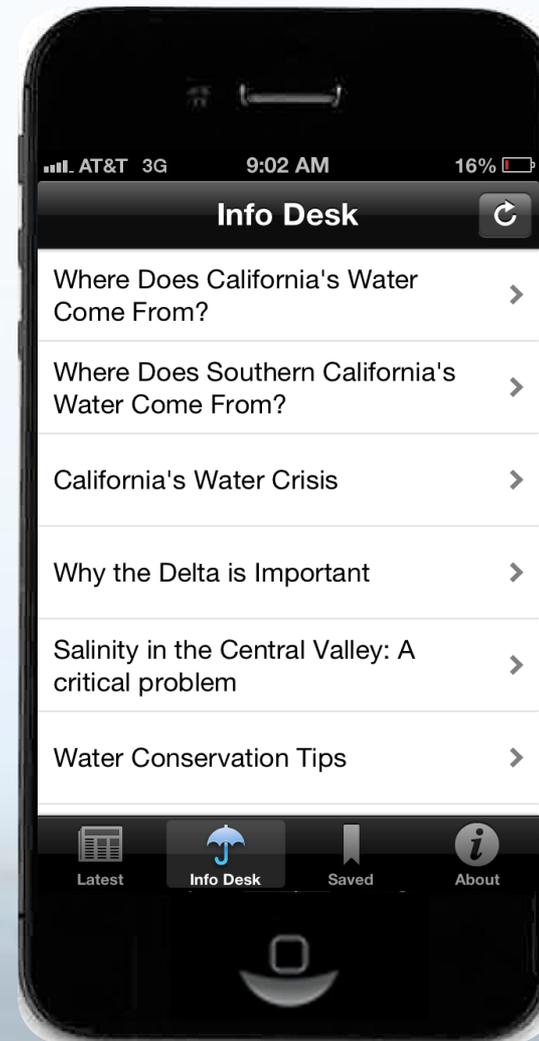
# Aquafornia



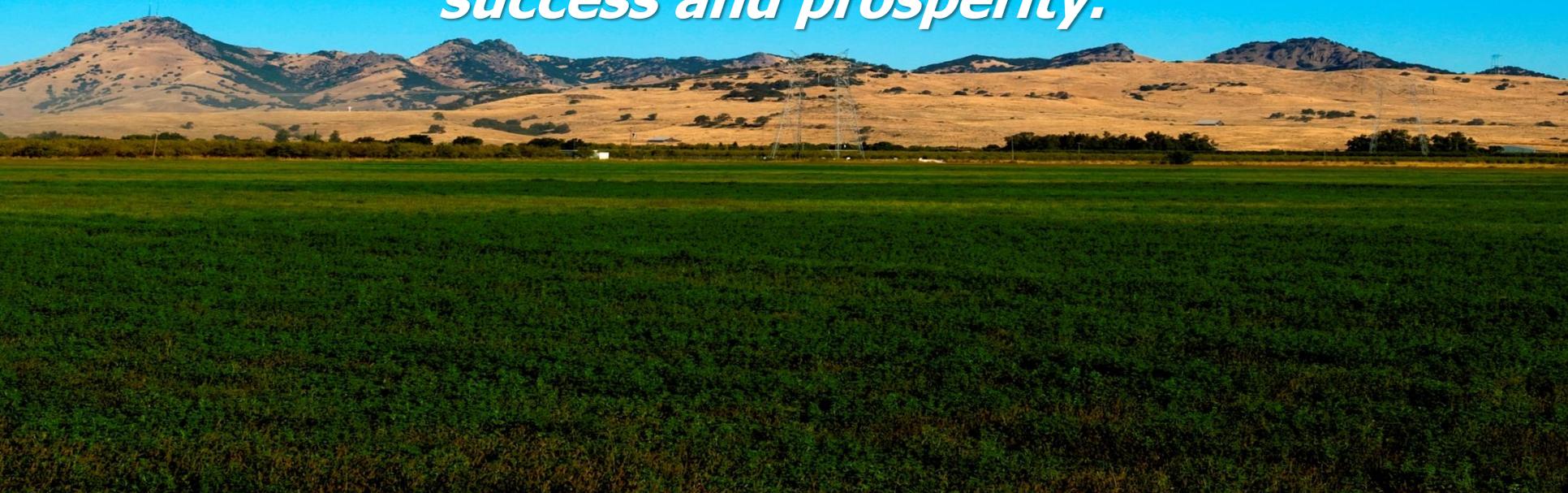
AQUAFORNIA

The California Water News Blog

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



***Like a human fingerprint, California's Sacramento Valley is truly unique. Nourishment and sustenance from the fields, habitats for fish and wildlife, recreation and an exceptionally high quality of life—the Sacramento Valley is home to all of this, and more. Only through the efficient management of the region's water resources will the Sacramento Valley be able to continue to provide what's essential to California's future success and prosperity.***



# Think about...

- **Highly managed water system**
- **Importance of CVP/SWP in region**
- **Multi-benefit water management**
- **Reactivating the floodplain**
- **Innovative and modern flow strategies**
- **A region in balance?**
- **Amazing partnerships**
- **Integration of human and natural dynamics**
- **Passion for the region**





Miles Hermann 07