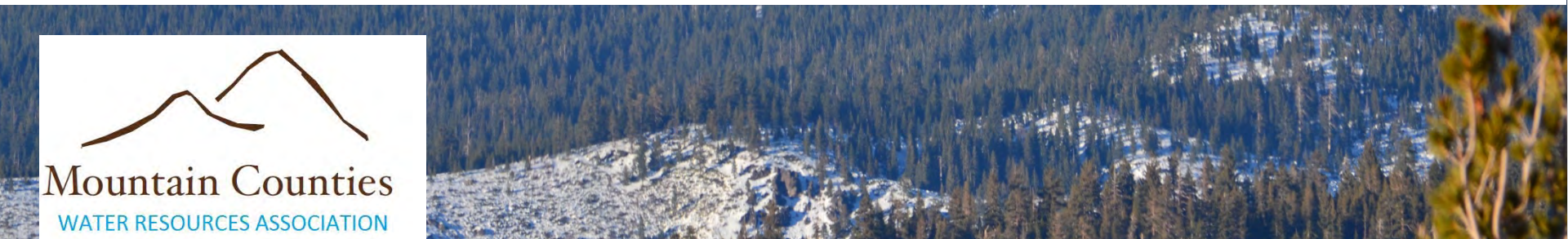
Delta Conservancy Public Workshop

- A View from the Top -

Watershed Challenges and Opportunities for a Sustainable Delta



Mountain Counties
WATER RESOURCES ASSOCIATION

Mountain Counties Water Resources Association

Provide education and legislative advocacy on behalf of its members in the Sierra Nevada foothills upstream of the Sacramento and Joaquin Valleys.

To protect and enhance the mountain Counties water resources throughout the foreseeable future.

Mountain Counties

- 40% of the state's developed water supply originates from Mountain Counties Areas
- 15,758 square miles or 9.9 percent of the State
- 383 miles of Wild and Scenic Rivers under Federal and State Law
- Ten major watershed areas – 13,236 square miles
- 17 million acre-feet of natural runoff

Source: CA Water Plan Update, 2009

The Region is…

Home to 10 major watersheds providing **economic and environmental beneficial uses** for all living things.

American

Bear

Cosumnes

Feather

Merced

Mokelumne

San Joaquin

Stanislaus

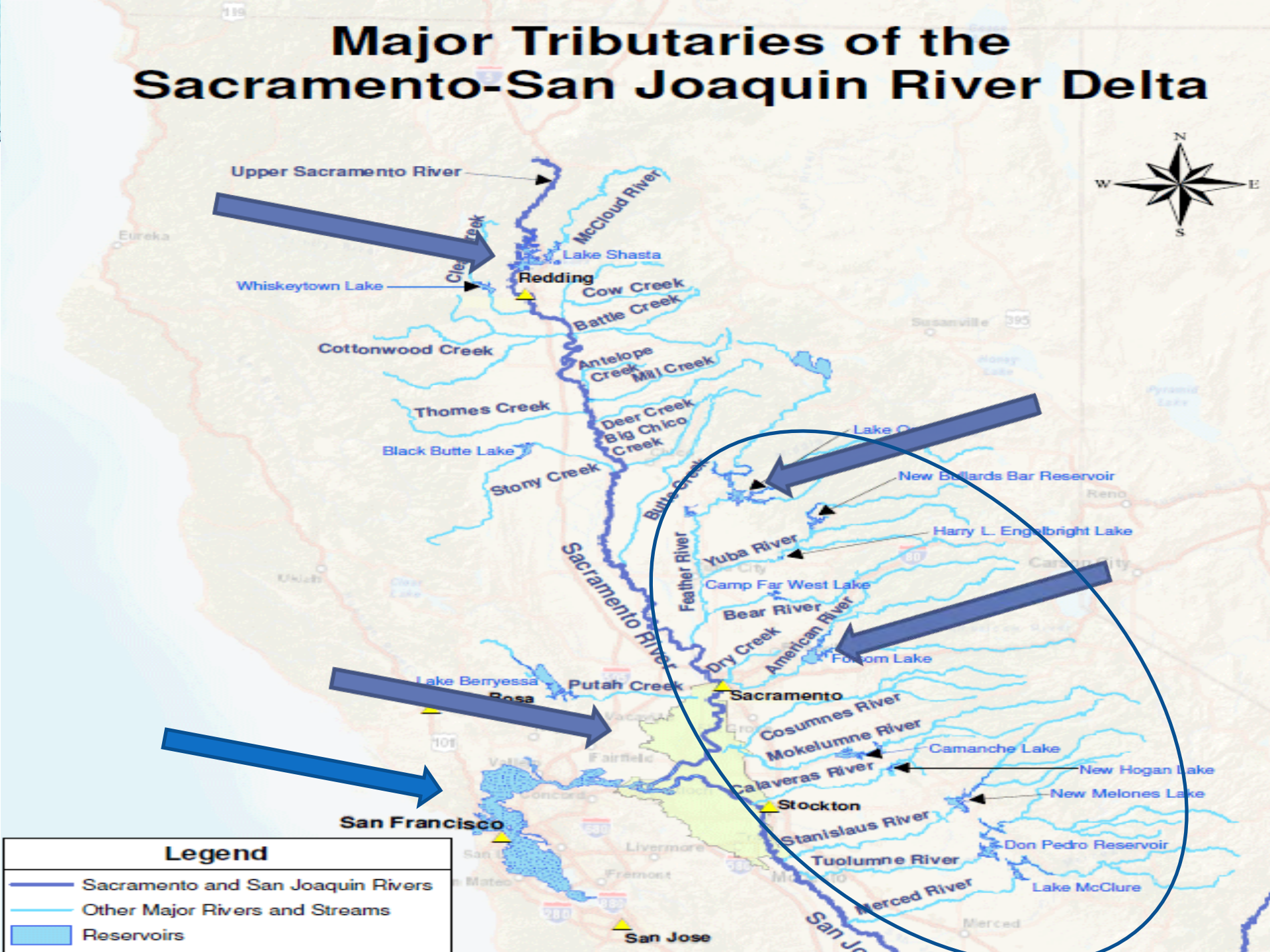
Tuolumne

Yuba

Beneficial Uses

- Domestic
- Agriculture
- Hydro Power
- Recreation
- Tourism
- Economy
- Environment

Major Tributaries of the Sacramento-San Joaquin River Delta



Right now its all about The Delta

The Delta is the "Switchyard" for California water supply

The Delta Heart of California's Water Conveyance System

- Delta conveyance problems can no longer be ignored
- Bay Delta Conservation Plan under way to address long-term Delta issues
- Delta solutions are more likely to succeed as part of a statewide comprehensive action plan

A partial list of Delta Problems

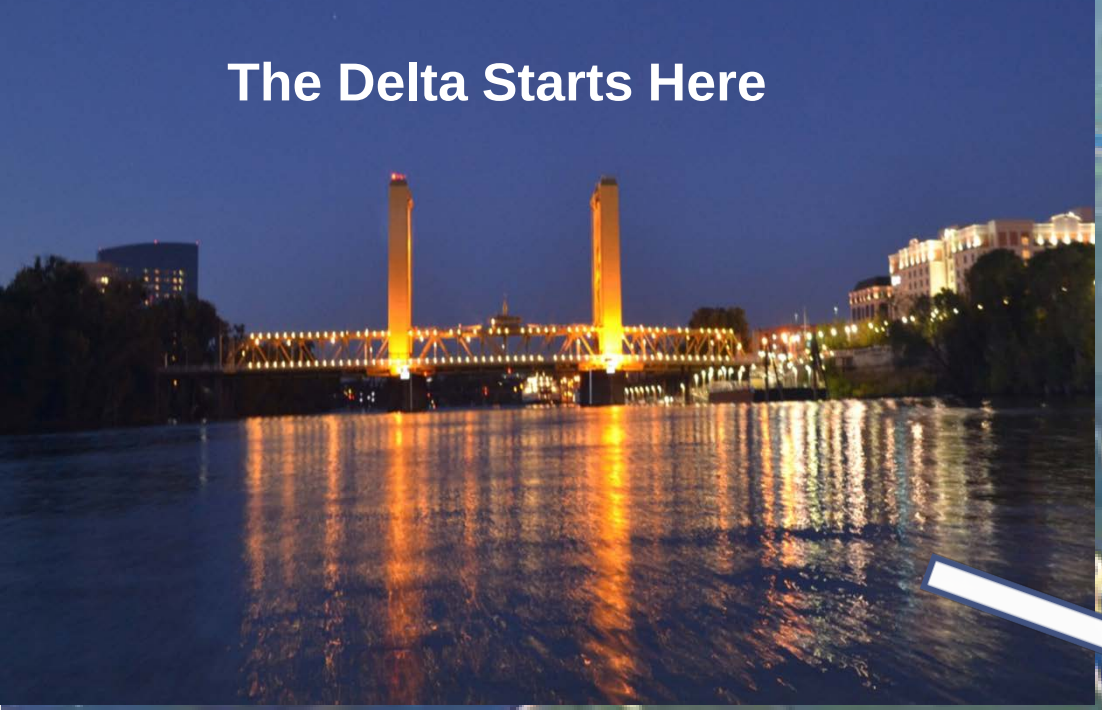
- Subsidence and Carbon off-gassing
- Pumping impacts on energy and fish
- Sea level rise
- Seismic risk
- Endangered species
- Non-native invasive species
- Water quality issues (salt, pesticides, nitrogen, etc., etc.)
- Inefficient for water conveyance
- It cannot be “restored”

Compounded Issues for California's Water Supply with Climate Change

- Increased persistence of droughts
- Shifting snow melt runoff from spring to winter
- Higher water temps in streams and reservoirs
- Higher water demands from temperature
- Longer, more intense fire seasons
- Increased flood flows and flood frequencies
- Sea Level Rise / Salt Intrusion


The Water Source Starts Here

The Delta Starts Here



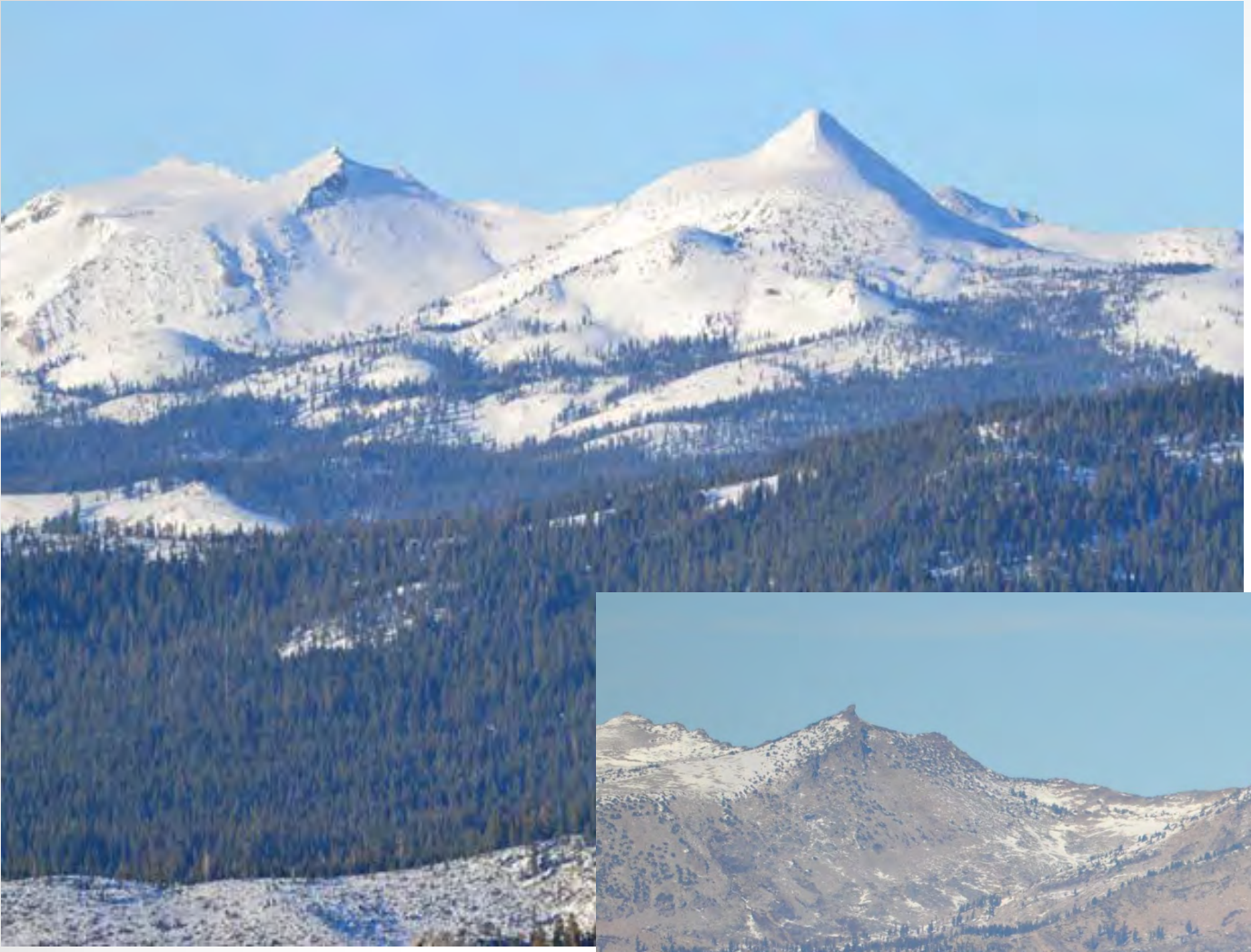

600 miles later

“Governments tend not to solve problems, only to rearrange them”

No Redirected Impacts

July 2012,

“State and U.S. governments will make sure implementation of BDCP will not impose any obligations on water users upstream of the Delta to supplement flows in and through the Delta.”



January 2013

January 2014

Lake Oroville
26% Total Capacity

January 2013

January 2014

Folsom Lake
29% Total Capacity – 11/25/14

New Melones Reservoir

21 % Total Capacity

Forest Management then and now

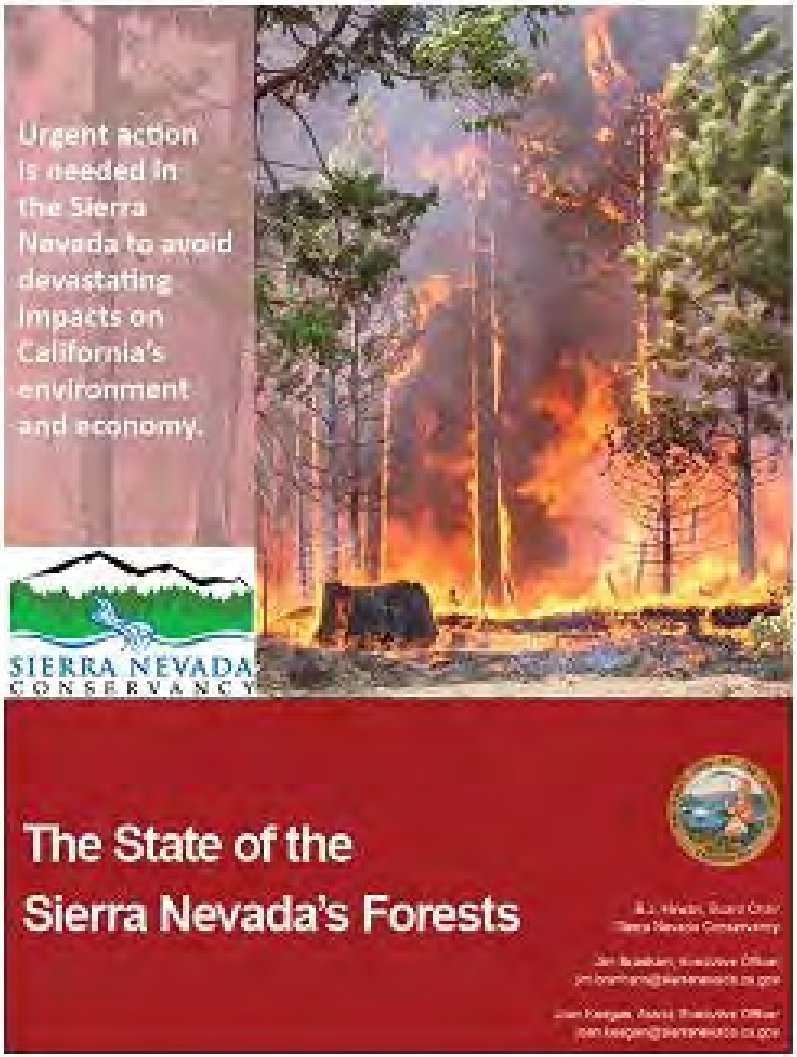
E. Branch, N. Fork Feather R., 3400’

Photos from G. Gruell

If we continue on our current path into the future…

We can expect:

- More mega-fires like the Rim Fire and the King Fire
- High intensity fires change the hydrology of watersheds for decades
- Massive amounts of sediment will result, much of which will end up in reservoirs that feed major water systems



Failure to understand the urgency of the situation in the Sierra Nevada will have devastating impacts on California's environment and economy

Set a New Course for the Delta and its Sierra Nevada Tributaries

- Forest Remediation to Improve Water Yield
- Meadow Restoration
- Raise Existing Reservoirs
- Dredge Existing Reservoirs
- Bio-Mass Management
- Ground Water Banking
- New Off-Stream Storage

Watershed Management

Set a New Course:

- Reduce Risk and Consequences of Large Damaging Fires
- Reduce Erosion, Flooding and lost Storage
- Improve Environment for Habitat
- Increase Water Yield & Downstream Water Quality
- Sequester Water for Later Use

Raise Existing Reservoirs

Sugar Pine Reservoir
Foresthill

- Increased Water Supply
- Cold Water for Fish
- Minimal Environmental Issues
- Greater Yield, Less Evaporation “V”-Shaped Reservoirs High in the Sierra
- Drought Protection
- Flood Protection
- Climate Change Adaption

Dredge Existing Lakes – *Remove Sediment*

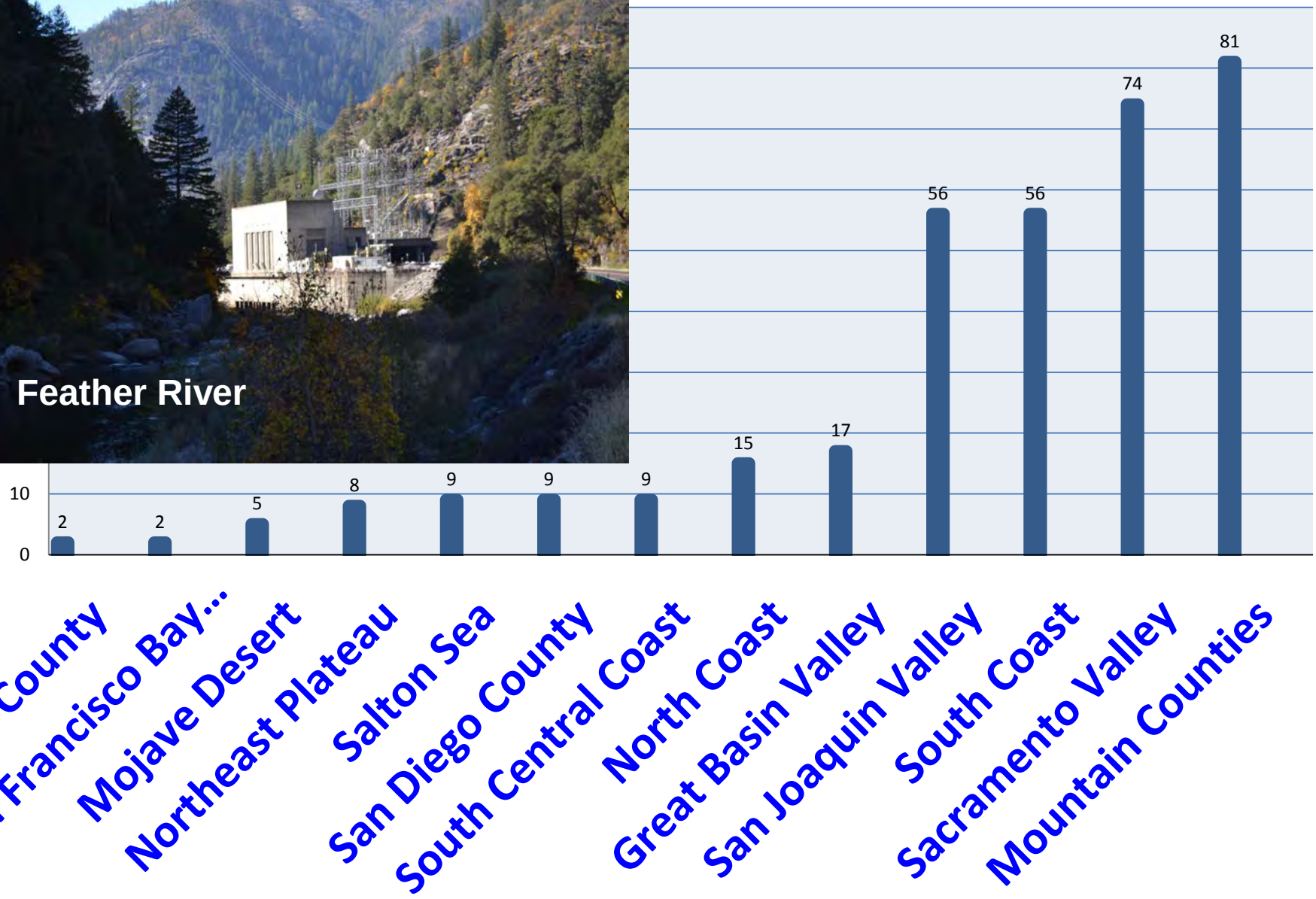
- Improved Flood Control
- Recapture lost Water Storage
- Increased Cold Water for Fish Releases
- Remove Legacy Contaminants to Improve Downstream Water Quality

By J. Toby Minear and G. Matt Kondolf

Department of Landscape Architecture and Environmental Planning, University of California, Berkeley

Using California as a case study, they used measured sedimentation rates to estimate sediment yields for distinct geomorphic regions, and applied those rates to unmeasured reservoirs by region. **State-wide about 200 reservoirs have likely lost more than half their initial capacity to sedimentation**

Hydropower Facilities by Region



What Needs to Happen for a Sustainable Delta

- Advance the stewardship of not only the Sierra Nevada Mountains, but across all the watersheds and headwaters in the State,
- Increase the water carrying capacity in the watersheds,
- Increase surface water supply and storage starting at the crest of the Sierra,
- Reduce demand by increased water efficiency practices,
- Optimize recycling opportunities, groundwater injection, and desalination.

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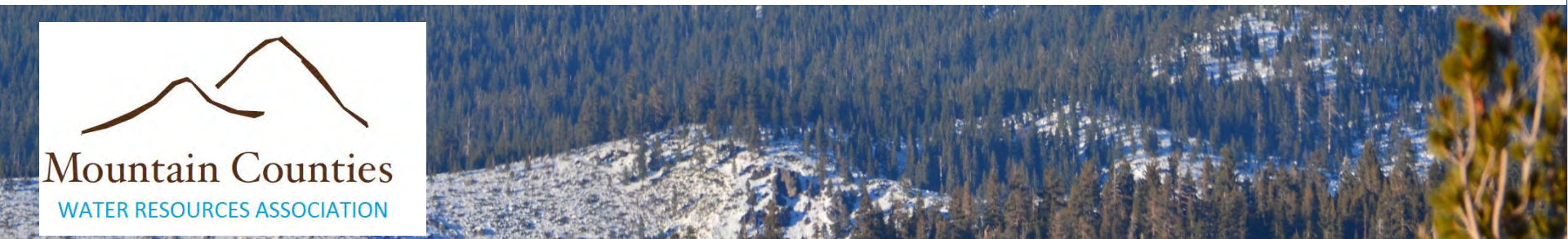

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