

# MS<sub>4</sub> Permits and TMDLs

## Costs and Savings through TMDL Task Force

Jason Uhley

Chief of Watershed Protection

Riverside County Flood Control  
and Water Conservation District



# Clean Water Act (CWA)

Federal program to protect the Beneficial Uses of lakes, rivers and streams

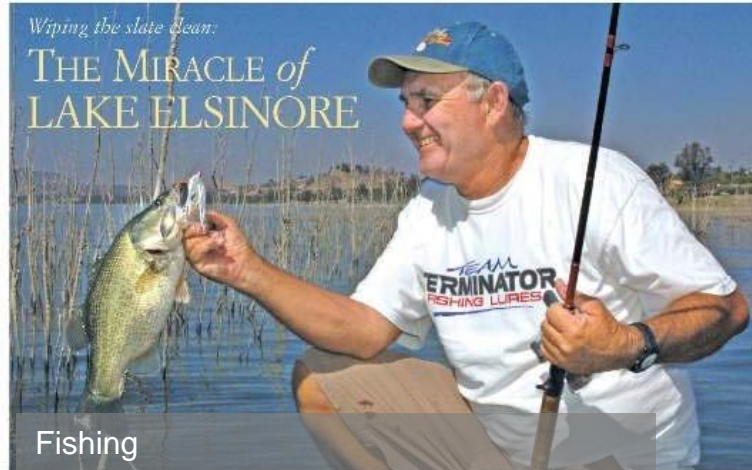
Recreation on Canyon Lake



*Wiping the slate clean:*

## THE MIRACLE of LAKE ELSINORE

Fishing

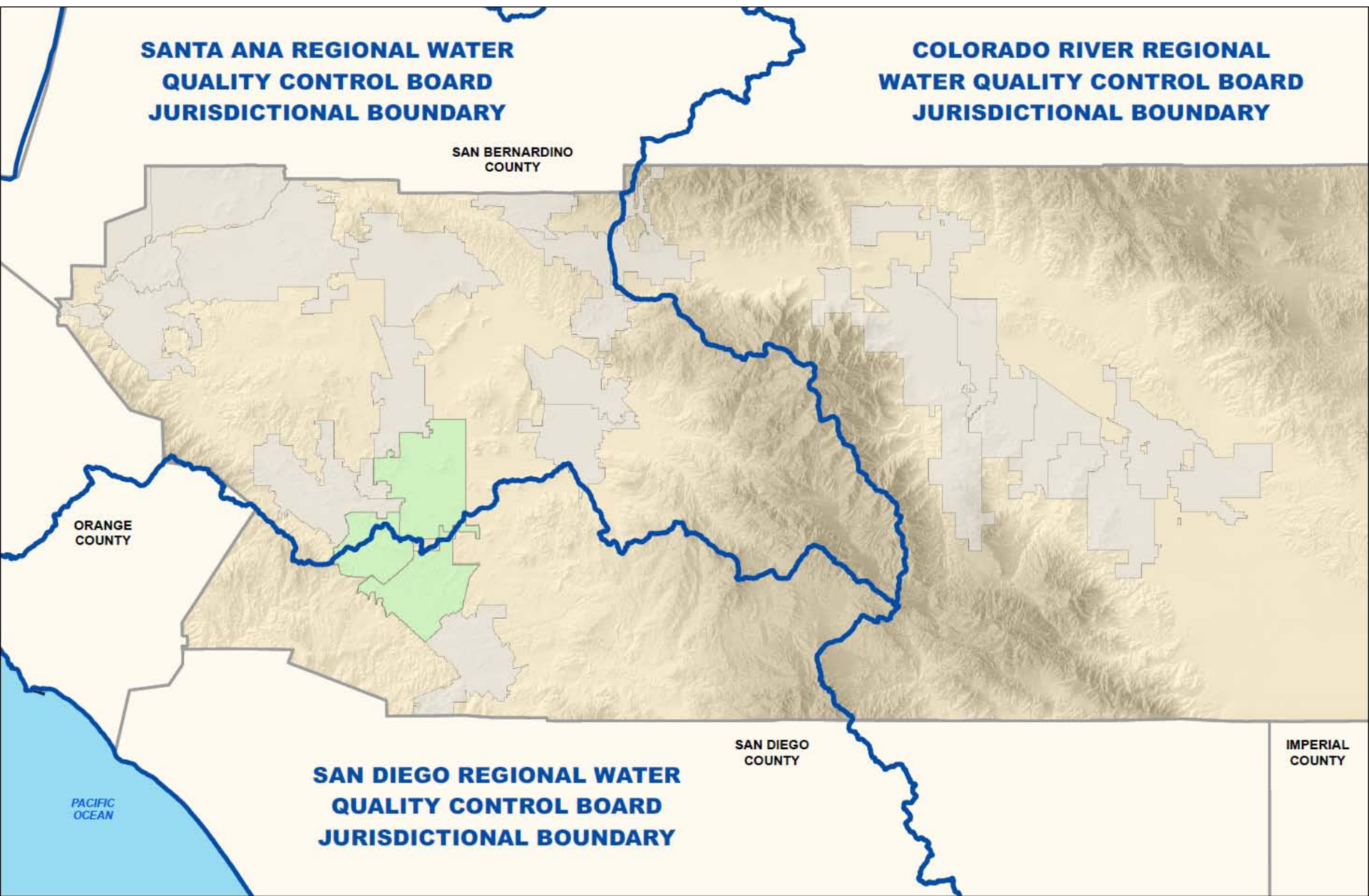


Water Supply



Warm and Cold Water Habitat





**SANTA ANA REGIONAL WATER  
QUALITY CONTROL BOARD  
JURISDICTIONAL BOUNDARY**

**COLORADO RIVER REGIONAL  
WATER QUALITY CONTROL BOARD  
JURISDICTIONAL BOUNDARY**

**SAN BERNARDINO  
COUNTY**

**ORANGE  
COUNTY**

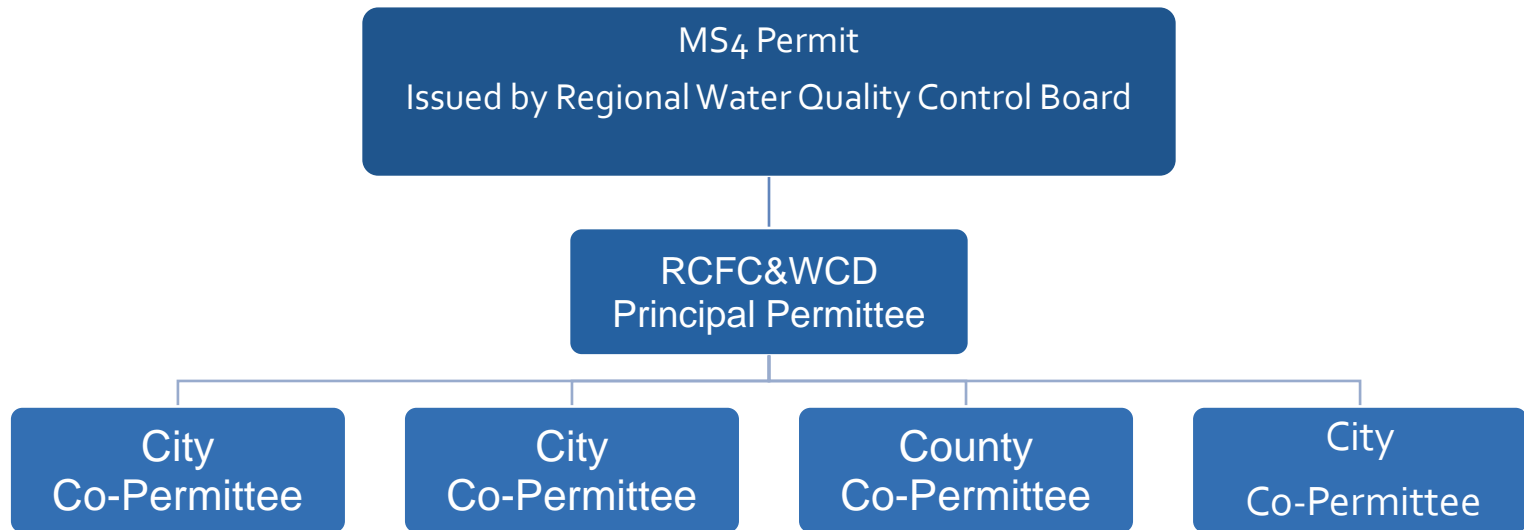
**SAN DIEGO  
COUNTY**

**IMPERIAL  
COUNTY**

**PACIFIC  
OCEAN**

**SAN DIEGO REGIONAL WATER  
QUALITY CONTROL BOARD  
JURISDICTIONAL BOUNDARY**

# Municipal Separate Storm Sewer System (MS4) Permit Compliance Structure



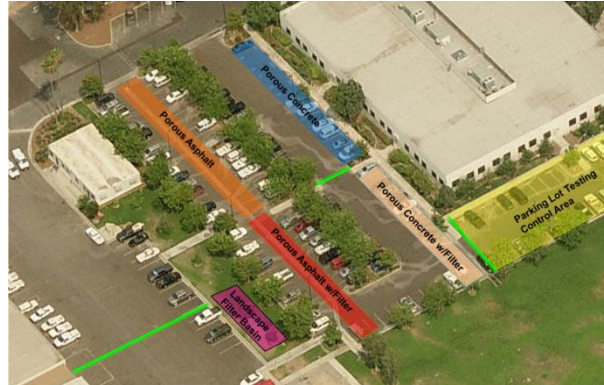
Required to operate storm drain system. Requires:

- Control urban runoff during dry weather
- Prevent stormwater pollution to extent practicable

# Basic Preventative Compliance Programs



Code Enforcement



Public Works Project  
Controls / Urban Retrofit



New Development Controls



Education/Outreach



Municipal Activities



Business Inspection  
Programs





## Lake Elsinore / Canyon Lake:

- Algal blooms
- Fish kills

## Cause

- Nutrients

## Common Nutrient Sources

- Excessive fertilizer use
- Improper yard waste disposal
- Pet waste
- Detergents
- Leaking septic
- Agriculture/Dairies
- Natural sources (wildlife, vegetation, atmosphere)



# Total Maximum Daily Load Regulatory Path

TMDL adopted 2005



2010 MS<sub>4</sub> Permit

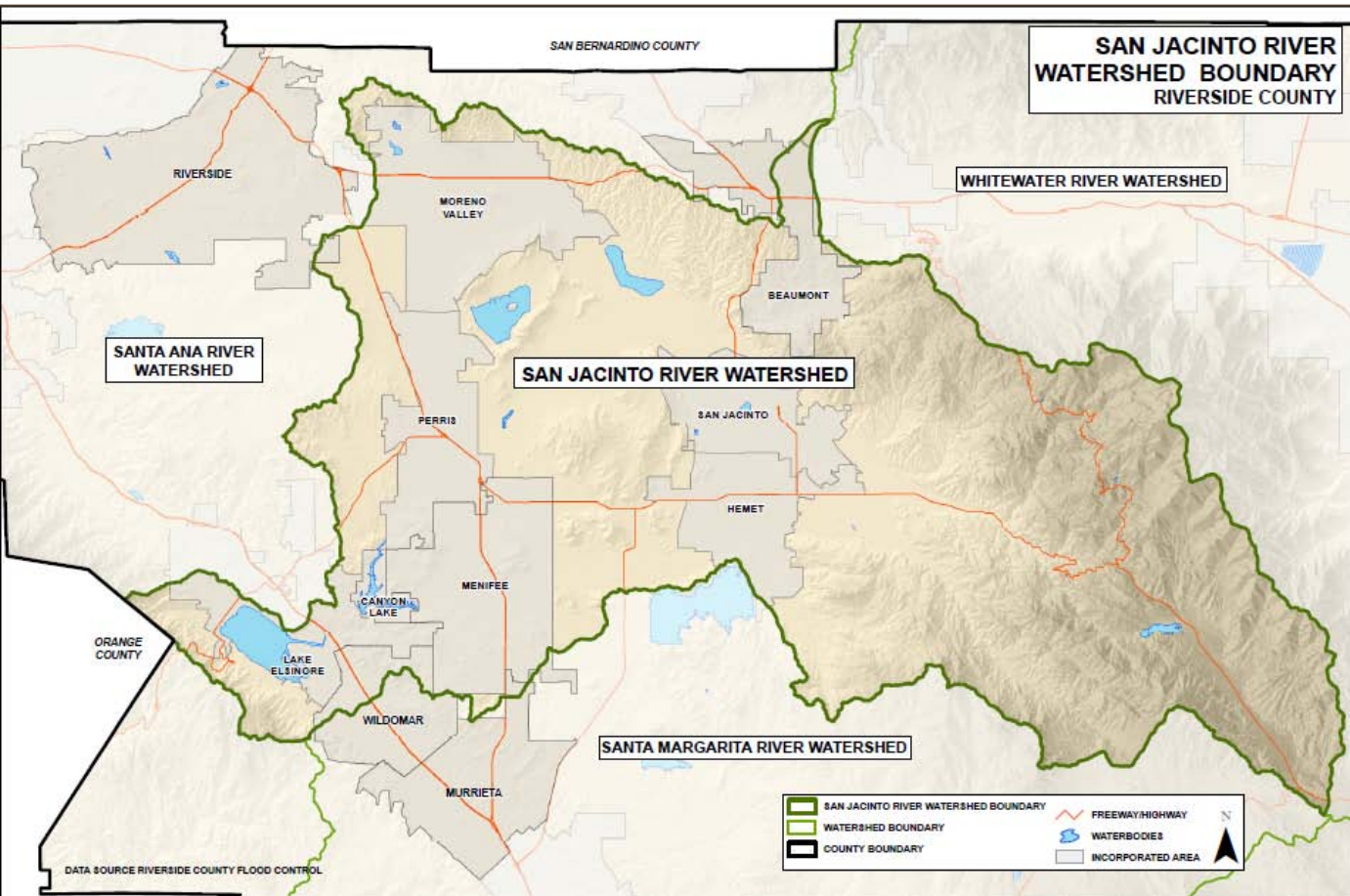


Comprehensive Nutrient Reduction Plan  
(CNRP)

**Legally Binding Compliance Document**

**\$10,000 per day violations**

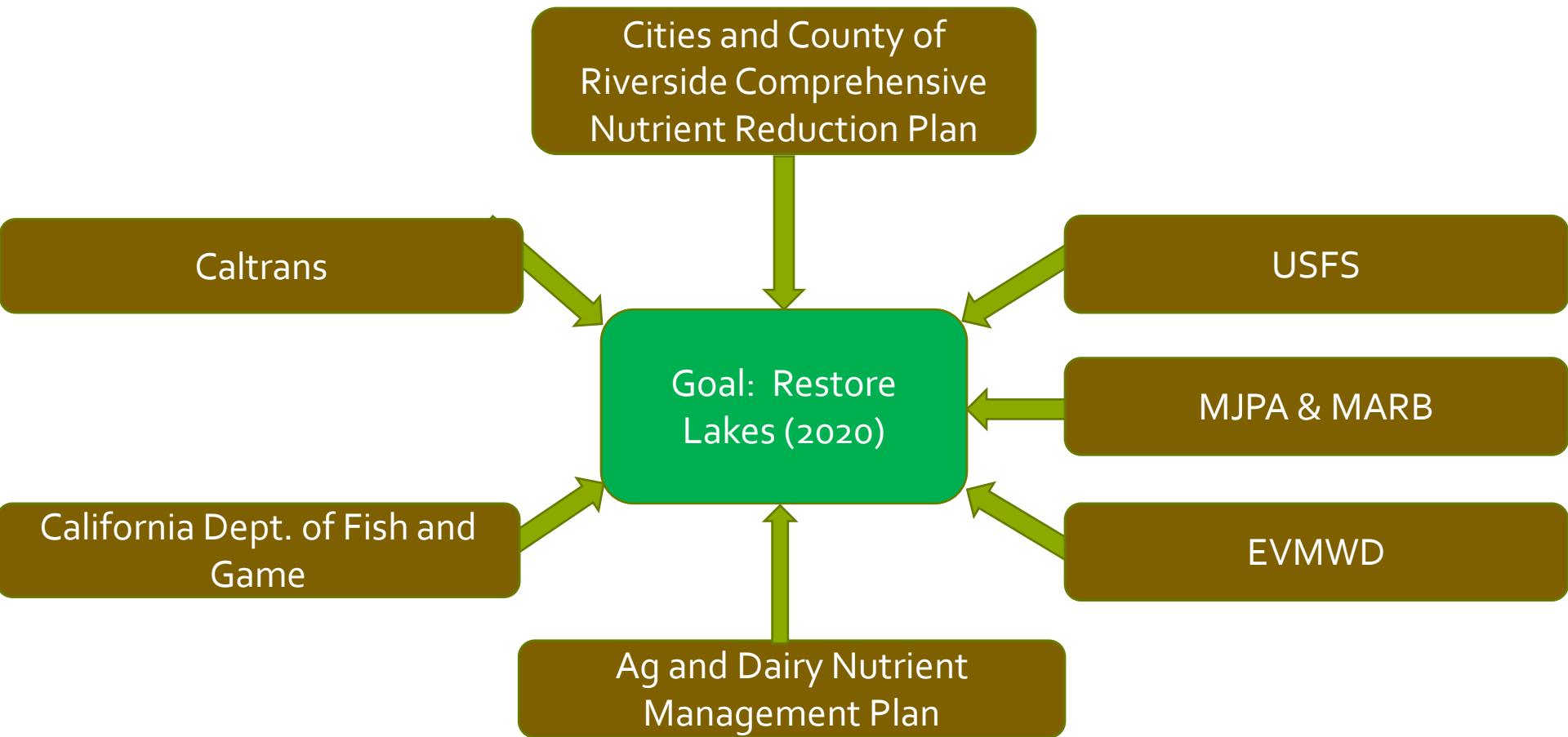
# CNRP Addresses San Jacinto River Watershed



Riverside County  
Beaumont  
Canyon Lake  
Hemet  
Lake Elsinore  
Menifee  
Moreno Valley  
Murrieta  
Perris  
Riverside  
San Jacinto  
Wildomar



# CNRP is one of many plans required by TMDL



# Lake Elsinore and Canyon Lake TMDL Task Force

## Formed 2006

- March Air Reserve Base
- March JPA
- State of California
  - Santa Ana Regional Water Quality Control Board
  - Department of Fish and Game
  - Department of Transportation
- County of Riverside
- Riverside County Flood Control District
- Cities
  - Beaumont      Lake Elsinore      Perris
  - Canyon Lake      Moreno Valley      Riverside
  - Hemet      Murrieta      San Jacinto
  - Menifee      Wildomar
- Water Agencies:
  - Eastern Municipal Water District
  - Elsinore Valley Municipal Water District
  - Lake Elsinore and San Jacinto Watersheds Authority
- Western Riverside County Agricultural Coalition
  - Dairy Operators (25+)
  - Agricultural Operators (Over 475)

# Comprehensive Nutrient Reduction Plan (CNRP) Requirements

Approved July 19, 2013

Riverside County  
Beaumont  
Canyon Lake  
Hemet  
Lake Elsinore  
Menifee  
Moreno Valley  
Murrieta  
Perris  
Riverside  
San Jacinto  
Wildomar

- Phase 1 - Collect data, improve modeling
- Phase 2 - Identify and implement initial lake projects
- Phase 3 –Revise TMDL
- Phase 4 – Identify and implement final lake projects

**Compliance Deadline: 2020**



# CNRP TMDL Compliance Strategy



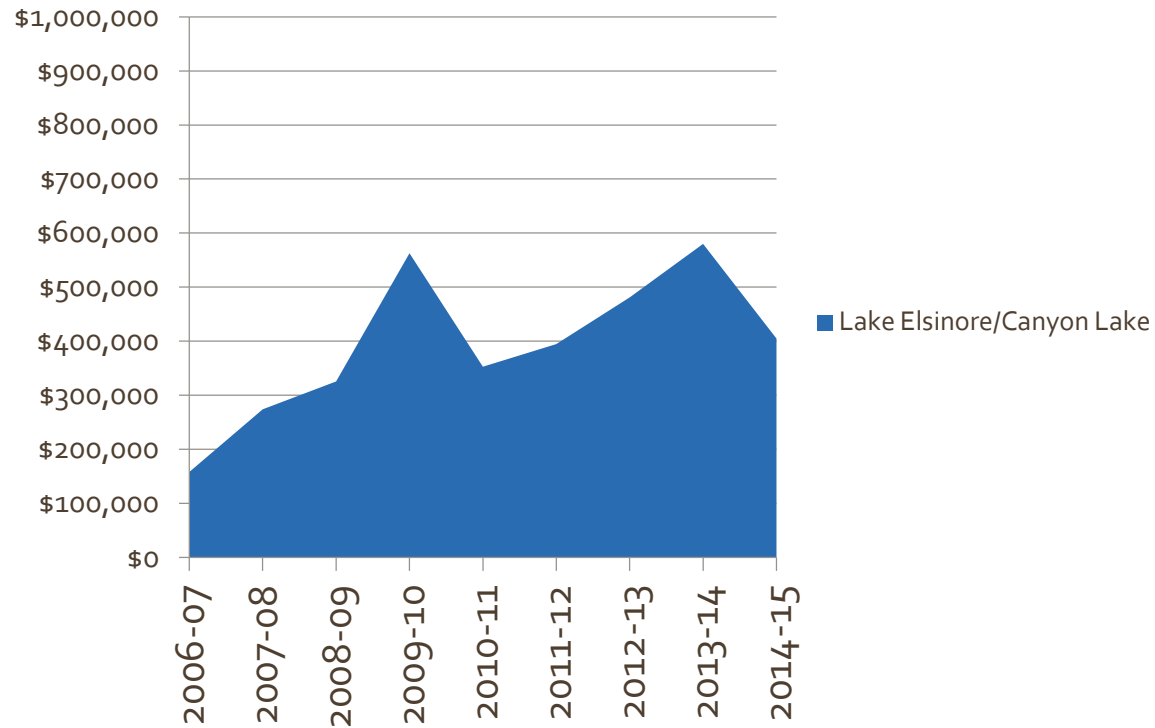
Phase 1 - Collect data, improve modeling and understanding

# Over \$3 million invested in studies of both lakes



# Task Force

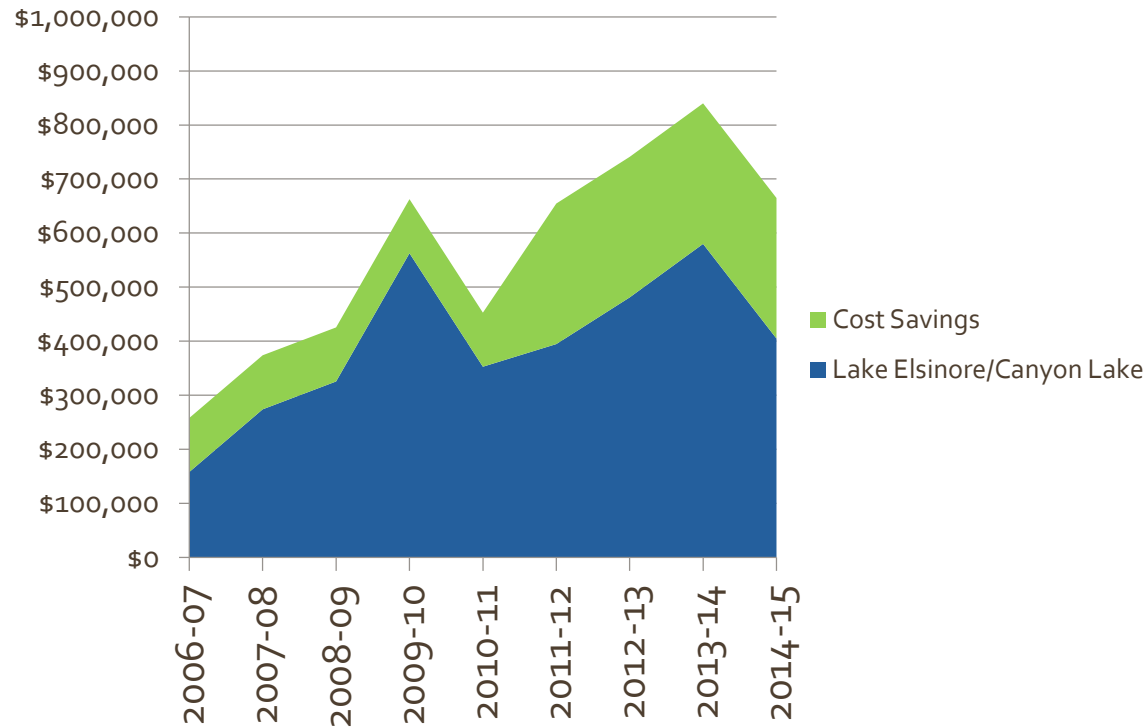
**Cumulative expenditures: \$3.2 million**





# Task Force Savings

**Cumulative savings from monitoring shifts: \$1.5 million**



# CNRP TMDL Compliance Strategy



- Phase 1 - Collect data, improve modeling and understanding



- Phase 2 - Identify and implement initial lake projects

# Compliance Issue: The “BIG” Storm

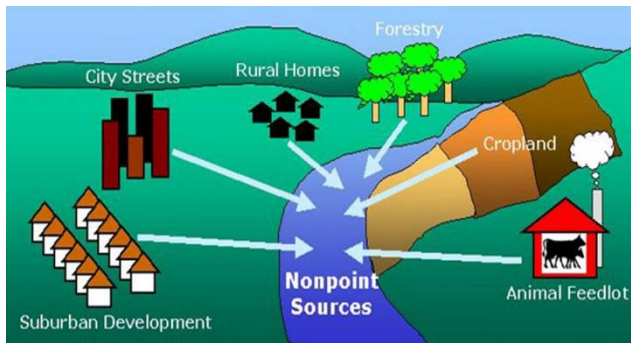


January 1993 – 10"/10 days

December 2010 – 7"/ 8 days

- Need 4,000 total acres for treatment
- Equivalent to a “NEW” Lake Elsinore
  - Billion dollar solution + O&M
- Needed once every 20 years





## Watershed Controls

- Where Feasible
- Multiple benefits

## In-Lake Controls

- CL: Alum Treatment
- LE: Aeration
- LE: Fishery Mgmt

Compliance  
Strategy

## Current Costs for Regional Activities and Projects identified in CNRP

Initial Projects	Annual Cost
Canyon Lake Alum Treatment	\$300,000
Lake Elsinore Aeration System	\$500,000
Lake Elsinore Fishery Management	\$200,000
Total Annual Costs	\$1,000,000

Solution still needed for long term cost sharing.

# Proposition 13, 40, 84 Grants

- \$500,000 – Proposition 84 Alum treatment grant - 2014
- \$600,000 – Proposition 40 Back basin wetlands / fishery - 2007
- \$13 million - Proposition 13 capital and implementation funding
  - Fishery Management
  - Aeration/Mixing Projects
  - Reclaimed water delivery

# CNRP TMDL Compliance Strategy



- Phase 1 - Collect data, improve modeling and understanding



- Phase 2 - Identify and implement initial lake projects



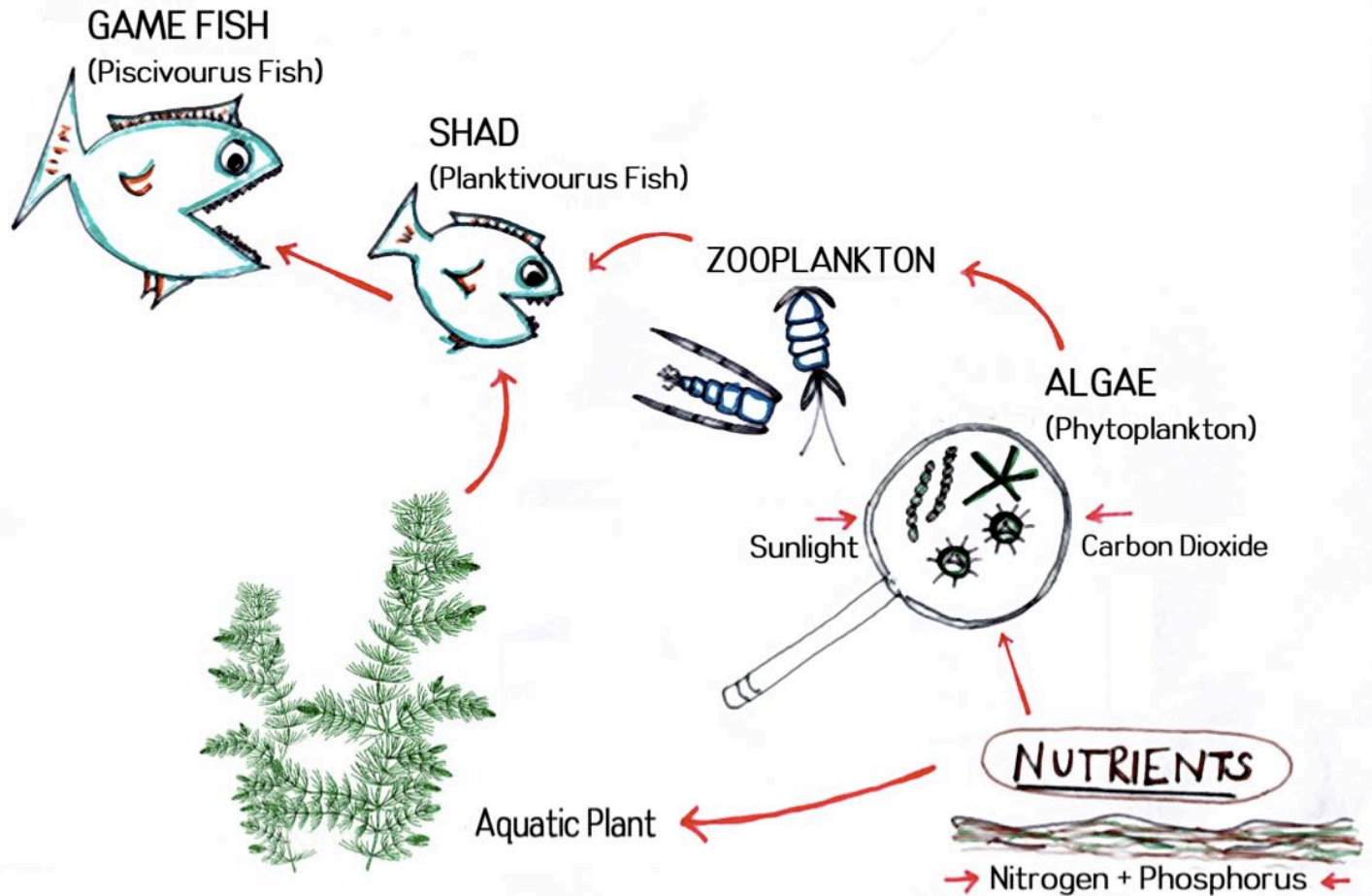
- Phase 3 –Revise TMDL

# Hydrologic variability for both watershed and lakes is greater than assumed





# Lake Elsinore Food Chain



# Lake Elsinore and Canyon Lake

TMDL achievable under pre-development conditions?



# ISSUES TO BE ADDRESSED IN TMDL UPDATE

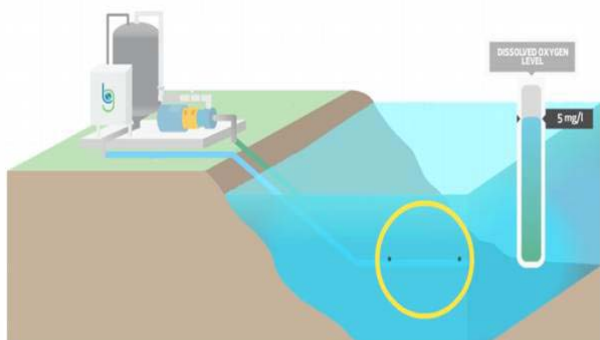
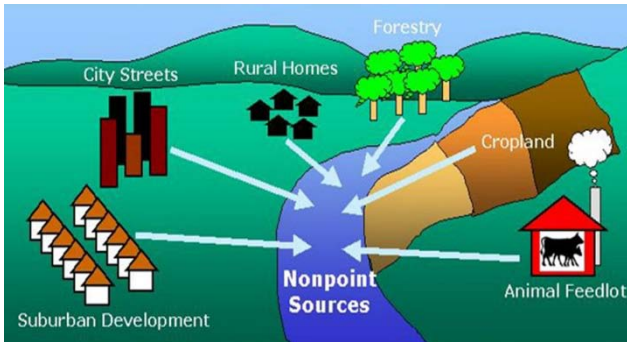
- Lake levels/conditions
- Natural limitations
- Measuring compliance

Estimated Costs: \$500,000

# CNRP TMDL Compliance Strategy

- Phase 1 - Collect data, improve modeling and understanding
- Phase 2 - Identify and implement initial lake projects
- Phase 3 –Revise TMDL
- Phase 4 – Identify and implement final lake projects





## Watershed Controls

- Where Feasible
- Multiple benefits

## Alum Treatment

- Alum Treatment
- Aeration
- Fishery Mgmt

## Final Projects

- Unknown at this time

Compliance Strategy



## Potential Future Costs for Regional Activities and Projects

Potential Final Projects	Annual Cost	Capital Costs
Reclaimed Water Delivery?	\$1,300,000	
Canyon Lake Oxygenation System?	\$100,000	\$2,200,000
Lake Elsinore Alum Treatment (At Wastewater Plant)?	\$200,000	\$1,000,000
Lake Elsinore Oxygenation System?	\$100,000	\$15,000,000
Total Potential Costs	\$1,700,000	\$18,200,000

## Potential Total Costs

Activity	Annual Cost	Capital Costs
Task Force and TMDL Update	\$600,000	
Initial Projects	\$1,000,000	
Final Projects (high end estimate)	\$1,700,000	\$18,200,000
Total Costs	\$3,300,000	\$18,200,000

# \$290,000,000 Parcel Tax proposed in LA

## L.A. County asking property owners to support stormwater runoff tax

By Christina Villacorte, Staff Writer

Posted: 12/06/2012 09:31:56 PM PST

Updated: 12/06/2012 10:10:46 PM PST



2.2 million properties

\$290,000,000 annually

\$100/home

\$10,000+ for business

School Districts

This is the Tujunga Wash at Vanowen Street and Fulton Avenue in Valley Glen, Calif. (Dean Musgrove/Staff Photographer)

# San Diego's stormwater bill: \$4 billion

Nobody really knows the price tag of California's new standards

By **Dan McSwain** 5 P.M. FEB. 17, 2014

PRINT

COMMENTS

8



William Svec, a biologist with the city of San Diego Transportation and Stormwater Department, left, records information while intern Sean Mulderig, right, takes water samples from a storm drain system channeled creek along Murphy Canyon Road. / photo by Howard Lipin \* U-T

California's quest for clean water is about to get very, very expensive.

## San Diego City Stormwater:

\$4 billion over 17 years.

Businesses and consumers will spend billions more.

## Comparison Statistics:

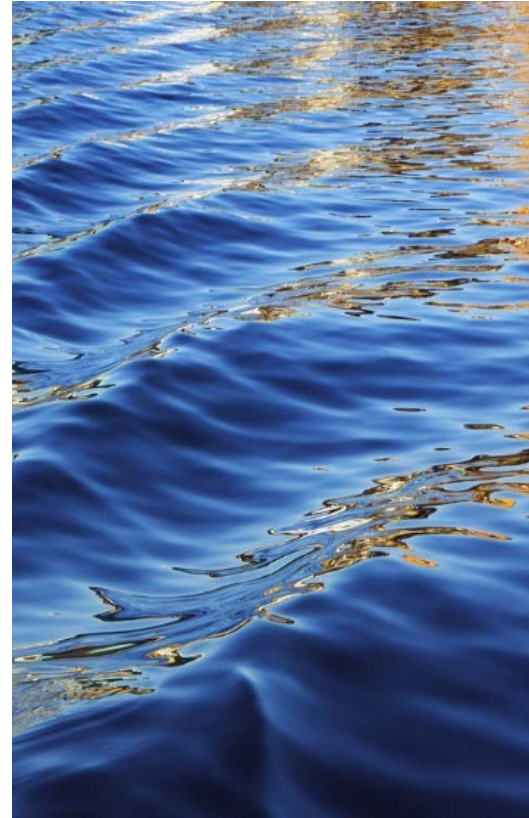
Unfunded pension liability:  
\$2.3 billion

Total revenue: \$2.75 billion



# Questions?

We must all hang  
together or assuredly  
we will all hang  
separately.  
Ben Franklin





End of Show