Water Resolution White Paper:
Regional Findings

June 5, 2025

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Agenda

1 Project Context

2 Water Resilience Challenges and Opportunities

3 Data Gaps and Challenges

4 Conclusion & Next Steps

PROJECT CONTEXT

Regional Context

- By 2050, an additional 2.5 million people are projected to live in the SCAG region (as compared to 2019). The region is also anticipating major growth in water-intensive industries.
- Water agencies are grappling with issues related to water reliability, quality, affordability, accessibility, and resilience and need funding to address them.
- To keep pace with growth projections and address these challenges, housing agencies, land use planners, and water managers will need to coordinate.

Project Components

Stakeholder Interviews

- 17 interviews (22 stakeholders)
- Interviewees represented a state agency, a groundwater management agency, water districts, a regional conservation district, flood control districts, and community based-organizations (CBOs)
- Focused on major water management challenges and promising strategies to address them

Water Data Landscape Analysis

- Included desktop research, geospatial analysis, and stakeholder interviews
- Reviewed availability, quality, and consistency of water management data
- Focused analysis on water equity indicators: reliable, clean and safe, affordable, accessible, and resilient

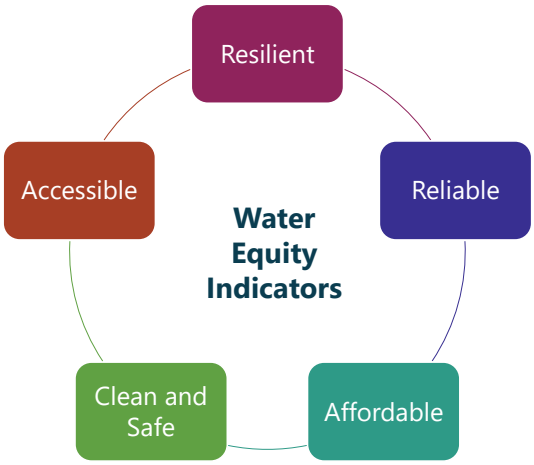
Network Mapping

- Mapped key actors involved in water management in each county:
  - Federal, state, and local regulatory bodies
  - Public, private, and mutual water companies, including wholesalers and retailers
- Mapped each entity's function and contractual/regulatory relationships

REGIONAL WATER RESILIENCE CHALLENGES AND OPPORTUNITIES

Five Indicators for Water Equity

- **Reliable** – the number of water sources and the reliability of each source.
- **Clean and Safe** – the quality of water for purposes such as human consumption, cooking, and sanitation.
- **Affordable** – the portion of household median income allocated to paying for water.
- **Accessible** – the presence and condition of water conveyance infrastructure.
- **Resilient** – the ability for a community or water source to "bounce back" from climate change impacts like droughts, floods, and sea level rise.



Regional Themes: **Reliable**

Takeaways

- **Projected increased demand** from industrial, commercial, and residential growth may strain limited water supplies.
- Pressure to **diversify water supplies** to respond to climate change and to meet demand.
- Extreme wet and dry periods due to climate change amplify the **need for more water storage**.

Promising Strategies

- Coordinated efforts between public agencies
- Local water supply diversification projects
- Native water management practices
- Sustainable groundwater management

Regional Themes: **Clean and Safe**

Takeaways

- **Aging infrastructure** can impact water quality at the tap.
- **Industrial and agricultural runoff** can contaminate groundwater and surface water sources.
- **Coordination between planning agencies and water managers** is critical to manage the impacts of runoff on local watersheds and communities.
- Areas not covered by a water district typically rely on **private wells that have unknown water quality conditions**.

Promising Strategies

Nature-based solutions for improved watershed health

Community-led education and research initiatives

Regional Themes: **Affordable**

Takeaways

- Some water districts are increasing rates to meet the **rising costs of water management**.
- Low-income communities across the region **struggle to afford these rate increases**.

Promising Strategies

Water rate structures that promote water conservation and affordability

Regional Themes: **Accessible**

Takeaways

- **More funding is needed** to cover the costs of necessary infrastructure upgrades.
- **New infrastructure to provide reliable water access** is needed in some rural parts of the region.

Promising Strategies

Cross-sector infrastructure planning

Regional Themes: **Resilient**

Takeaways

- **More investment is needed in adaptive and resilient solutions** to climate and natural hazards, such as earthquakes.
- **Drought, sea level rise, extreme flooding, wildfires, and earthquakes** are all threats to water resiliency in the SCAG region.

Promising Strategies

Resilience and emergency planning

REGIONAL DATA GAPS AND CHALLENGES

Data Gaps/Tools: **Reliable**

Takeaways

- May be a **gap between how water demand and population projections** are calculated.
- No region-wide summary of the **number and type of water supplies** each water purveyor uses exists.
- Limited data on **groundwater levels** for basins outside of the Sustainable Groundwater Management Act (SGMA) requirements.

Key Datasets/Tools

- Department of Water Resources (DWR) State Water Project Delivery Capability Report
- DWR Agricultural Land & Water Use Estimates
- Urban Water Management Plans
- CalMatters 2025 California Water Tracker
- Groundwater Sustainability Plans

Data Gaps/Challenges: **Clean and Safe**

Takeaways

- Limited public data on **risks of lead pipes** for residential water distribution.
- Limited data on water quality for **small water systems and domestic wells**
- Limited data on **emerging contaminants** (e.g., PFAS), but is expected to increase.
- Data on **groundwater quality** may be inconsistent, outdated, and inaccessible.
- No data on the **frequency or locations of the delivery of hauled or bottled water due to poor quality of tap water**.

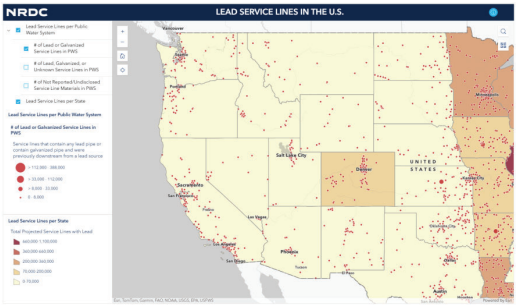
Key Datasets/Tools

SWRCB Safe and Affordable Funding for Equity and Resilience (SAFER) Program Dashboard

SWRCB Risk Assessment Dashboard Small Water Systems Domestic Wells

SWRCB's GeoTracker

NRDC/EPA Lead Pipe Interactive Map



Data Gaps/Challenges: **Affordable**

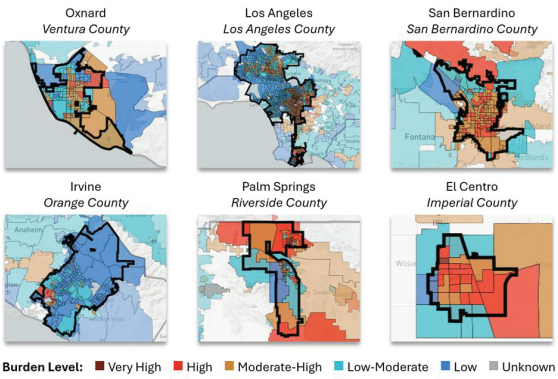
Takeaways

- **Costs of hauled or bottled water** for small and/or rural communities is unknown.
- Data on **costs for operation, maintenance, and repair of private wells** is not reported.
- Limited data on **agricultural water rates and their affordability**.
- Limited data on the **economic costs and benefits of agricultural water conservation**.

Key Datasets/Tools

Duke Nicholas Institute Water Affordability Dashboard

SWRCB SAFER Drinking Water Needs Assessment – Affordability Assessment



Data Gaps/Challenges: **Accessible**

Takeaways

- Data gaps on the **location and condition of water conveyance infrastructure** throughout the region.
- **Not all agencies have water master plans** documenting age, material, and condition of conveyance infrastructure.
- No public data on **historical water main breaks** or gaps in service.

Key Datasets/Tools

Local Water Master Plans

Data Gaps/Challenges: **Resilient**

Takeaways

- No known comprehensive dataset **compares or overlays water infrastructure data with climate hazard datasets** (i.e., data on sea level rise, flooding, wildfire risks).
- Jurisdictions need **support with applying climate models** to their local planning context.

Key Datasets/Tools

Local Water Shortage Contingency Plans

Local Hazard Mitigation Plans

Sea Level Rise Interactive Maps

Wildfire Risk Maps

FEMA Flood Maps

CalAdapt

CONCLUSION AND NEXT STEPS

Key Conclusions

- **More coordination is needed between planning agencies and water managers** to align land use and development planning with water management considerations.
- **More infrastructure funding is needed** to address aging water conveyance and flood control infrastructure, improve the region's resilience to climate change, and support growth.
- While watersheds span county, city, and water district boundaries, **many water management-related datasets are not available or consistent** across the region.
- Member agencies and water districts could use **support with utilizing state or regional datasets** to promote more accurate water supply and demand projections.

Next Steps

- SCAG will use the findings from this phase to identify strategies to support its member jurisdictions with advancing sustainable infrastructure needs in the region.

Contact us with any questions or comments:
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Expert Panel – Water & Wildfire Resilience

Tracey Quinn
President & CEO

Heal the Bay

Rod Woods
Deputy General Manager

moulton niguel water district

Greg Woodside
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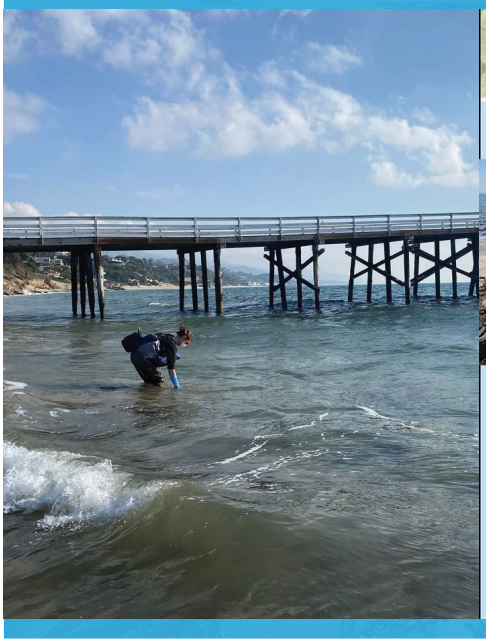
SAN BERNARDINO VALLEY A REGIONAL WATER AGENCY SINCE 1954

FIRE + WATER
Coastal Impacts

Tracy Quinn,
CEO of Heal the Bay

Heal the Bay

POST-FIRE WATER QUALITY SAMPLING LOCATIONS

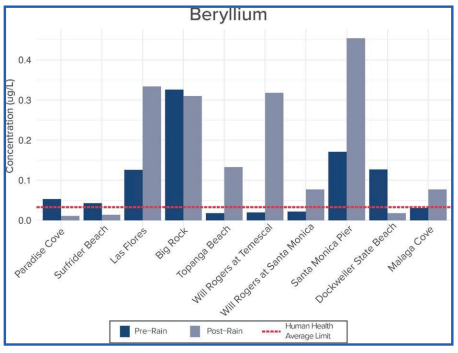


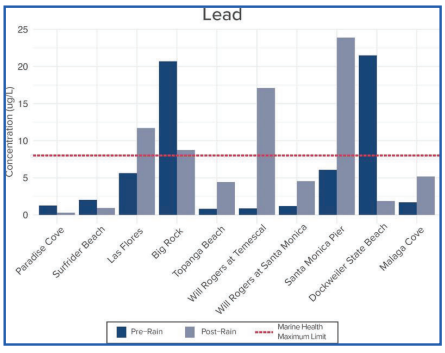
ANALYZING THE DATA

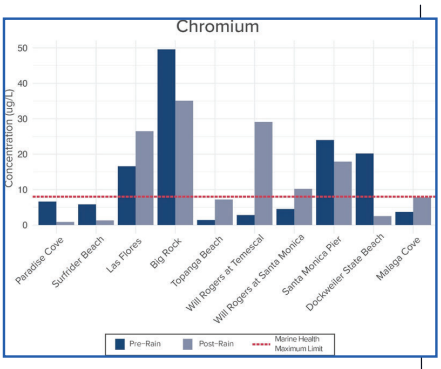
- No Testing Protocols
- No Health Standards or Risk-Thresholds

Pollutant Category	Pollutant	Units	Maximum Limit	Avgerage Limit	Source	Average Limit	Source
PCB	PCB	ng/L	-	0.03	National Water Quality Criteria: Aquatic Life	0.019	California Ocean Plan - Human Health
PAH	Phenanthrene	ng/L	4600	-	Hawaii Surface Water Action Level - Marine Habitats	8.8	California Ocean Plan - Human Health
	Anthracene	ng/L	730	-	Hawaii Surface Water Action Level - Marine Habitats		
	Fluoranthene	ng/L	7100	-	Hawaii Surface Water Action Level - Marine Habitats		
	Fluorene	ng/L	3900	-	Hawaii Surface Water Action Level - Marine Habitats		
	Pyrene	ng/L	10000	-	Hawaii Surface Water Action Level - Marine Habitats		
Heavy Metals	Beryllium	ug/L	0.038	-	Hawaii Surface Water Action Level - Marine Habitats	0.033	California Ocean Plan - Human Health
	Chromium	ug/L	8	2	California Ocean Plan - Marine Aquatic Life	190000	California Ocean Plan - Human Health
	Copper	ug/L	12	13	California Ocean Plan - Marine Aquatic Life	1300	National Water Quality Criteria - Consumption of Organisms
	Lead	ug/L	8	2	California Ocean Plan - Marine Aquatic Life	15	California Regulations Related to Drinking Water - Action Level
	Nickel	ug/L	20	5	California Ocean Plan - Marine Aquatic Life	100	California Regulations Related to Drinking Water - Maximum Level

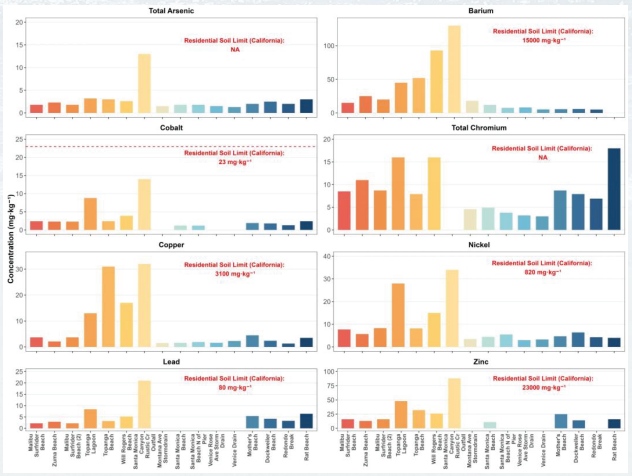
Coastal Water Quality Post-Fire



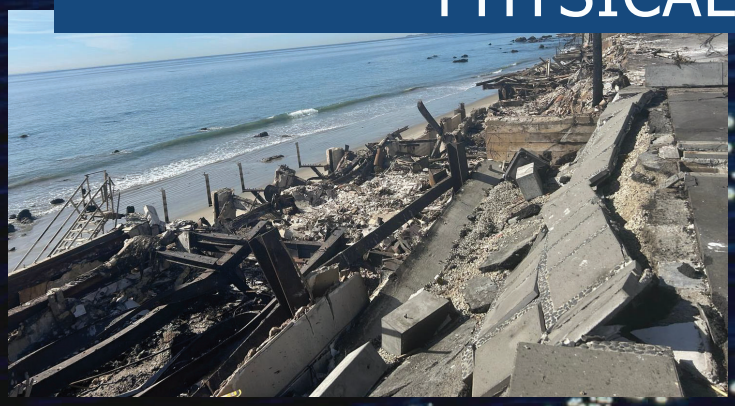




Testing the Sand



PHYSICAL HAZARDS



Blue Ribbon Commission on Climate Action and Fire Safe Recovery

The Water Working Group focused on:

- **Addressing systemic issues (pressure loss from homes that burned, pumps running out of fuel after power outage, etc.)**
- **System redundancy / onsite supplies for fire suppression**
- **Climate resilience / Nature-based solutions**
- **Preventing fire-related contaminants**

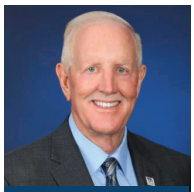
SCAG™
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS
ENERGY & ENVIRONMENTAL COMMITTEE

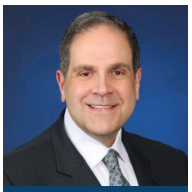
moulton niguel water district

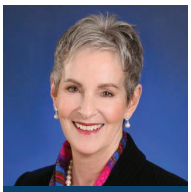
June 5, 2025

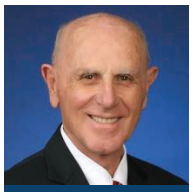
About Moulton Niguel

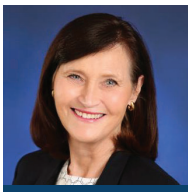
- Drinking-Water, Recycled Water, and Wastewater Services
- Serve 170,000+ Customers in 6 Cities in South Orange County
- 7-Member Board of Directors
- ~200 Employees
- AAA Credit Rating from Fitch and S&P Global
- Top Workplace OC & USA
- Recognized Statewide and Nationally for Innovation, Environmental Stewardship, and Customer Service

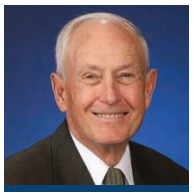

Duane D. Cave
President

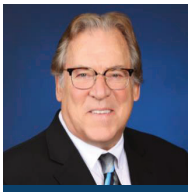

Brian S. Probolsky
Vice President


Diane Rifkin
Vice President


Richard S. Fiore
Director


Sherry Wanninger
Director


Donald Froelich
Director


William Moorhead
Director

moulton niguel water district

Overview of District Systems

- **Drinking Water System**
  - Two primary treatment plants: Diemer Filtration Plant and Baker Water Treatment Plant
  - 650 miles of pipeline
  - 25 pump stations
  - 28 operational storage reservoirs
  - 21 pressure reducing stations
- **Recycled Water System**
  - Miles of pipeline: 140
  - 10 pump stations
  - 11 operating reservoirs and 1,000 acre-ft capacity in Upper Oso reservoir for seasonal storage
  - Two advanced water treatment plants
- **Wastewater System**
  - Three local treatment plants: Joint Regional Treatment Plant, Plant 3A, J.B. Latham Treatment Plant
  - Miles of wastewater pipelines: 500
  - 17 lift stations

Partnerships & Resiliency Efforts

Emergency Interconnection

Resiliency Action Plan (RAP)

San Diego County Water Authority

WEROC Emergency Operations Center

OCFA Helicopter Hydrant

FEMA

Cal OES
GOVERNOR'S OFFICE OF EMERGENCY SERVICES

Fire Preparedness

- Reservoir Storage Capacity
- Regular Fire Hydrant Testing
- Facility Hardening
- Emergency Pumps & Generators
- Fire-Hardened Landscaping

moulton niguel water district

Challenges

- Real World Demands
- Cannot Be Arbitrary
- Normal Operations vs. Fire Event
- On-Ground Coordination
- Compounding Events
- Base-Loaded vs. As-Needed Supplies
- Claims/Litigation

Solutions

moulton niguel water district

Thank You!

Rod Woods

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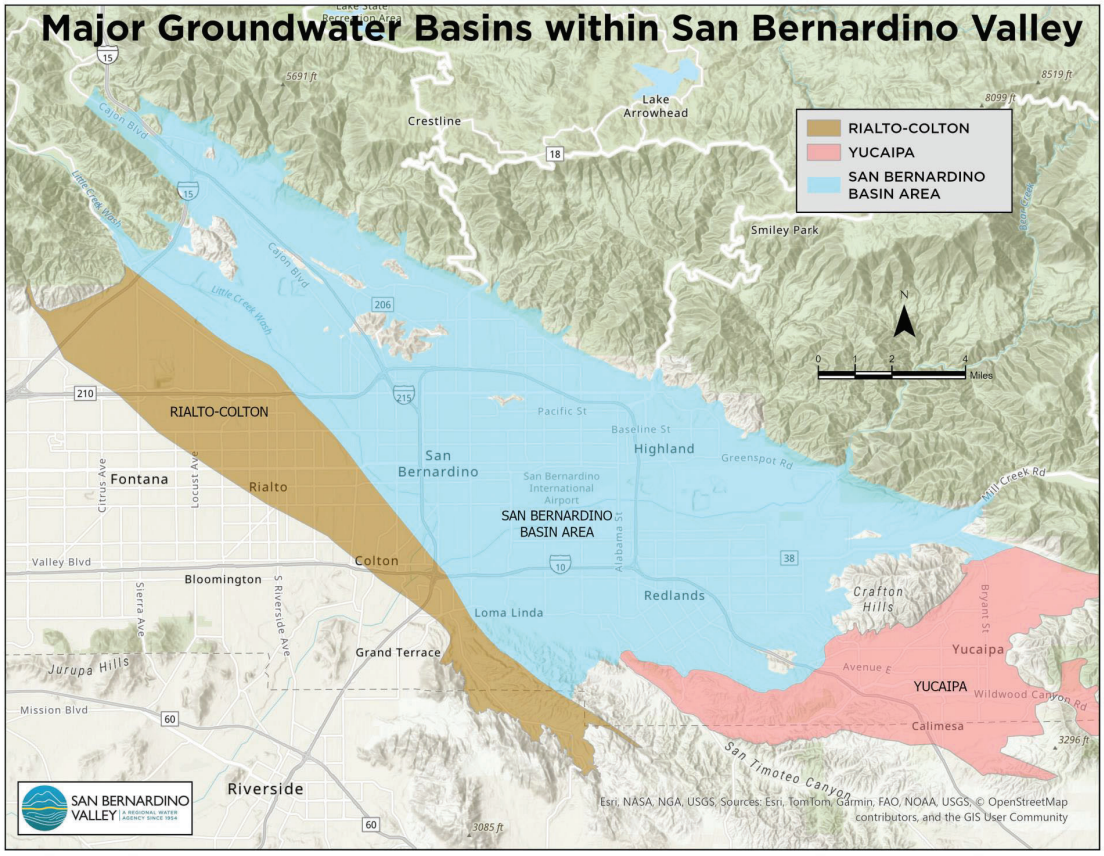
moulton niguel water district

SCAG Energy & Environment Committee
Impacts of Wildfire on Water Management

Greg Woodside, P.G., C.Hg.
Chief of Planning and Watershed Resilience
San Bernardino Valley Municipal Water District
June 5, 2025

Who is San Bernardino Valley?

- Water wholesaler and State Water Contractor (1 of 29)
- Formed in 1954 with a 5-Member elected Board
- Leading development of Habitat Conservation Plan
- Supporting Inland Empire Headwaters Resiliency Partnership



1 million people

- Groundwater is a primary water supply
- San Bernardino Valley & Western Riverside County

Seven Oaks Dam & Downstream Groundwater Recharge Facilities

Photo credit: Orange County Water District; photo taken March 10, 2025

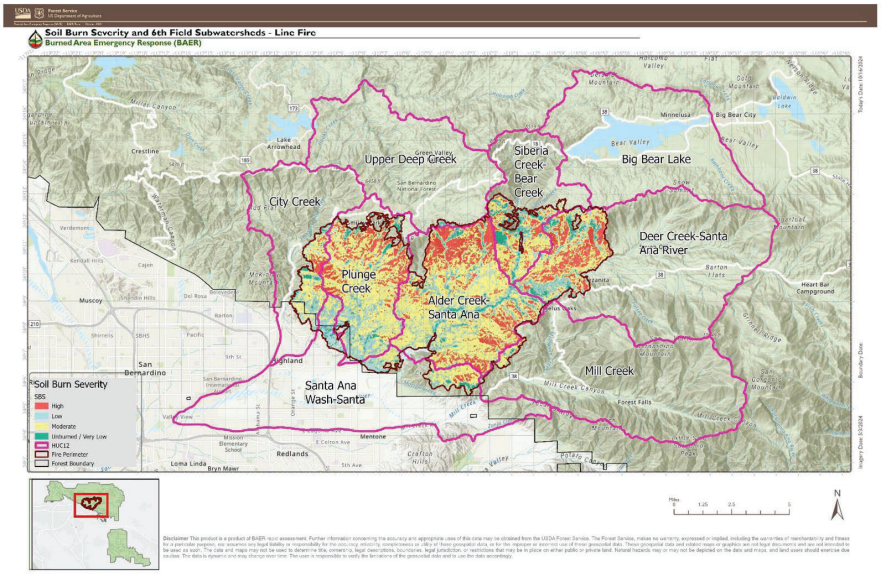
What are headwaters and why are they important?

- Definition: Landscapes where streams and rivers start
- Functions:
  - Collect precipitation during wet periods
  - Store water in snowpack and meadows
  - Filter water before it moves downstream to communities
  - Habitat for wildlife
  - Support outdoor recreation

Source: Public Policy Institute of California. Kyle Greenspan and Brad Franklin. Headwaters and Wildfire in California. Fact Sheet. March 2025

Why is SB Valley concerned about the headwaters of the watershed?

- Provides majority of our water supply
- Infrastructure
  - $450 million of water infrastructure
- Native fish re-introduction & Habitat Conservation Plan



Source: Line Fire Burned Area Emergency Response Report, October 2024 (US Forest Service)

Impacts of Line Fire Ignited Sept 5, 2024

Photo credits: 1: Redspork02, Wikipedia.com accessed 5-30-2025, Creative Commons; 2-4: San Bernardino Valley

Who is currently involved?

- Inland Empire Resource Conservation District
- San Bernardino Valley Municipal Water District
- USDA Forest Service
- CAL FIRE
- National Forest Foundation
- Southern California Mountains Foundation
- Institute for Watershed Resiliency at CSUSB
- Tree People

INLAND EMPIRE HRP HEADWATERS RESILIENCY PARTNERSHIP

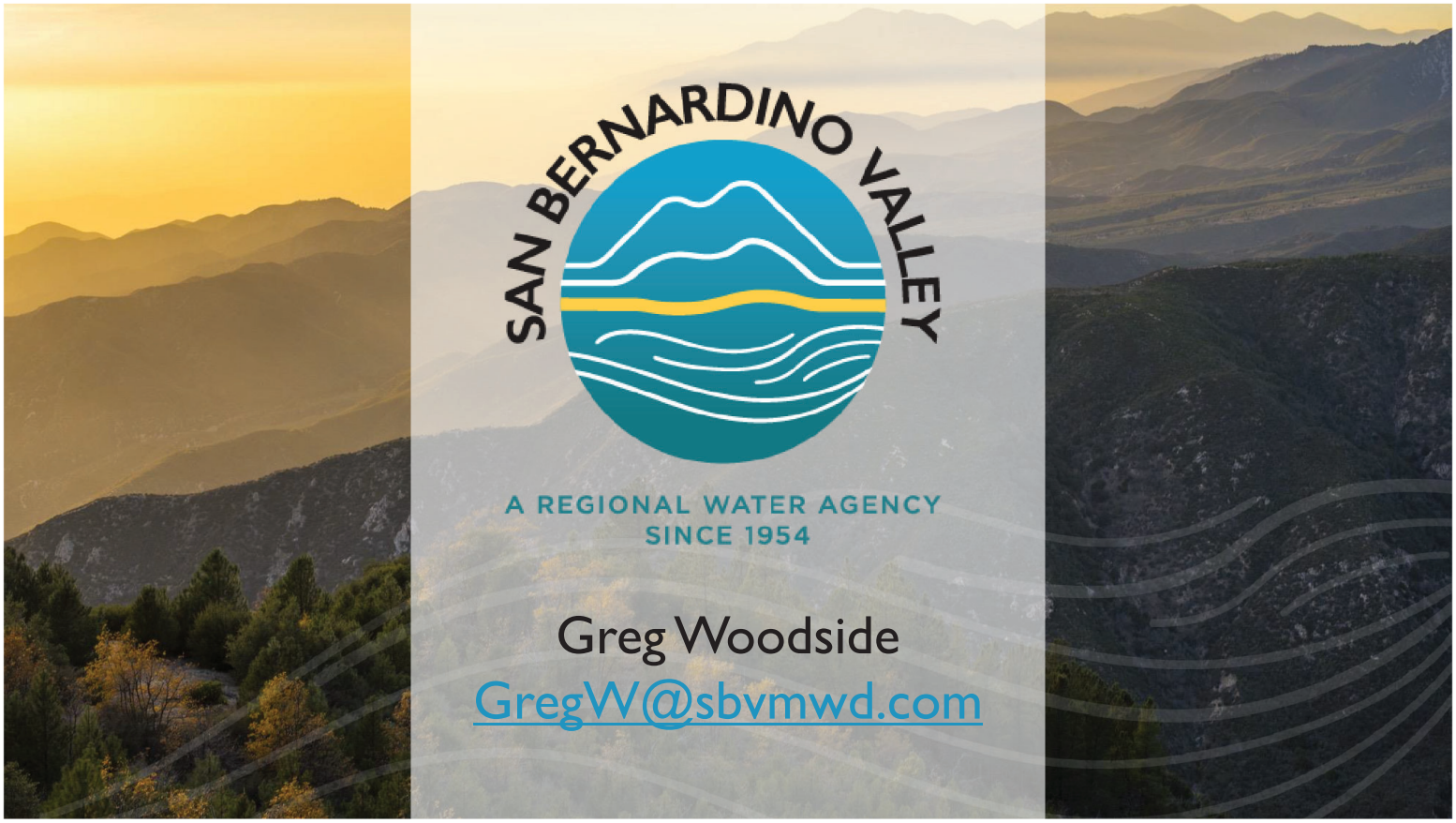
- Santa Ana Watershed Project Authority
- Inland Empire Community Foundation
- San Bernardino Valley Water Conservation District
- Lincoln Institute of Land Policy
- San Bernardino Mountains Land Trust
- Save Our Forests Association

What has the HRP been up to?

- Developing Strategic Plan
- Fuels Management
- Monitoring and post-fire recovery
- Regional Planning Efforts: Montane Forest Strategy
- Wood Products: Biochar Pilot
- Outreach and Education
- Workforce development

IERCD Goldspotted Oak Borer surveys
Photo:Alex Chacon, IERCD

Photo (Top): IERCD
Photo (Bottom): National Forest Foundation



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QUESTION & ANSWER DISCUSSION