



# UPPER SANTA CLARA RIVER

Integrated Regional Water Management

## CLIMATE CHANGE IN THE UPPER SANTA CLARA IRWM REGION

# Climate Change Technical Study Process

- ✘ Overview of the analysis
  - + Identify and rank regional vulnerabilities
    - ✘ Scenarios – Use of Models (Cal-Adapt, MPI- ECHAM5 used by DWR)
  - + Provide discussion on potential impacts
  - + Recommend tools for future IRWMP update
  - + Identify next steps for incorporation into future IRWMP update
  
- ✘ Stakeholder participation at kickoff of climate change study, review of draft vulnerability results, ranking of vulnerabilities, and identification and review of adaptive strategies

# Climate Change Scenarios - Models

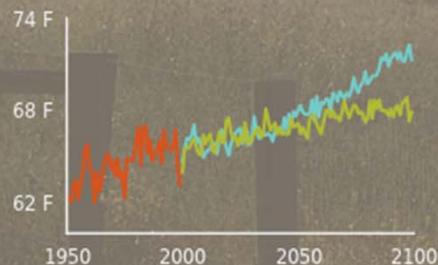
---

- ✘ Data from DWR Reliability Report
  - + Based on MPI-ECHAM5
- ✘ Cal-Adapt website
  - + CA climate change data for local level analysis
  - + “Downscaled” global climate model results for better resolution
  - + Used average of 4 Cal-Adapt models



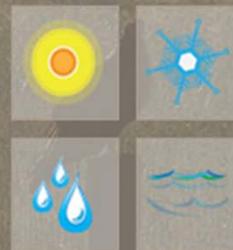
### View Local Profiles

QUICKLY EXPLORE CLIMATE PROJECTIONS FOR YOUR LOCAL AREA



### Explore Climate Tools

INTERACTIVE MAPS & CHARTS



### About Cal-Adapt

**NEW** EXTREME HEAT TOOL



**?** FAQs

### Access Data

ACCESS THE RAW DATA USED IN CAL-ADAPT



Select and download data in a variety of tabular and GIS formats

### Resources

INFORMATION, ARTICLES & LINKS



Find out more about how climate change in California is relevant to your community

### Community

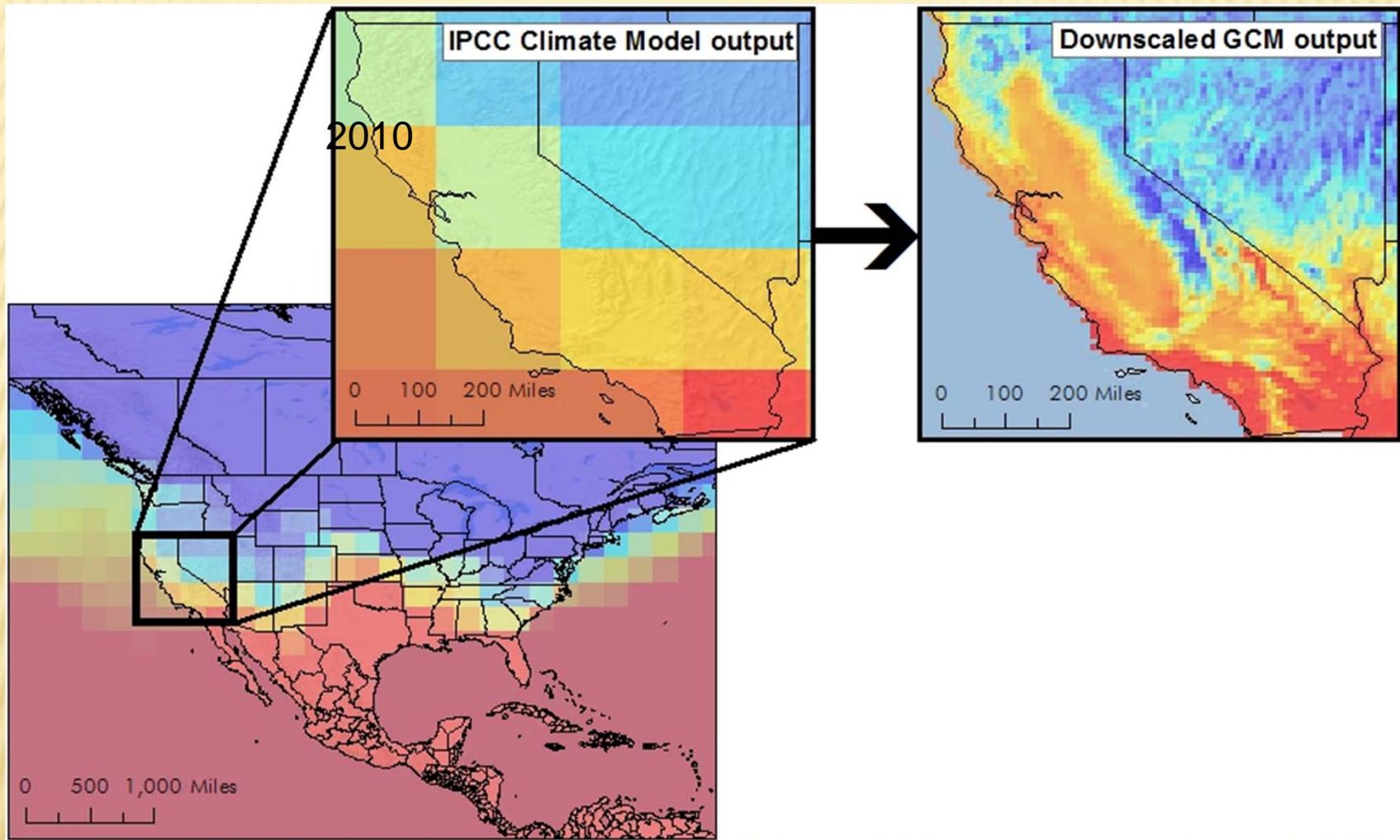
PARTICIPATE IN COMMUNITY BASED TOOLS AND ACTIVITIES



Find out how you can share your thoughts and findings, communicate with experts, and help to collect new data

**Tweet** 211

**Like** 378



# Vulnerability Assessment

---

## ✘ Potential Vulnerabilities

+ Water Demand

+ Water Supply

+ Water Quality

+ Flooding

+ Ecosystem and Habitat

+ Hydropower

+ Sea Level Rise

# Vulnerability Assessment – Challenges

## ✘ Water Demand

- + Limited regional weather data
- + More accuracy with historic data (demand vs. air temp)
- + Unavailability of regional agricultural crop distribution

## ✘ Water Supply

- + Uncertainty of groundwater basin response

## ✘ Water Quality

- + Lack of stream flow data

# Vulnerability Assessment – Findings

## ✘ Water Demand Increase

- + Climate change vs. population growth
- + Agricultural demand vs. land use shift

## ✘ Water Supply Challenges

- + Potential SWP delivery reductions – long-term average
- + Reduced natural groundwater recharge
- + Heavier reliance on non-imported water

# Vulnerability Assessment – Findings

## ✘ Water Quality Changes

- + Reduced quality of Castaic Lake storage
- + Degraded regional stream systems
- + Lower regional groundwater quality – perchlorate

## ✘ Flooding Risks

- + More intense storm events

## ✘ Ecosystem and Habitat Stresses

- + Impacts to the Region's diverse ecosystems and habitat

# Vulnerability Assessment – Findings

- ✘ Sea Level Rise
  - + Impacts to imported SWP water
- ✘ Hydropower Impacts
  - + Higher regional costs

# Vulnerability Assessment – Conclusion

- ✘ Increased Regional Water Resource Challenges
- ✘ Water objectives vs. climate change trends
  - + Reduce water demand vs. increased demand
  - + Increase water supply vs. uncertain supply
  - + Improve water quality vs. impacted water
- ✘ Proactive management is warranted
- ✘ Continued analyses are necessary

**THANK YOU**

---