

# Water Resources

## Climate Change

Blue Circle

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# Overview

- Water resource issues
- Effects of Climate Change
- Agencies involved
- State Legislation and Programs
- Current Efforts
- Integrated Regional Water Management

# Water Resource Issues

- Lack of sustainable water supply: groundwater overdraft, seawater intrusion, ~50% drought curtailment.
- Adverse impacts on aquatic habitat and endangered species: flow, sediment, and water quality
- Stormwater Management: water quality, flooding, and loss of groundwater recharge
- Issues are linked: stormwater, recharge, overdraft, baseflow

# Climate Change Impacts and Issues

- Water issues will be exacerbated by climate change:
- Increased demand due to higher temperatures, shorter wet seasons
- Increased storm intensity will result in increased flooding, reduced recharge
- Reduced recharge will result in diminished groundwater supply and reduced stream baseflows
- Sea level rise will flood coastal wetlands and farmlands, increase lower river flooding, and exacerbate seawater intrusion
- Water resource planning will need to take into account these additional impacts and adapt to climate change

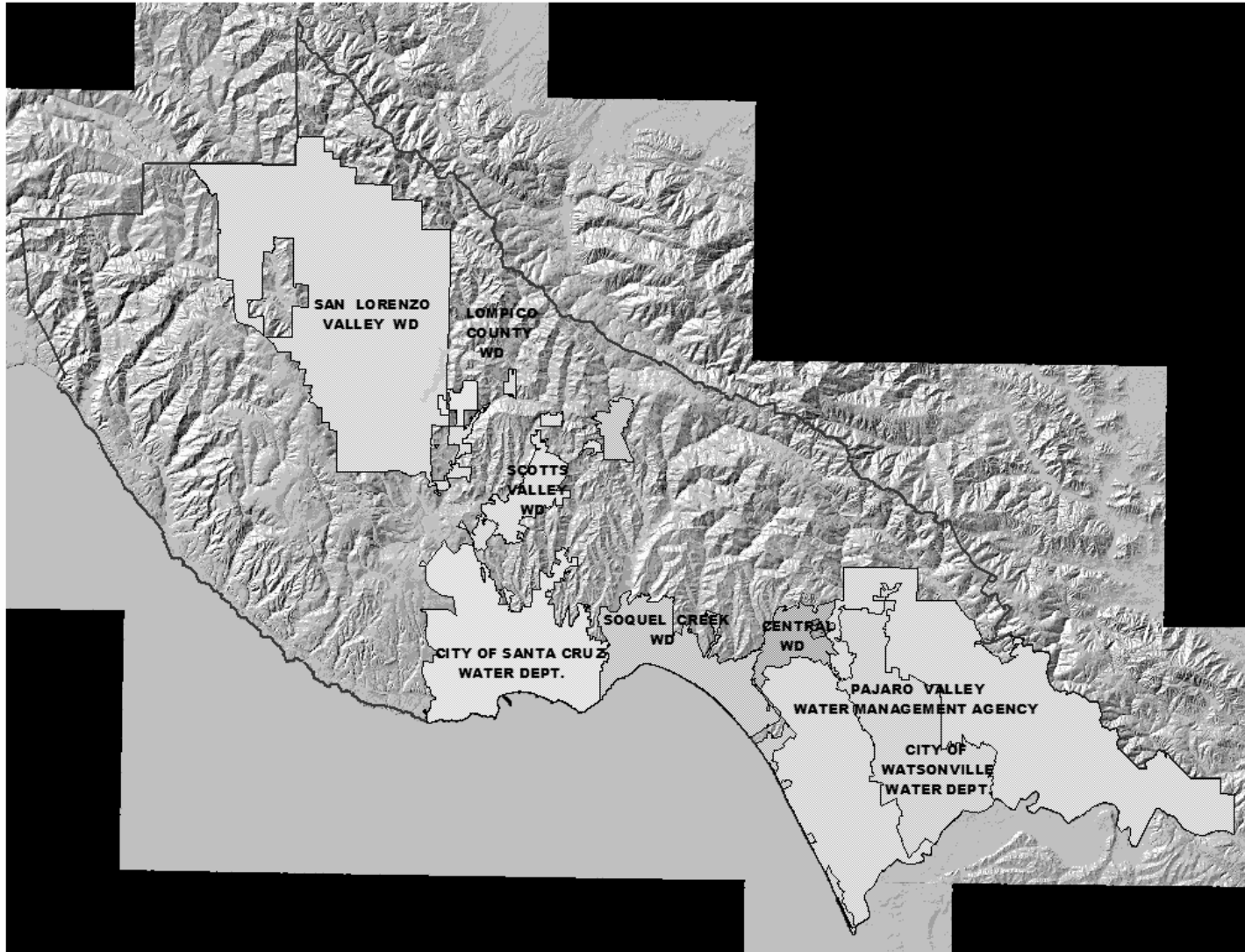
# Local Impacts of Climate Change – 2008 as an Example?

- 80% of mean annual rainfall
- San Lorenzo River came within feet of flooding
- Loch Lomond Reservoir filled
- But flow in the River in May was only 37% of the mean flow for that time of year.
- The aquifers remained depleted from two years of low recharge and years of overuse
- Individual wells went dry

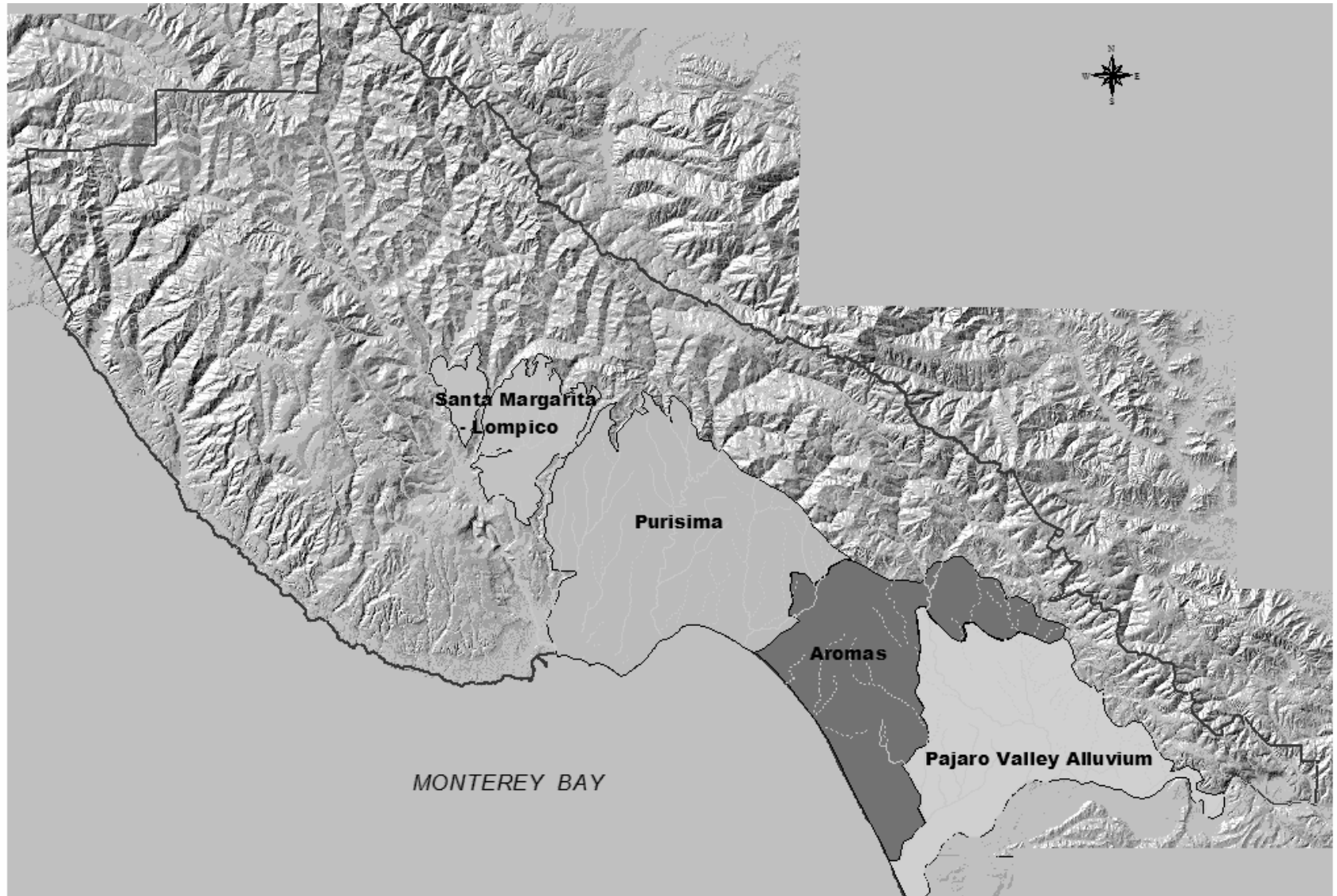
# Mitigation of Greenhouse Gases from Water Use

- State-wide, water supply and use represents 19% of electricity use and 32% of natural gas use
- Most of that is related to water heating and other end use.
- Water supply consumes only 4% of energy statewide; much lower for northern California
- For City of Santa Cruz, water supply generated less than 1% of the total green house gases produced by all sources in the City
- Amounted to 0.6 metric ton CO<sub>2</sub>e per million gallons of water delivered. (Soquel is similar. SLVWD had 50% greater emissions per million gallons)
- Reduced water heating has greatest potential for reducing GHG

# Santa Cruz County Water Agencies



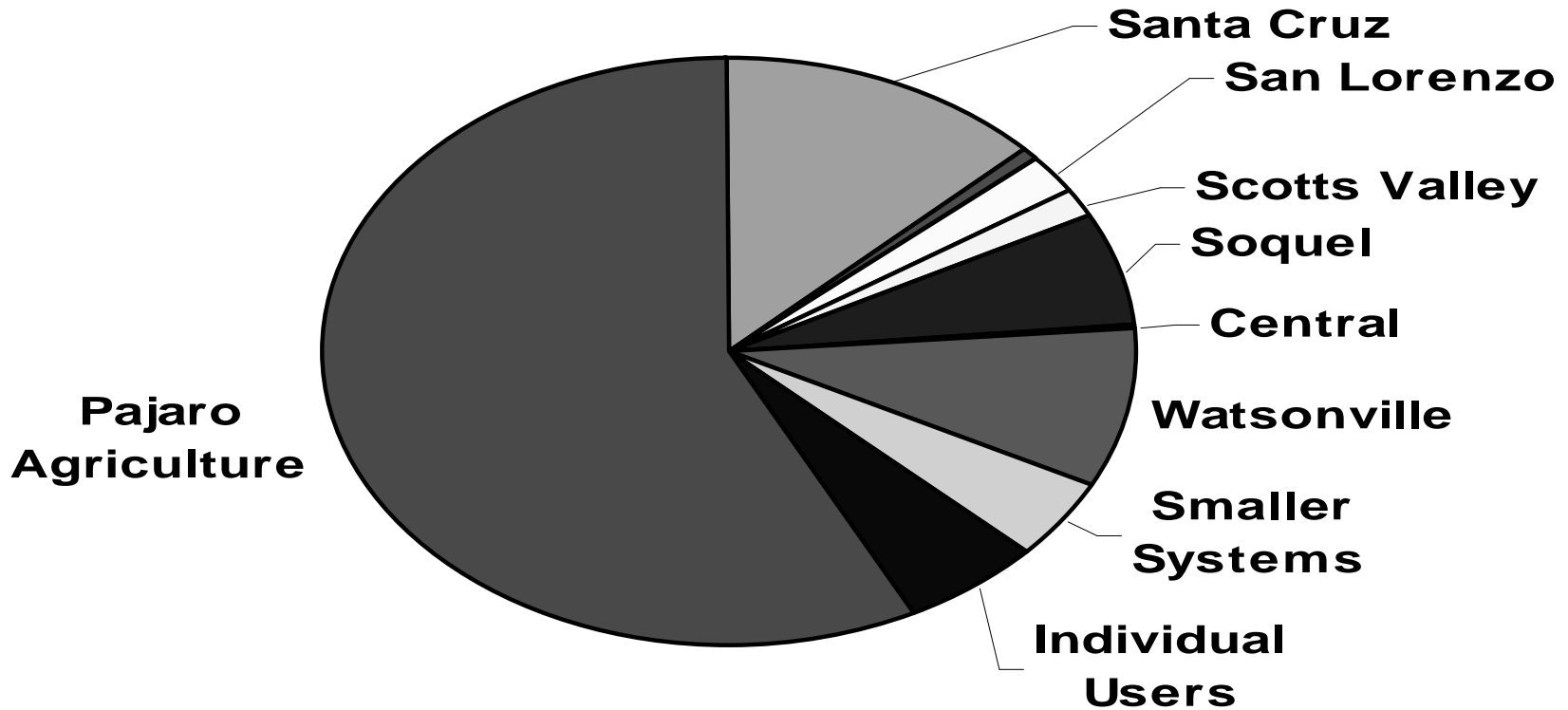
# Groundwater Basins



# Santa Cruz County Water Use

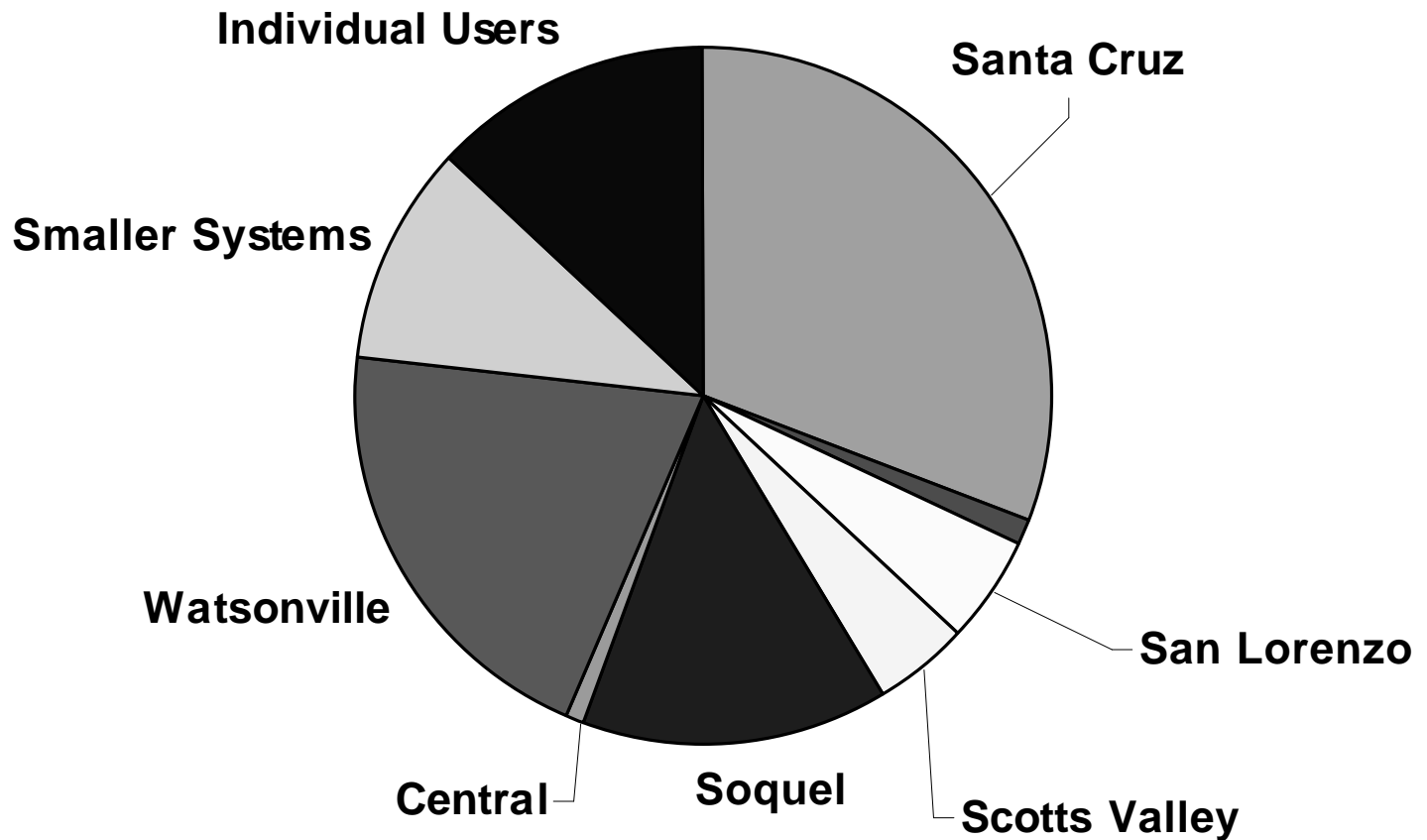
90,000 acre--feet per year – 85%

Groundwater



# Non-Agricultural Use

38,400 acre-feet/yr – 65% Groundwater



# Water Supply Efforts

- Integrated Resource Plans
- Groundwater Management Plans
- Urban Water Management Plans
- Water conservation and demand management  
Use has not increased since 1990's)
- Recycled water (Scotts Valley and Watsonville)
- Supplemental Supply (Soquel and Santa Cruz)
- Conjunctive Use, Water Exchanges

# Stormwater Management

- Stormwater management plans
- Interagency coordination
- Hydromodification
- Recharge Restoration
- Low Impact Development
- Green Building
- SWAG: Santa Cruz Watershed (Storm Water) Action Group

# Related State Efforts

- Water Boards:
  - Stormwater,
  - Recycled Water,
  - Water Rights
- Dept. of Water Resources:
  - Water Plan Update,
  - Integrated Regional Water Management
  - Grants
- Dept. of Public Health: recycled water
- Recent Legislative Water Package

# Santa Cruz Integrated Regional Water Management

- Water Supply Agencies
- Cities and County
- Sanitation Districts
- Flood Control Districts
- Resource Conservation District
- Community Foundation/Regional Water Management Foundation
- Pajaro IRWMP

# SCIRWMP: Prop 50 Projects

- Abandoned Well Destruction
- Conjunctive Use Plan
- Aptos Drainage Master Plan
- Stormwater Pollution Prevention
- Groundwater Recharge Projects
- New Brighton Sewer Relocation
- Desal Project Intake Evaluation

# SCIRWMP: Prop 50 Projects (cont)

- Polo Grounds Well and Treatment Plant
- Polo Grounds Monitoring Well
- Davenport Drinking Water Treatment
- Watsonville Slough Wetland Restoration
- Integrated Watershed Restoration Program
- Scotts Valley Recycled Water Extension
- Coordinated Monitoring

# SCIRWMP: Plan Update

- Solicit Additional Partners and Projects
- Expand Plan
- Address state-wide concerns
- Evaluate potential system interties and conjunctive use
- Evaluate local climate change impacts on groundwater recharge and streamflow