



Our Integrated Water Plan

Wednesday, April 22, 2009

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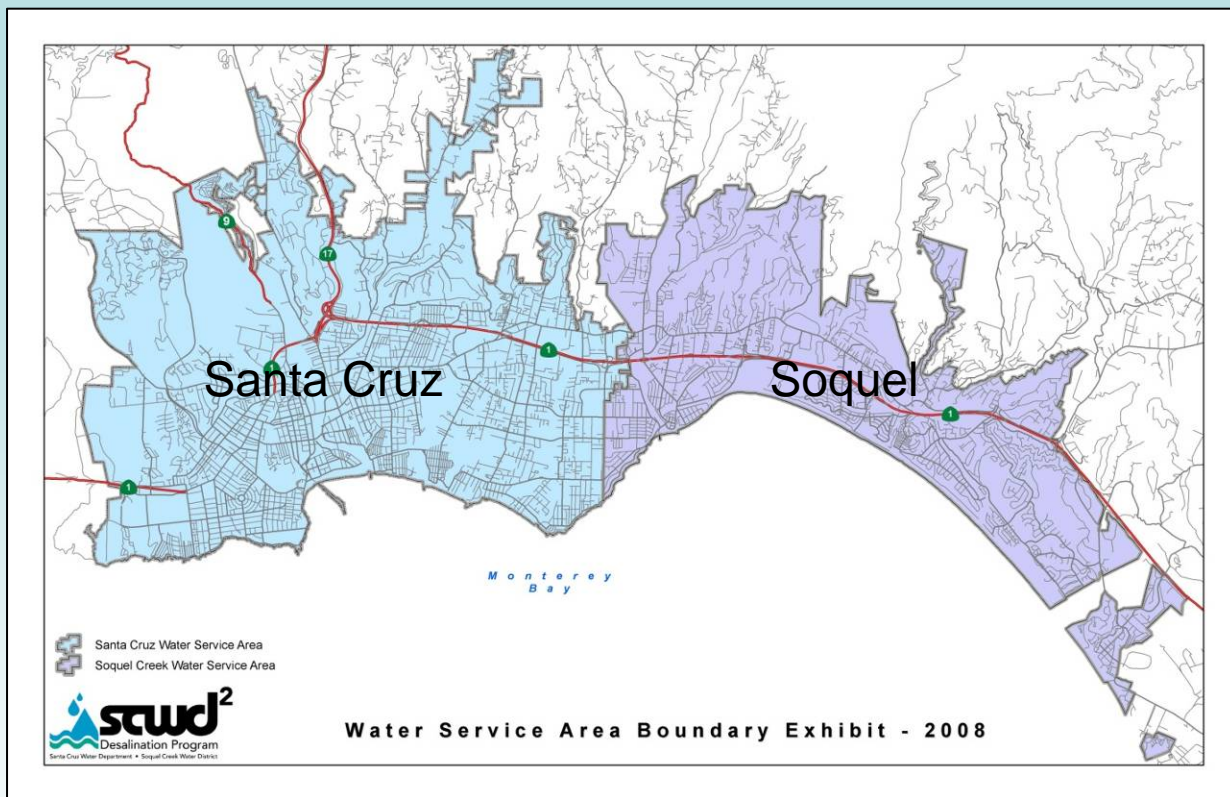


Presentation Outline

- 💧 Regional Water Supplies/**scwd**²
- 💧 Issue Statements
- 💧 Our Integrated Water Plan
- 💧 Where we are today
- 💧 What's Next

scwd² is a collaboration between the Santa Cruz Water Dept. & Soquel Creek Water Dist.

- ◆ Together we serve over 135,000 people
- ◆ Similar values and objectives
- ◆ Our different needs lead us to a collaborative approach for sustainable water resources

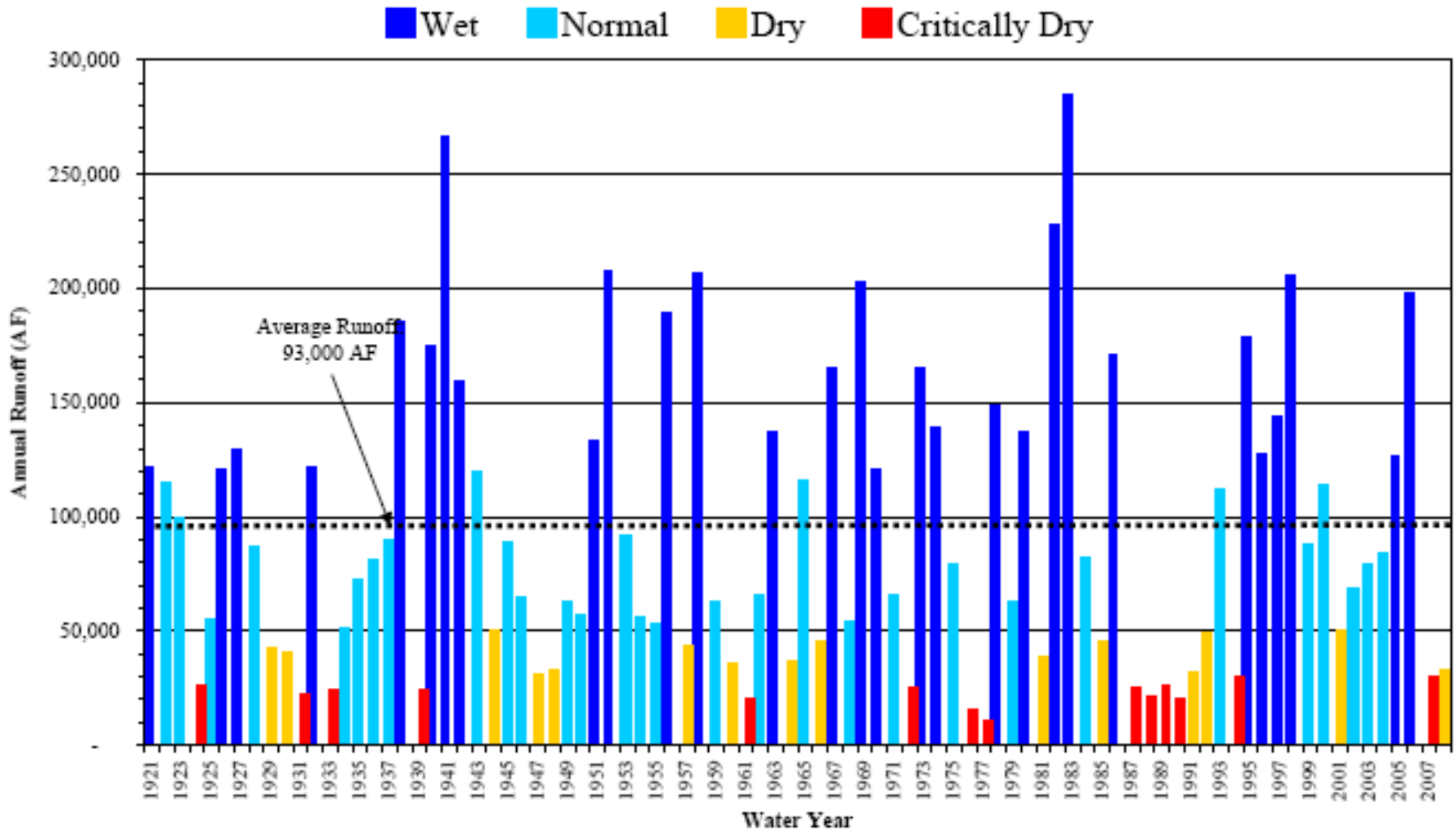


Santa Cruz's water primarily comes from rainfall into local streams and reservoirs





Lack of Water in a Drought!



A drought similar to 1976-77 now, would mean water shortage could approach 45%



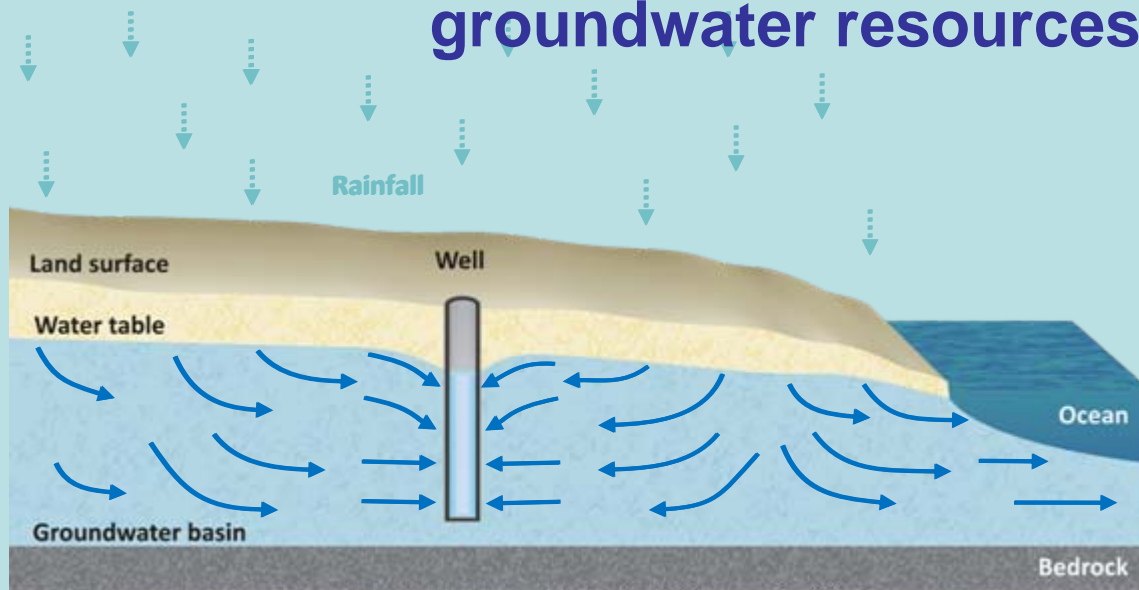
- ◆ Severe water rationing, with penalties for overuse
- ◆ Extreme limits on outdoor use
- ◆ Water rationing for businesses and industry
- ◆ Recreation facilities (parks, pools, sports fields) reduced or shut down

Soquel Creek relies on well-water from local groundwater basins

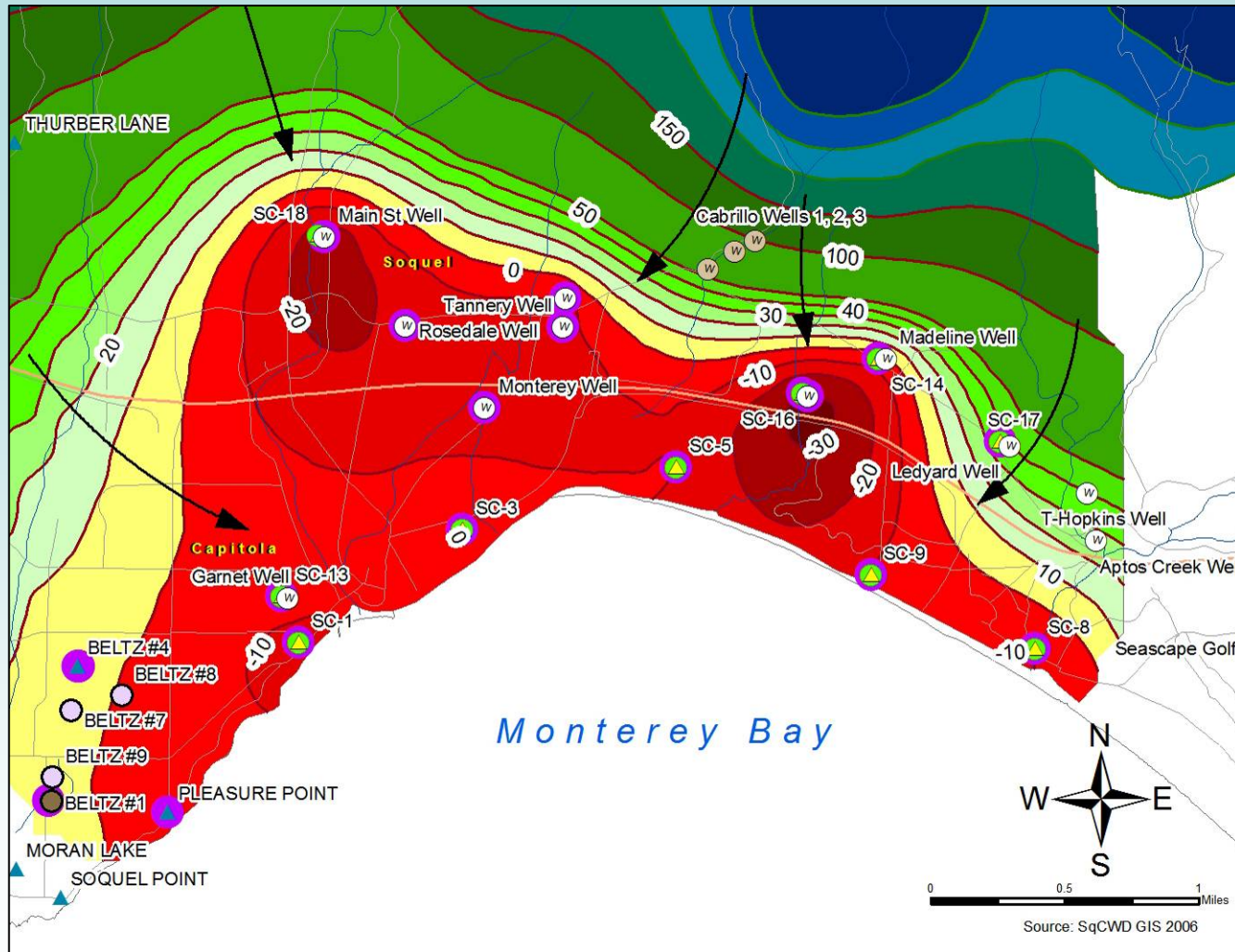


- ◆ Local groundwater (wells) is the only water source
- ◆ No State or regional water
- ◆ No water from creeks or rivers (surface water)

Saltwater intrusion would contaminate groundwater resources.



Currently, our groundwater basins are over-drafted





The Santa Cruz Supply Planning Process at a glance

- ◆ **1970's** Last new source brought on-line (Felton Diversion)
- ◆ **1985** North SCCounty Water Master Plan Study
Looked at many alternatives; refers groundwater to further study.
- ◆ **1987** Groundwater Study
Looked at Live Oak, North Coast, SLR basin – concluded not enough available.
- ◆ **1989** Water Master Plan
Looks at upgrading existing system, increasing Felton Diversion new dams, groundwater, reclamation – refers some projects for further study.
- ◆ **1989** Water Supply Alternative Study
Refers Brackish water for further study. Later rejected by area residents.
- ◆ **1998** Water Demand Investigation
Evaluates water demand by considering population growth and potential employment.
- ◆ **2001 – 2005** Integrated Water Plan
 - Water Conservation Plan
 - Alternative Water Supply Study
 - Water Curtailment Study
 - Evaluation of Regional Water Supply Alternatives

Our Integrated Water Plan

1. Conservation

Continue our active programs to reduce demand

2. Curtailment

Plan on an additional 15% temporary rationing during droughts

3. Recycled Water

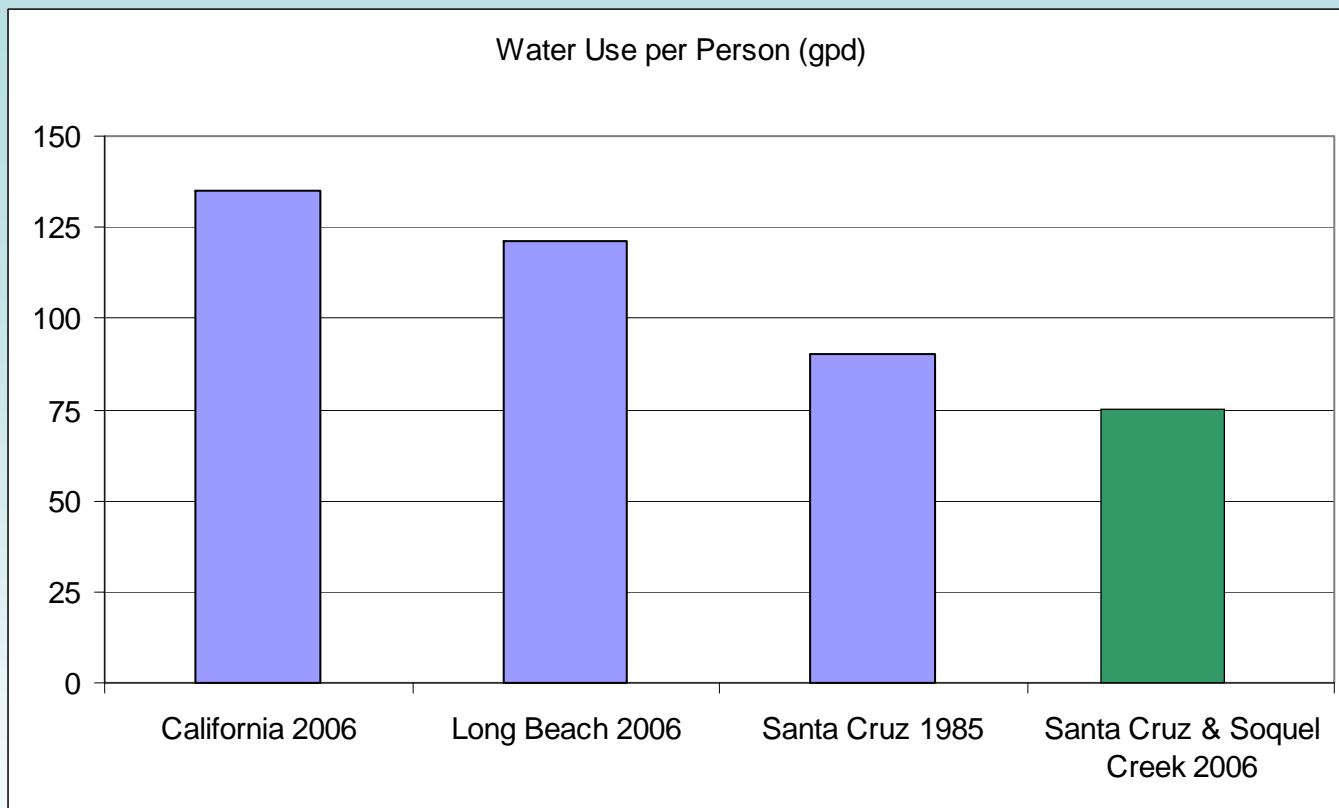
Use recycled water for irrigation where feasible

4. Develop Supplemental Supply

Cooperative desalination facility to protect against drought and preserve groundwater resources



Conservation is the cornerstone of our Integrated Water Plan



California average use is 130 gpd
Santa Cruz/Soquel Creek average use is 75 gpd

Santa Cruz and Soquel Creek have active ongoing Conservation Programs to reduce average daily water demand



- ◆ Home water surveys
- ◆ Toilet rebates
- ◆ Clothes washer rebates
- ◆ Turf replacement
- ◆ Rainwater cistern rebates
- ◆ Smart irrigation systems
- ◆ Plumbing fixture retrofit ordinances
- ◆ Water demand offset program

Curtailment: In a drought, 15% temporary reduction in normal water use would be enforced



Likely drought scenario includes:

- ◆ Restrictions to residential outdoor water use
- ◆ Restrictions to general irrigation
- ◆ Elimination of non-essential uses
- ◆ Cutbacks for all customers, including businesses

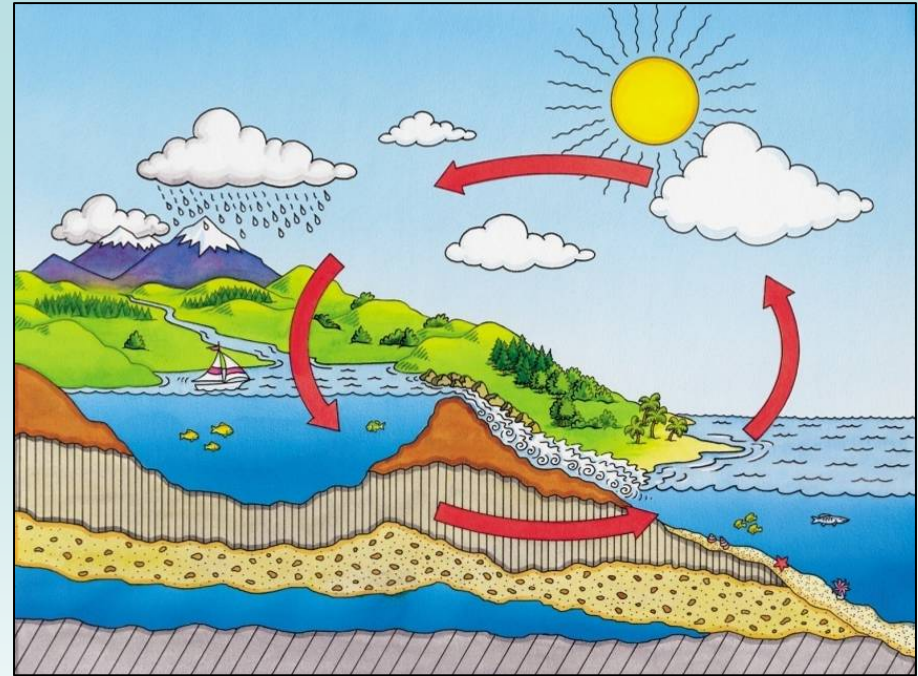
Santa Cruz and Soquel Creek are actively investigating irrigation with recycled water

- ◆ City has implemented recycled water use at the wastewater plant
- ◆ Possible irrigation at Pasatiempo Golf Course
- ◆ Possible irrigation at Seascapes Golf Course
- ◆ Potential for irrigation at local parks



Unfortunately, recycled water for groundwater recharge is not feasible here

- ◆ Our coastal groundwater basins are too small to meet Department of Health criteria to inject recycled water back into the ground.
- ◆ No adequate room to percolate.



We have evaluated and eliminated over 30 different supplemental water supply options



- ◆ New on-stream dams and reservoirs
- ◆ New off-stream dams and reservoirs
- ◆ Additional surface water sources
- ◆ Additional groundwater wells
- ◆ Imported water
- ◆ City – only Desalination
- ◆ Regional Desalination

Conceptual Planning

Location

- Facility would be located in Santa Cruz

Size

- 2.5 million gallons per day (MGD)

Intake

- Open Ocean Intake or Subsurface Wells

Brine Disposal

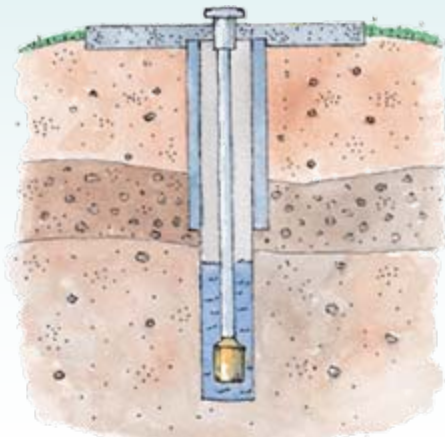
- Through existing wastewater outfall



Sharing Desalinated Water



- Would use 2.5 million gallons per day
- Priority User: May - Oct



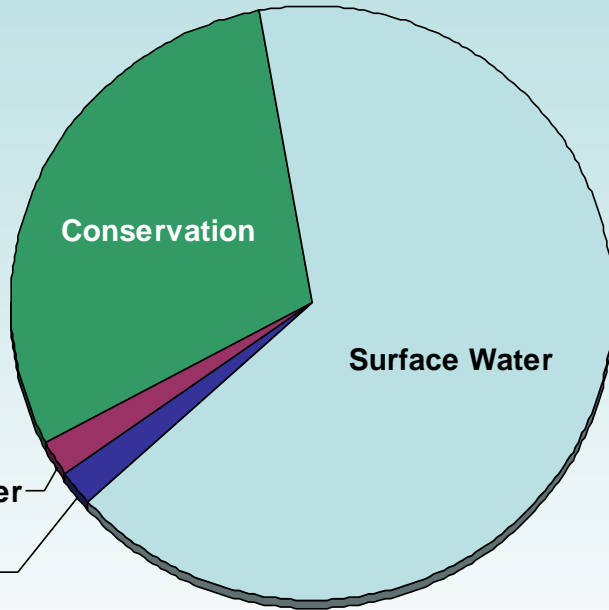
- Would use 1 million gallons per day
- Operate to augment groundwater supplies & to bank water. Priority User: Nov - Feb

Proposed Water Portfolio

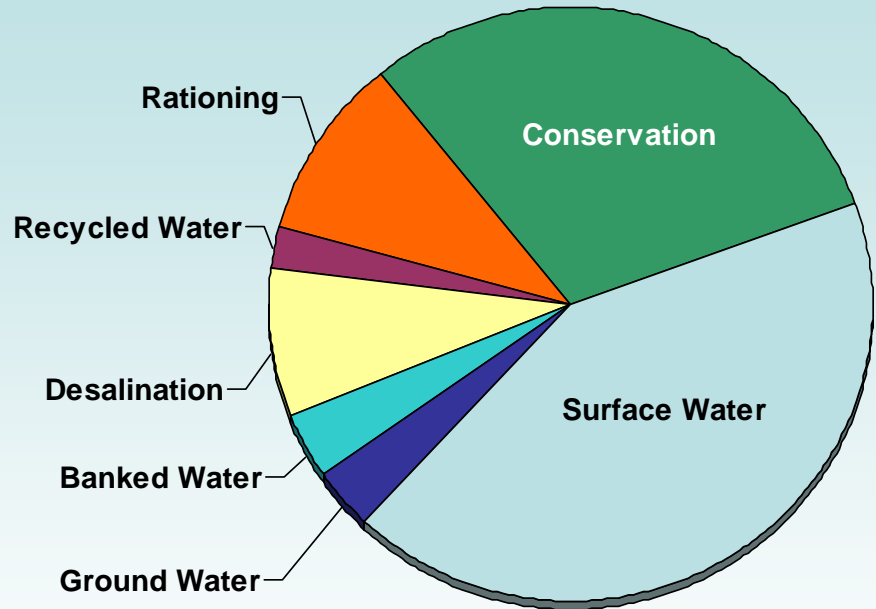
During a drought, the City would use the desalination plant during the summer months



Normal Water Year



Drought Year



Desalination provides a reliable, drought-proof water resource

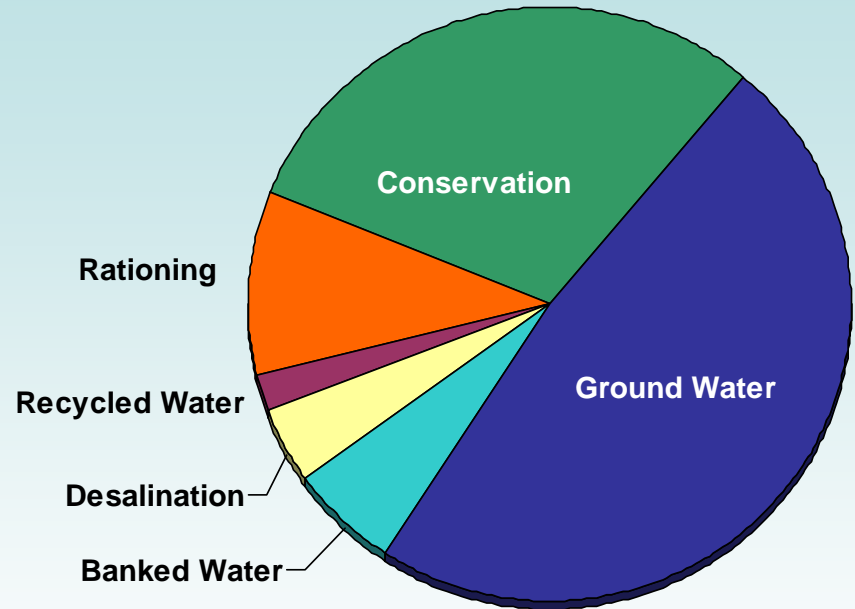
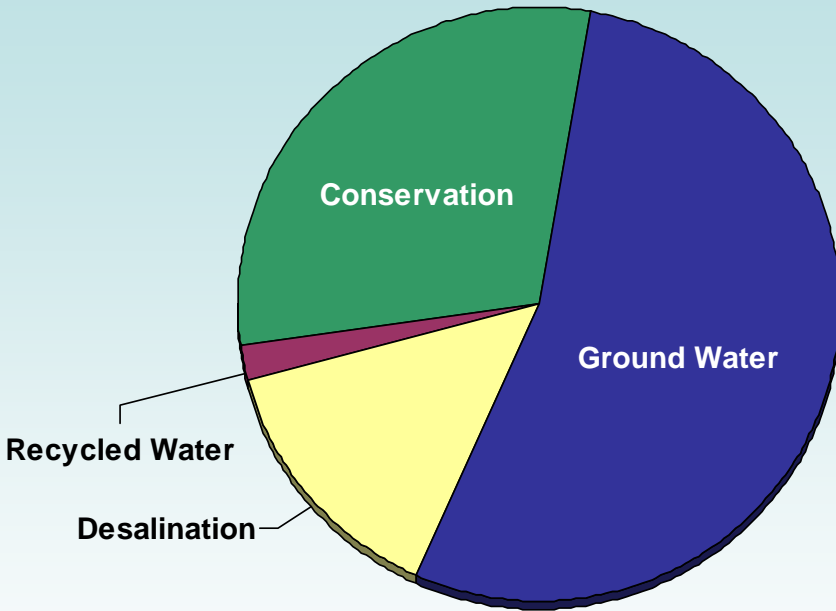
Proposed Water Portfolio

During normal years,
Soquel Creek would use the desalination plant

Normal Water Year



Drought Year



Desalination provides a supplemental supply
to prevent seawater intrusion and restore groundwater levels

scwd² Task Force is conducting numerous studies to evaluate Desalination

Concern

Study to Address

Water Quality

Pilot testing of technology

Intake

Evaluating screens and beach wells

Energy

Evaluating carbon neutral facility

Brine Discharge

Blend with wastewater plant

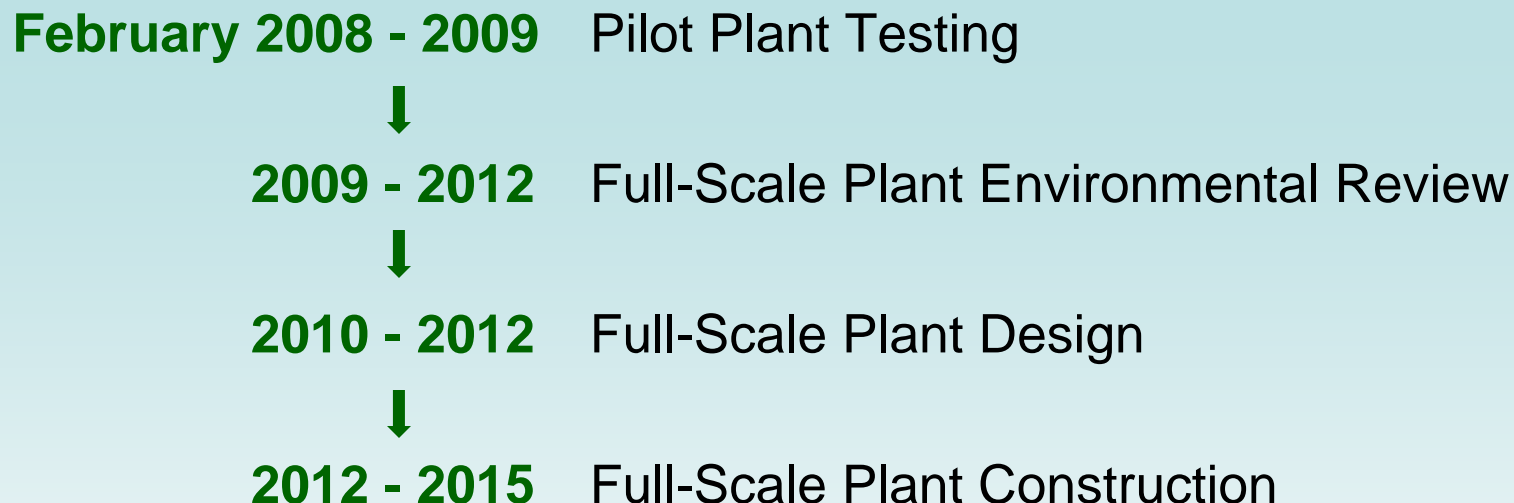


Our evaluation process will be careful and thorough.

scwd² Desalination Program Components

- ◆ **2005** Program EIR certified by City Council
- ◆ **2005** Received a DWR Prop 50 grant for Pilot
- ◆ **2005 ~ present** Hired CDM/Pilot Operation
- ◆ **2007** Formed Task Force and **scwd²**
- ◆ **2007 ~ present** Watershed Sanitary Survey
- ◆ **2007** Received SWRCB Prop 50 grant for Intake Study
- ◆ **2008 ~ 2010** Intake Studies
- ◆ **2009** Energy Minimization Plan
- ◆ **2009** Dilution Study

Project Schedule and Timeline





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Energy Minimization & GHG Reduction Plan

Anticipated scwd² Seawater Desalination Facility Operation

Season	Priority 1 User	Priority 2 User	Priority 3 User
May - October (any year)	Santa Cruz up to 2.5 mgd	SqCWD up to 2.5 mgd	NA
November - February (any year)	SqCWD up to 2.5 mgd	Santa Cruz up to 2.5 mgd	NA
March, April (any year)	SqCWD up to 1.25 mgd	Santa Cruz up to 1.25 mgd	SqCWD up to 1.25 mgd