

# Quantifying Scenarios For Water Plan Update 2009

Strengthening the ties between DWR and UC  
January 26<sup>th</sup>, 2009



# Overview

- Provide status on quantifying scenarios for Update 2009
  - Use of WEAP model
  - Scenario factors
  - Climate change



# Status on Quantifying Scenarios for Update 2009



# Deliverables for Update 2009

## Using WEAP

- DWR is using WEAP platform for Update 2009 to quantify future scenarios and water management responses
  - Successful WEAP application for IEUA
  - Contracting mechanism and expertise in place
  - Graphical nature supports collaboration
  - Shorter learning curve than alternatives



# Technical Outreach and Refinement of Proposal

- December 2007 – WEAP proposal
- April 2008 – Shared Vision Planning
- June 2008 – WEAP proposal
  - Climate change
  - Environmental water
  - Flood management
  - Water quality



# Hydrologic Region Analysis

- Monthly, climate-driven demands to 2050
  - reflect global climate change projections
- Inventory current supplies by source
- Coarse representation of response packages

All 10 Hydrologic Regions



# Sacramento and San Joaquin River Regions - Planning Area

- Hydrologically-based water system simulation by month to 2050
  - reflect global climate change projections
- Estimate environmental flows, system operations, deliveries, and reliability
- More direct representation of response packages

Sacramento River & San Joaquin River Hydrologic Regions



# Summary of CWP 2009 Update Scenario Framework

## Sacramento and San Joaquin River Region Analysis

Scenario Factors	Management Strategies
<p>Economic and Financial            Institutional and Political            Natural System (<b>climate factors</b>)            Technological            Social Practices</p>	<p>Water use efficiency            New surface storage            Recycled wastewater use            Desalination            Conjunctive management            Conveyance</p>
Models	Outcomes
<p>Water Evaluation And Planning model            Planning Area for Sacramento and San Joaquin River regions (monthly time step from 2005-2050)</p>	<p>Demand            Available supply            Shortage frequency and magnitude            Reliability            Delta salinity            Hydro power and flood performance            Economic measures</p>





# Summary of Scenario Factors



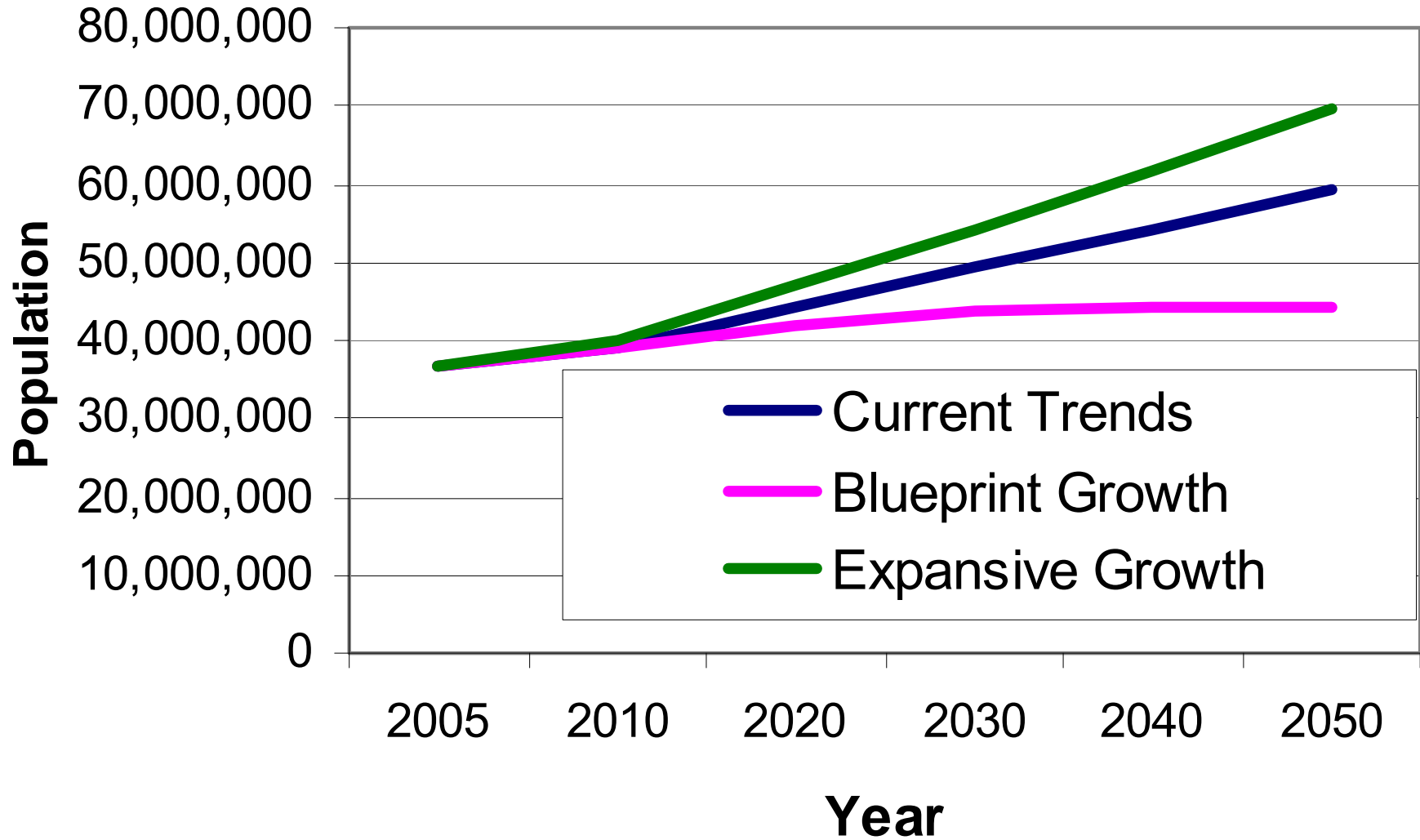
# Scenario Storylines

- Scenario 1 – Current Trends
- Scenario 2 – Blueprint Growth
- Scenario 3 – Expansive Growth

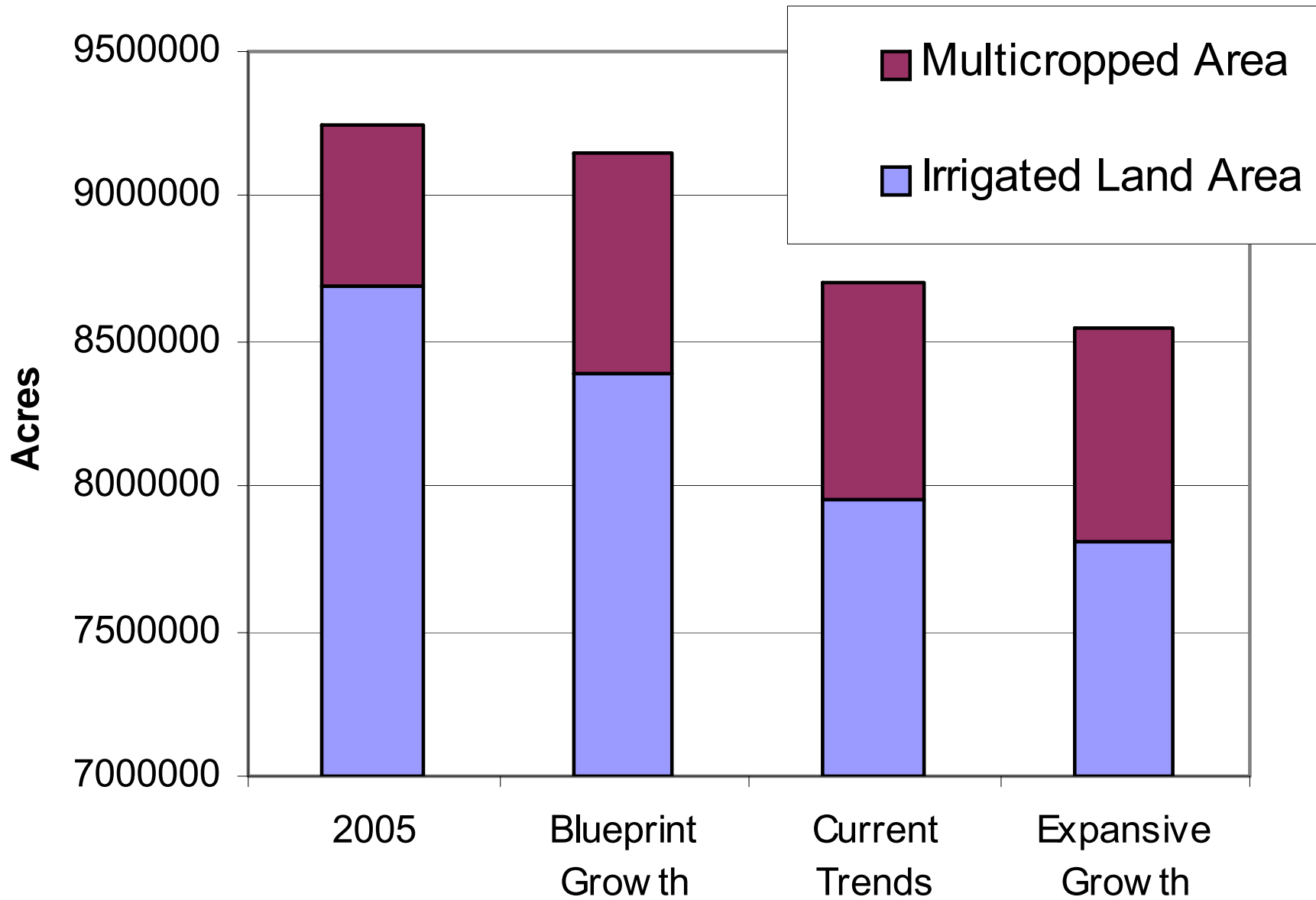
NOTE: All scenarios evaluated against climate variation (climate change, multiple year droughts, wet years)



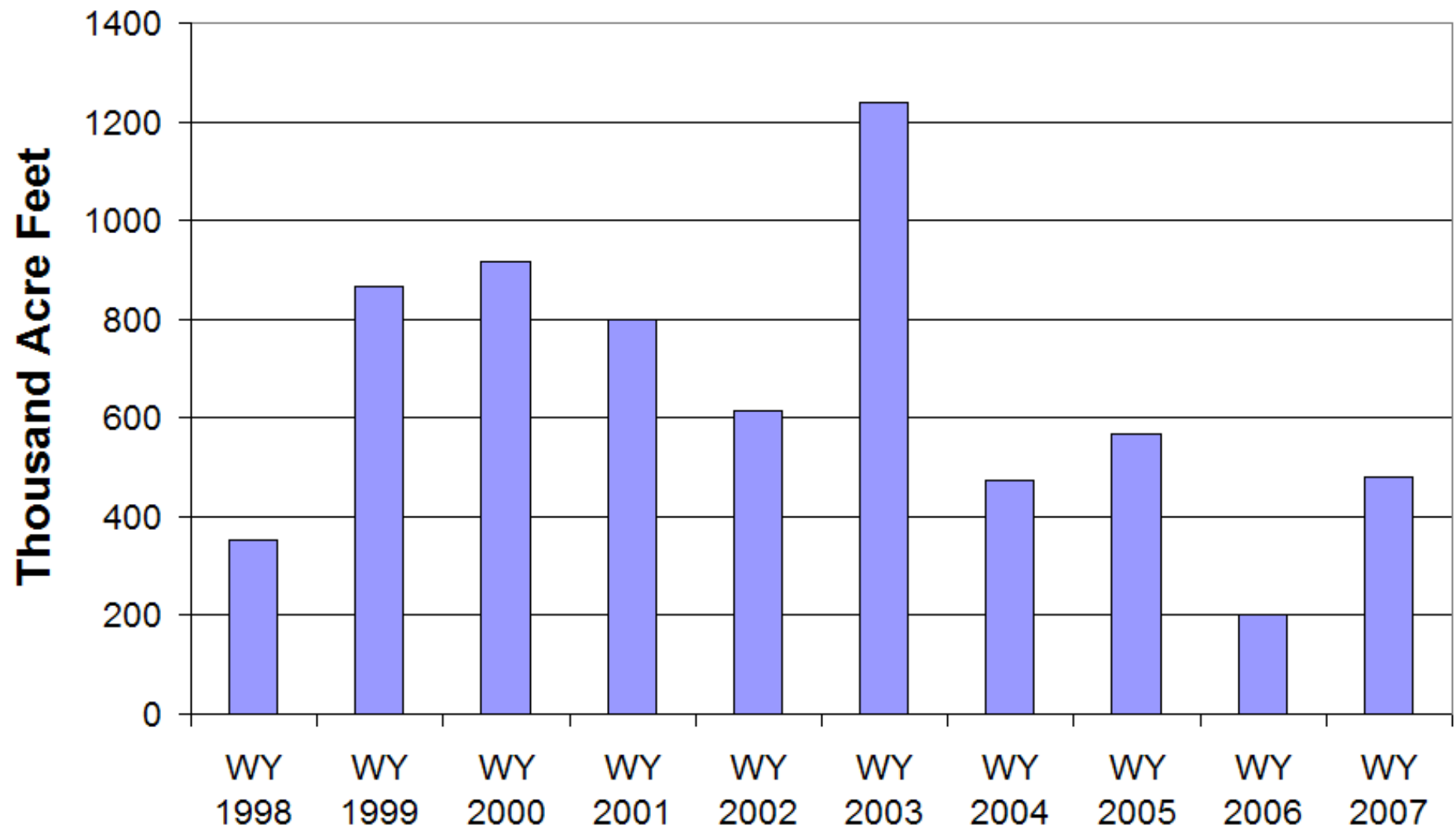
# California Population by Scenario



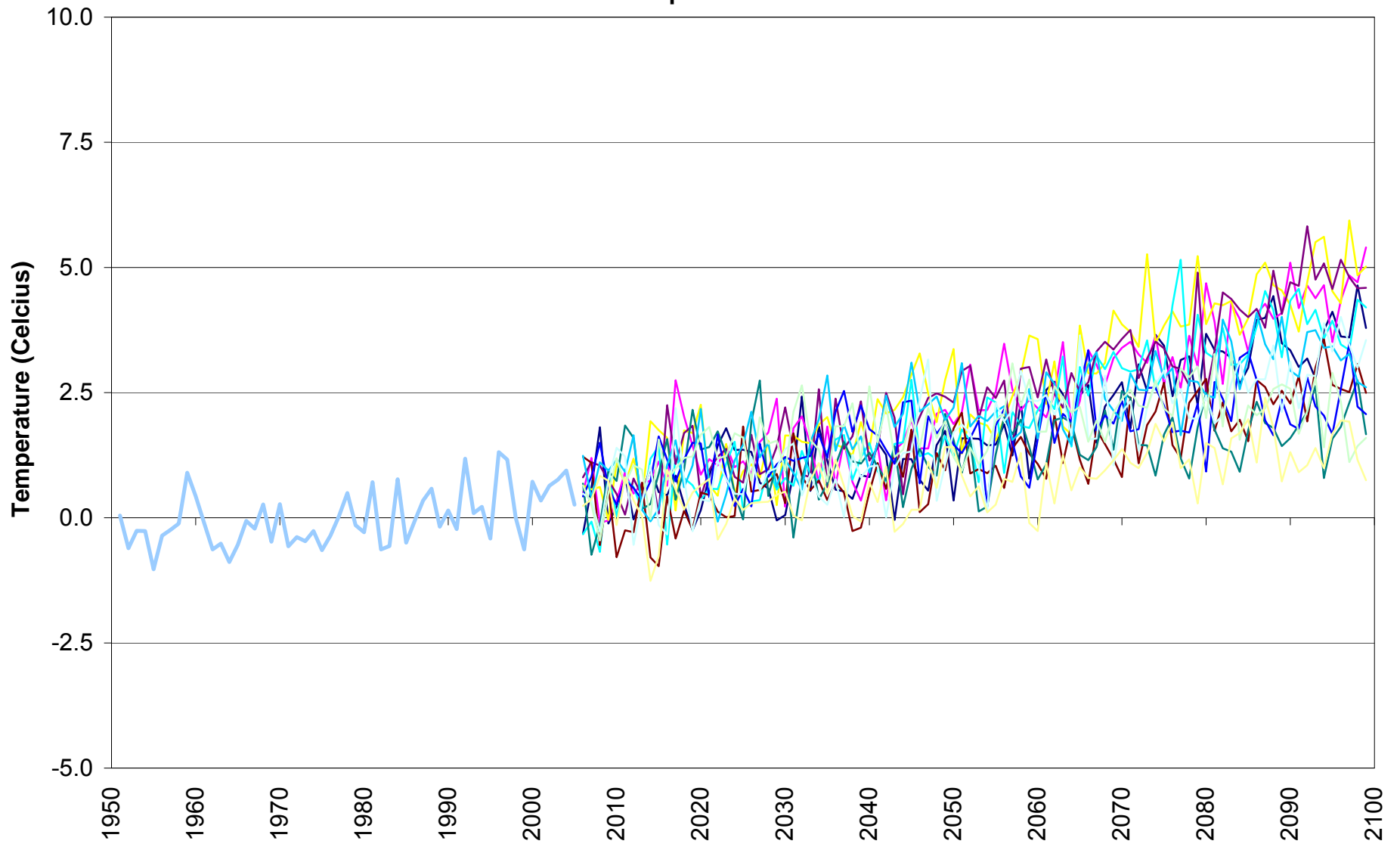
## 2050 California Irrigated Crop Area by Scenario



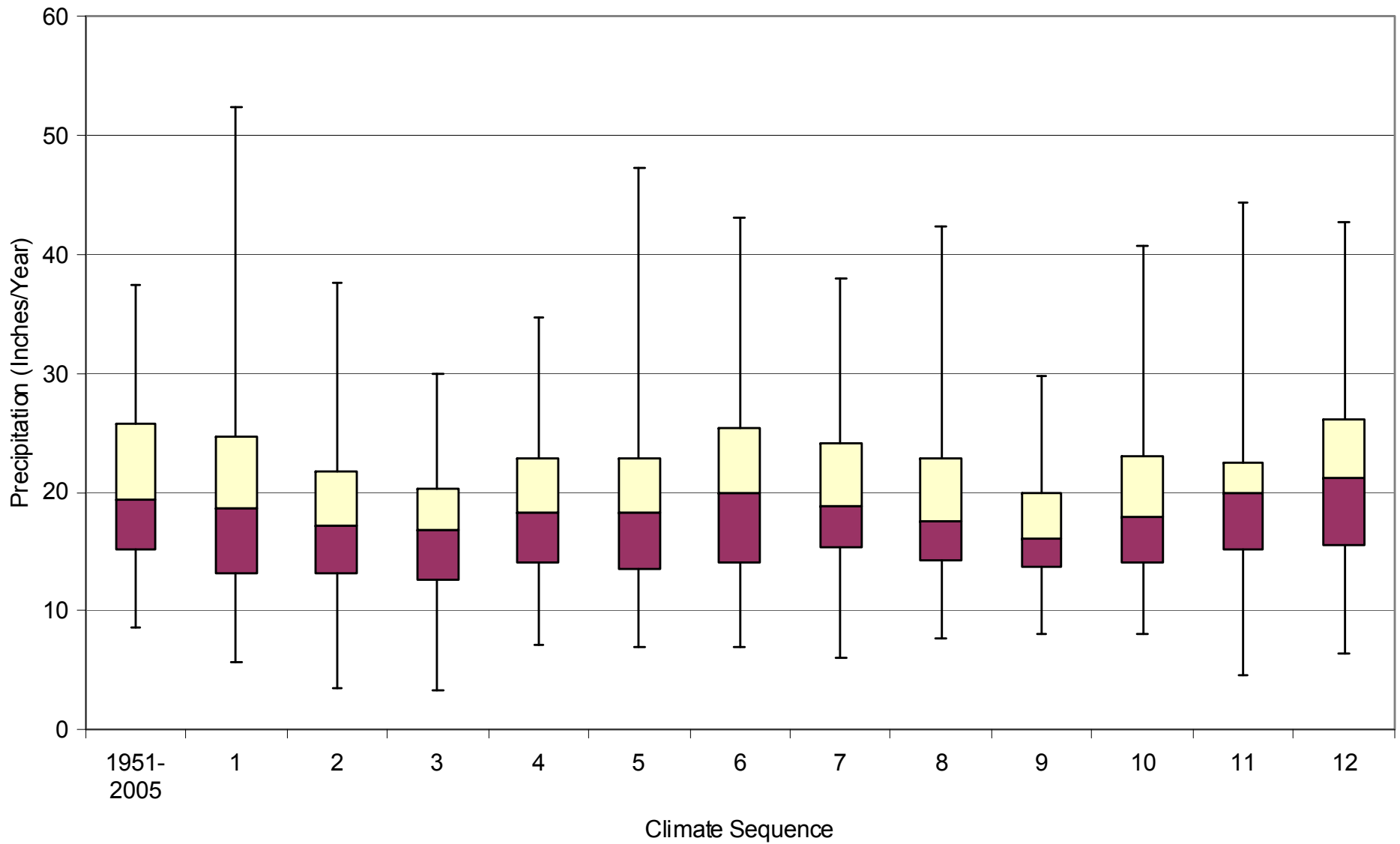
## Summary of Unmet Environmental Objectives



**Change in average annual temperature for the Sacramento Valley floor  
from historical 1951-2005 average for historical period and  
12 climate sequences 2006-2100**



## Variation in Precipitation Historical 1951-2005 and by Climate Sequence



# Related Update 2009 Content

- Managing risk and uncertainty (Chapter 5)
- Integrated data and analysis (Chapter 6)
- Climate change white paper
- Climate science paper
- August 2008 version of WEAP Proposal





# Approximate Project Schedule

- Project scoping (though last August)
- Model development
  - Sacramento River model (through September)
  - San Joaquin River model (through September)
- Model calibration (October - December 2008)
- Scenario analysis (December 2008 – February 2009)
- SWAN workshop (February 11, 2009)



# Reference Information

Rich Juricich

- [juricich@water.ca.gov](mailto:juricich@water.ca.gov)
- (916) 651-9225
- SWAN
- <http://www.waterplan.water.ca.gov/swan>

