

# Central Valley Focus

## Reports and Studies

<p><b>Water Plan</b> – Managing an Uncertain Future. Update on the Water Plan proposal to evaluate future water management uncertainties through application of the WEAP model</p>	<p>Rich Juricich, DWR</p>
<p><b>Central Valley Basin Study</b> - Presentation by the Bureau of Reclamation on a cooperative study with DWR and other partners to conduct the Central Valley Basin Study</p>	<p>Arlan Nickel, Reclamation, Mid Pacific Region Basin Study Coordinator</p> <p>Mike Tansey, Reclamation, Mid Pacific Region</p>
<p><b>System Re-operation Study</b> - DWR presentation on the Central Valley system re-operation study</p>	<p>Sean Sou, DWR</p>



# Presentation Overview

- 💧 Water management in an uncertain future
- 💧 Partnering with the California Water Plan





FLOODS



DECLINING ECOSYSTEMS

# Managing an Uncertain Future

Risk, Uncertainty, and Sustainability

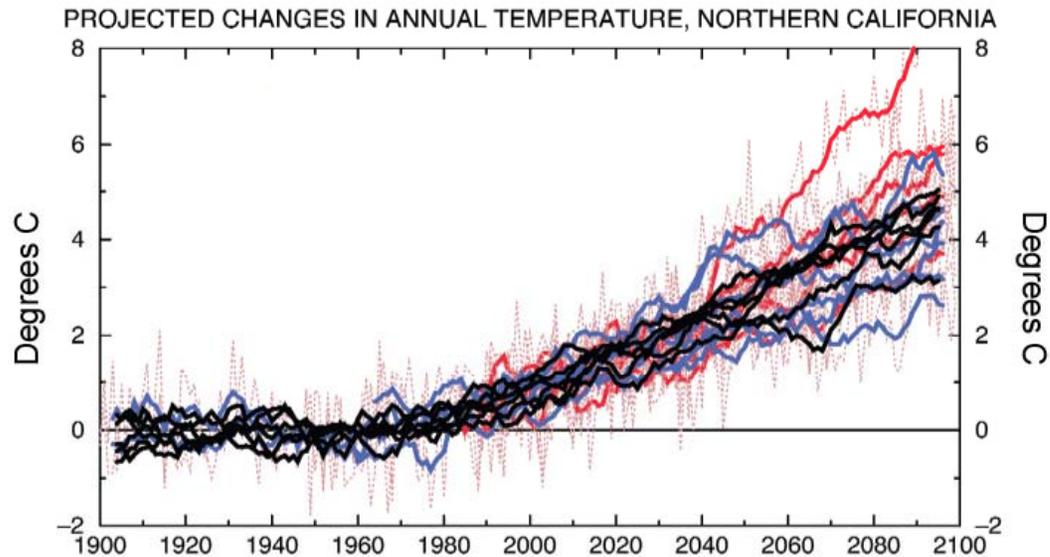
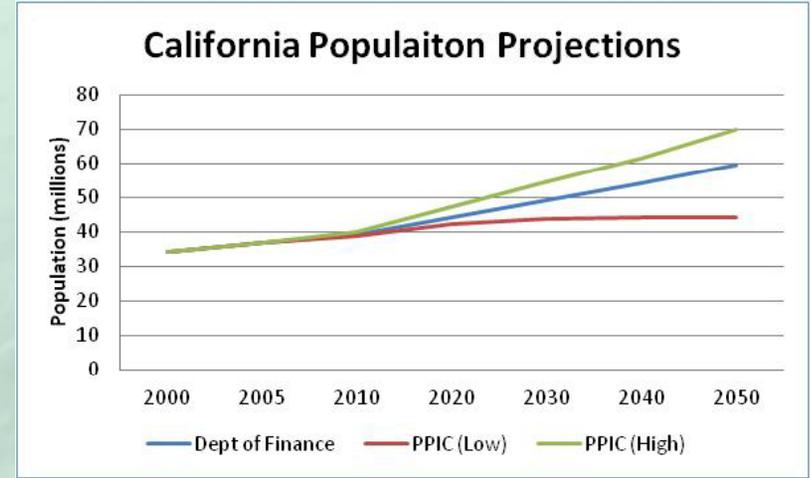
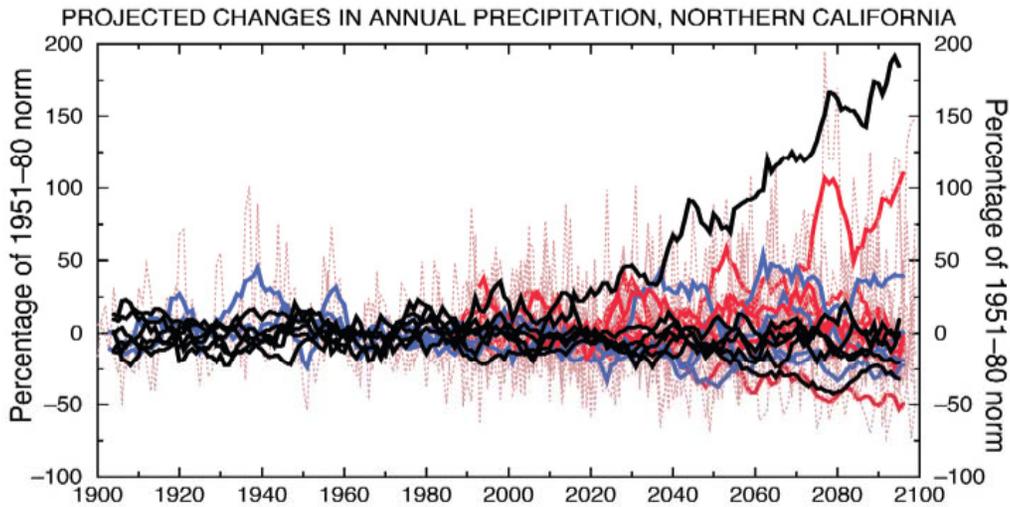


DROUGHT



ENERGY CRISIS

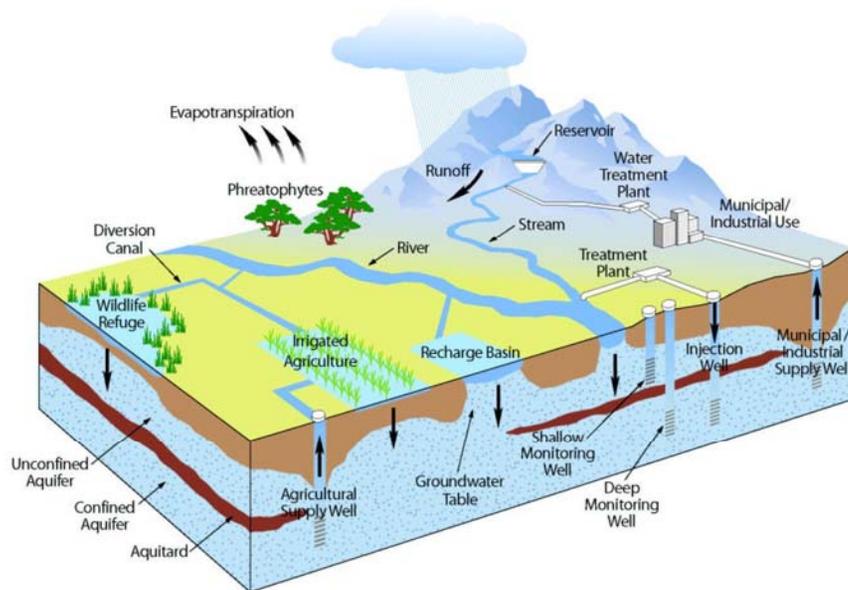
# Developing Future Scenarios



Update 2013  
California Water Plan



# Improvements to analytical tools allow for more comprehensive evaluation





# Summary of analytical approach

- ◆ Apply an iterative, analytic approach that:
  - Considers *uncertainty* that is not easily characterized statistically
    - Future climate, land uses, environmental regulations
  - Systematically evaluates *options* to increase robustness of current strategies
    - Analysis guides development of new, adaptive strategies
  - Quantifies outcomes across broad array of *metrics*
    - Accommodates wide range of objectives and values over outcomes



# Resource Management Strategies (Update 2009)

## A Range of Choices

### Reduce Water Demand

- ◆ Agricultural Water Use Efficiency
- ◆ Urban Water Use Efficiency

### Improve Operational Efficiency & Transfers

- ◆ Conveyance – Delta
- ◆ Conveyance – Regional / Local
- ◆ System Reoperation
- ◆ Water Transfers

### Increase Water Supply

- ◆ Conjunctive Management & Groundwater Storage
- ◆ Desalination – Brackish & Seawater
- ◆ Precipitation Enhancement
- ◆ Recycled Municipal Water
- ◆ Surface Storage – CALFED
- ◆ Surface Storage – Regional / Local

### Improve Flood Management

- ◆ Flood Risk Management

### Improve Water Quality

- ◆ Drinking Water Treatment & Distribution
- ◆ Groundwater / Aquifer Remediation
- ◆ Matching Quality to Use
- ◆ Pollution Prevention
- ◆ Salt & Salinity Management
- ◆ Urban Runoff Management

### Practice Resource Stewardship

- ◆ Agricultural Lands Stewardship
- ◆ Economic Incentives  
(Loans, Grants & Water Pricing)
- ◆ Ecosystem Restoration
- ◆ Forest Management
- ◆ Land Use Planning & Management
- ◆ Recharge Areas Protection
- ◆ Water-Dependent Recreation
- ◆ Watershed Management

Other-- Crop idling, dew vaporization, fog collection, irrigated land retirement, rainfed agriculture, waterbag transport



# Putting it all Together

<b>External Factors</b>	<b>Resource Management Strategies</b>
Population Climatic conditions	Strategies that: <ul style="list-style-type: none"><li>•Reduce water demand</li><li>•Improve operational flexibility &amp; transfers</li><li>•Increase water supply</li><li>•Practice resource stewardship</li><li>•Improve water quality</li><li>•Improve flood management</li></ul>
<b>Analytical Tools</b>	<b>Sample Performance Measures</b>
Water Evaluation and Planning (WEAP) model Planning Area scale for Central Valley Regions	<ul style="list-style-type: none"><li>•Supply Reliability (Urban &amp; Agriculture)</li><li>•Environmental flows</li><li>•Groundwater levels</li><li>•Strategy cost</li></ul>



# Limitations for Update 2013 Analysis

- ◆ Resource limitations restrict more comprehensive analysis to three regions in Central Valley
  - Phased approach
- ◆ Cannot represent all strategies or quantify all strategy benefits
- ◆ Representation of regional groundwater and surface water systems
- ◆ Use monthly rainfall-runoff, water use, and water system operations data



# Areas Outside of Sacramento River, San Joaquin River and Tulare Lake Regions

- ◆ Apply simpler Hydrologic Region model developed for Update 2009
- ◆ Quantify regional water demand
  - Update 3 growth scenarios
  - Update 12 climate scenarios
- ◆ Ability to include some demand management strategies



# Partnering with the California Water Plan

- ◆ Uncertain future
- ◆ Partnering with the Water Plan

- ◆ Highlight priorities in your region
  - Resource management strategies
  - Management objectives
- ◆ Define success for your region
  - Important performance measures
- ◆ Identify interregional connections
  - Dependencies and partnerships



# Benefits of Partnering with the California Water Plan

- Access to WEAP model
- Scientifically vetted scenarios of future climate change
- Quantified information on Inter-regional connections (runoff, stream flow, groundwater)
- Extensive public outreach and inclusion in Update 2013
- Coordination with Basin Study and System Re-operation Study



Update 2013  
California Water Plan



# Next Steps

- ◆ Early 2012 – Two Regional workshops in Sacramento and San Joaquin Valley
  - Highlight priorities and define success for your region
- ◆ Interested?
  - Contact [juricich@water.ca.gov](mailto:juricich@water.ca.gov)



# Schedule

- 💧 Winter 2012 – regional outreach
- 💧 2012 – Implement proof of concept
- 💧 2012 – Scenario refinement and outreach
- 💧 2013 – Analysis of future water management conditions complete for Public Review Draft of Update 2013



# Contact Information

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💧 SWAN

<http://www.waterplan.water.ca.gov/swan>