Integrated Data and Tools for Update 2013
Presentation Overview

- Vision for Water Plan technical analysis
- Update 2009 Accomplishments
  - Water Portfolios
  - Future scenarios
- Technical Initiatives for Update 2013
Vision for Water Plan
Technical Analysis

- Accurately describe recent water management conditions (Water Portfolios)
- Develop multiple baseline future conditions (Scenarios)
- Identify alternative water management response packages (management strategies)
- Evaluate performance of strategies in terms of benefits, costs, and tradeoffs
- Support integrated regional planning
- Evaluate interaction between local, regional, and statewide water management
Technical Accomplishments for Update 2009
Water Portfolios

Provide information about recent water management conditions
Water Portfolios
Accomplishments for Update 2009

- Annual data for 10 HRs and Mountain Counties for 1998-2005
  - Data available for DWR Planning Areas
  - Water balances for the Delta
- Shows spatial and temporal variability in water supplies and uses
- Water supplies and uses detailed by sector (Agriculture, Urban, Environment)
Water Balance by Region for WY 2005

North Coast

North Lahontan

Sacramento River

San Francisco

San Joaquin River

Tulare Lake

South Lahontan

Central Coast

South Coast

Colorado River

Water Use

Water Supply

Percent of Average Regional Rainfall

Inflow & Storage
(does not apply on a statewide level)

Required Delta Outflow
Instream Flow
Wild & Scenic Rivers
Managed Wetlands
Irrigated Agriculture
Urban
Colorado
Federal
Local
State
Reused
Groundwater
Local Imports
Recycled
Instream
Environmental

MAF = million acre-feet

2005
2004
2003
2002
2001
2000
1999
1998

North Coast - 103%
North Lahontan - 107% 0.0 MAF
Sacramento River - 112%
San Francisco - 136% 2.8 MAF
San Joaquin River - 152% 8.4 MAF
Tulare Lake - 131% 13.0 MAF
Central Coast - 177% 1.4 MAF
South Coast - 213% 5.2 MAF
South Lahontan - 230% 0.7 MAF
Colorado River - 258% 4.5 MAF
Future Baseline Scenarios

Provide alternative views of how population, land use, climate and other factors can affect future water management.
Technical Outreach for Update 2009

- December 2007 – Scenario proposal
- April 2008 – Shared Vision Planning
- June 2008 – Refinement of scenario proposal
  - Climate change
  - Environmental water
  - Flood management
  - Water quality
- February 2009 – Review of preliminary demands
- June 2009 – Review of revised results & graphics
- July 2009 – Climate Change Technical Advisory Group
- October 2009 – Water management responses
Two Scales of Analysis for Update 2009

10 Hydrologic Regions

Sacramento River & San Joaquin River Hydrologic Regions
Analysis Considers Possible Climate Change Impacts

• Global circulation models produce numerous projections of future temperature and precipitation patterns
  • Six GCMs
  • Two global emissions scenarios

• Statistical downscaling methods produce local weather sequences*

• Weather sequences drive hydrologic models to calculate:
  – irrigation demand (HR and PA)
  – hydrologic flows (PA analysis, only)

* Using the World Climate Research Programme's (WCRP's) Coupled Model Intercomparison Project phase 3 (CMIP3) multi-model dataset
Regional Water Demand Changes by Scenario
Statewide Water Analysis Network

Technical Initiatives for Update 2013
Water Portfolios

Provide information about recent water management conditions
Water Portfolios
Initiatives for Update 2013

- Update Water Portfolios through year 2010
- Improve representation of groundwater use and change in storage
- Quantify tribal water use and supplies
- Improve quantification of environmental water uses
  - Coordination with Dept of Fish and Game
Scenarios and Water Management Responses

**Indicators** (e.g. Supply Reliability)

- Scenario 1 (with Management Response)
- Scenario 2 (baseline)
- Scenario 3 (baseline)
- Scenario 2 (baseline)
- Scenario 1 (baseline)

**Uncertainties:**
- Future Climate
- Population Growth
- Land Use Patterns
- Economic Cycles

Water Portfolios

Today

2050
Scenarios and Water Management Responses
Initiatives for Update 2013

- Planning Area baseline scenarios for Sacramento and San Joaquin HRs
- Collaboration with Reclamation to include Tulare HR
- Identify and quantify regional water management responses
- Evaluate performance of strategies in terms of benefits, costs, and tradeoffs
Water PIE
Planning Information Exchange

• Connects Users to Data
• Contains No Data
• Uses Standard Protocols
IWRIS: Prototype for Water PIE
http://www.water.ca.gov/iwris
IWRIS

- Web based GIS application
- Allows access, integration, query, and visualization of multiple sets of data.
- Includes
  - DWR Water Data Library
  - California Data Exchange Center (CDEC)
  - USGS streamflow
  - Local Groundwater Assistance Grants (AB303)
  - Local agencies
Improving Linkages

This Year: Pilot study w/ Southern California Water Committee and CSUSB Water Resources Institute (Qualitative Linkages)

For Update 2013: Pilot study of quantitative linkages
Developing Sustainability Indicators

- Biophysical Environment
- Ecosystems
- Economic System
- Social System
Sustainable Water Resources
Roundtable - Indicator Framework

- Water availability
- Water quality
- Human uses and health
- Environmental health
- Infrastructure and institutions
Summary

- Technical improvements to Water Portfolios and Scenarios are on-going
- A series of workshops conducted in 2010 will refine approaches for Update 2013
- New initiatives underway to:
  - Quantify management strategies and performance
  - Improve data integration and exchange
  - Quantify water resources sustainability
Contact Information

Rich Juricich
  • juricich@water.ca.gov
  • (916) 651-9225

✦ Water Plan Update 2009
http://www.waterplan.water.ca.gov/cwpu2009

✦ SWAN
http://www.waterplan.water.ca.gov/swan