Statewide Water Analysis Network

Activities for Update 2009
and Summary of
October 8th Workshop

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

Two Scales of Analysis for Update 2009

10 Hydrologic Regions

Sacramento River & San Joaquin River Hydrologic Regions

Statewide Scenario Demands

Uncertain Factors (X) and Scenarios	**Management Actions (L) & Response Packages**
Population Household factors Employment factors Irrigated Crop Area } 3 growth scenarios Temperature Precipitation } 12 climate sequences + historical ★ New!	Current management (no response) Response packages evaluated using Planning Area model for select Hydrologic Regions
Model (R)	**Performance Measures (M)**
WEAP model by Hydrologic Region ★ New!	Demand (historical climate) Demand (projected climate) Supply and environmental flows addressed using Planning Area model

October 8th SWAN Workshop

- Purpose

  Solicit feedback on recent studies exploring the effectiveness of regional and statewide water management responses to uncertainties facing California water managers

  - Climate change
  - Drought
  - Delta
  - Population growth

3 Studies Presented

- Water Management Lessons for California from Statewide Hydro-economic Modeling using the CALVIN Model

  Jay R. Lund - University of California, Davis

- CalSim-II Modeling Efforts on Water Resources Challenges and Potential Management Responses and Uncertainties Facing Management of the CVP and SWP

  Francis Chung and Ray Hoagland - California Department of Water Resources

- Regional Water Management Responses using IRPSIM

  Jennifer Nevills - Metropolitan Water District of Southern California

Water Management Lessons

UC Davis Studies

- Hydro-economic modeling is possible, and improves understanding and policy insights.
- Physical and economic flexibility exists
- Not water shortage, but a shortage of cheap water
- The Sacramento - San Joaquin Delta is the weakest link in the network

Water Management Lessons

UC Davis Studies

- Portfolio solutions tend to be cost effective and robust
- Water markets, conservation, groundwater banking, & reuse
- Expansions of selected conveyance and aquifer recharges are beneficial
- Higher expectations for quantitative information are reasonable

Water Management Lessons DWR Studies

- New conveyance and new storage provide reliability benefits under most future scenarios
- New storage provides the greatest supply reliability benefits under drought or climate-changed conditions
- New groundwater storage performs similarly, with even greater drought year performance and with climate change

Water Management Lessons
DWR Studies

- A range of IRWM implementations do not appear to significantly affect Delta operations or deliveries.
- The relative frequency of dead storage conditions in upstream reservoirs indicate that significantly modified operations will be required with climate-changed conditions.

Technical Lessons

UC Davis

- Build around a few desired features – Attempting everything leads to nothing
- Have an integrated & workable technical plan
- Organize input data in databases
- Document in databases
- Better data quality & documentation is needed
- Scientific information is often inconvenient for current policy discussions

Technical Lessons
DWR Studies

- Evaluate management responses under twelve climate change scenarios
- Develop a reoperation strategy for the CVP and SWP to mitigate the effects of dead storage during climate change conditions
- Include economic modeling and results in studies

Technical Lessons – Use of IRPSIM

Metropolitan WD of Southern CA

- Estimating the Effectiveness of a Water Resource Mix
- Estimating the Benefits of New Resources
- Estimating the Benefits of Storage
- Determining the Effects of Changes in Demands
- Applying Ranges of Uncertainty to Forecasted Variables

Reference Information

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- SWAN workshop materials

  http://www.waterplan.water.ca.gov/materials

- SWAN

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