R&D Scoping and Framing Workshop
R&D Roadmap: Managing Western Water as Climate Changes
February 20 and 21, 2008

Responsibilities, Challenges, and Needs
Perspectives of Reclamation Water Operations Managers

Note: The information presented herein is intended solely to facilitate a working level dialogue between the federal scientific community, and Reclamation water and environmental resource managers, on climate change research needs in support of Western water management. As such, "*this information has not been formally disseminated by the Bureau of Reclamation and should not be construed to represent any agency determination or policy*".[1]

Generally describe your region's water operations and planning responsibilities *(this is meant to be a high level summary of your world):*

We operate several storage and conveyance projects in the Federal Central Valley Project in coordination with the State Water Project and others as part of a massive water management system that delivers water throughout California. Our responsibilities include developing and applying reservoir operations & river restoration models in support of CVP and related operations. We also apply these models, and develop others in conducting feasibility studies for potential new projects for storage, conveyance, ecosystem restoration and other purposes (e.g., hydropower, flood damage reduction, water quality, and recreation).

Describe the primary types of decisions that your region makes associated with water and operations and planning that might be affected by climate change.

In the MP Region, decisions associated with water and operations and planning are primarily influenced by the amounts, seasonality, and allocation of reservoir releases to meet water supply demands for agricultural, environmental, industrial, and municipal purposes, hydropower generation, flood damage reduction, and ecosystem functions for aquatic and terrestrial species habitat. Typically, our operations are based on current conditions, not on probabilistic forecasts. In our planning and feasibility studies we have the opportunity to look ahead and use probabilistic forecasting and modeling to address potential effects of climate change (such as reasonable and prudent measures to improve reliability). Decisions will be made about the refinement and comparison of alternative plans required for NEPA and P&G compliance; scope and findings of Environmental Impact Statements/Reports and Records of Decision; determination of federal interest and recommendations for proposed actions; and ultimately for authorizations and appropriations.

What are the primary scientific or non-scientific factors that typically govern these decisions?

Primary scientific factors that govern decision making are the uncertainties associated with water supplies and demands for agricultural, municipal, and environmental uses; inter-relationships among biological and ecological processes affecting habitat suitability, resource protection and sustainability; and regulatory & institutional responses to water supply/demand management and ecosystem health. Non-scientific factors may include public perception and controversy, political influences, social and economic factors, financial limitations and "ability to pay" issues.

1/ Stated in accordance with Information Quality Act (Public Law 106-554), Final Information Quality Bulletin for Peer Review (Office of Management and Budget, December 16, 2004).

Who are the primary stakeholders affected by these decisions and summarize their primary concerns?

All of our water service contractors, project and non-project power customers, our partnering agencies (federal, state, regional, and local) and respective regulatory agencies, environmental interest groups, and the general public.

- Mutual interests to sustain water supply and reliability; prevent or mitigate for any loses to the extent possible; improve efficiencies and water quality; protect water rights.
- Ability to review and comment on an analysis of anticipated effects of climate change that is reasonable, clear and understandable, technically adequate, scientifically sound.
- Ability to pay for potential actions to avoid, mitigate, or adaptively manage for adverse climate change effects.

In general, list the top three wishes that you would like for scientific community to provide you, in support of your western water management responsibilities that are related to understanding and utilizing climate change information.

- Update and refine hydrology and models for critical regional watersheds throughout our area of responsibility (Levi Brekke started on CVP watersheds), include climate change variables to improve our understanding of potential operation adjustments, amounts and seasonality of water supplies and demands, risks and uncertainties.
- Acquire and refine more focused data to fill data gaps to improve understanding of the effects of climate change on ecological processes affecting aquatic and terrestrial habitats (i.e., Bay-Delta model to include potential sea level rise).
- Improve understanding of the global & regional climatic variables suitable for reducing the uncertainty in forecasting water supply (reservoir & effective precipitation) and evapotranspiration demand of agricultural crops & native vegetation.

Are there current or emerging *"project-specific applications"* in your region where answers to these three wishes may be beneficial to you in the near-term?

- CALFED Bay-Delta conservation plan; Delta Vision and related planning and management efforts; and series of 9 storage and conveyance feasibility studies and environmental documentation
- CVPIA modeling, monitoring, strategic planning, to support commitments for protection, restoration, and enhancement of fish and wildlife habitat, to provide for water transfers and firm supplies for Central Valley wildlife refuges, and increase CVP yield
- Feasibility Study for Long Lake Valley Off stream Storage to augment the Klamath Project (water supply and reliability, water quality, environmental resources, hydropower) to improve water supply and reliability for multiple benefits to water users in the Basin.

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