

Current CWCB Initiatives Addressing Drought Planning, Climate Change, & Water Adaptation

Jennifer Gimbel, Executive Director
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Governor's Conference on Managing Drought & Climate Risk
October 8-10, 2008
Denver, CO

Colorado Climate Action Plan

A Strategy to Address Global Warming

- Colorado's First Climate Plan – Nov 2007
- Water Adaptation Addressed in Plan – DNR & CDPHE
- Called for Four Key Areas to be Included in a Water Adaptation Plan
 - Scientific Investigation
 - Analysis of Water Rights & Compacts
 - Comprehensive Drought Planning
 - Information Exchange & Education



2007 Drought & Water Supply Assessment

Planning for Climate Change?

- 27% of water suppliers have considered the impact of climate change on long term water supply planning
- 72% had not



Arapaho Glacier 1898



Arapaho Glacier 2003

Western Governors' Association

Water Needs & Strategies for a Sustainable Future

- Focus on vulnerabilities & building increased resiliency to climactic extremes through better:
 - Data Collection
 - Prediction, Modeling, & Impact Assessment
 - Analysis of Climate Change Scenarios
 - Coordination with Local Govts & Water Users



A. Payne



Current State Drought Plan

- Provides a systematic means for the State to reduce the impacts of water shortages over the short or long term.
- Water Availability Task Force
 - Monitor precipitation, temperature, reservoir storage, snowpack and stream levels
 - Coordinate the activation and implementation of the plan and the distribution of information to the media and the public
 - Determine impacts and develop response
 - Broker regional and federal resources when appropriate

Colorado's State Drought Plan Revision

- Integrate climate change & potential impacts in the planning process
- Centrally track, monitor, & quantify economic impacts from drought
- Connect the State's Drought Plan goals to local drought plans
- Perform vulnerability & risk assessments of State assets (incl. the State's Instream Flow Program)
- Develop drought planning decision support tools

CWCB Resources & Programs

- Statewide Drought Planning Specialist w/in the CWCB
- Drought & Water Supply Assessments
- Drought Planning Technical Tool Box
- Water Provider Assistance to ID Optimal Options for Adapting to Climate Change
- CWCB Climate Change Technical Advisory Group

Colorado River Water Availability Study

- How much water from the Colorado River Basin System is available to meet Colorado's current and future water needs?
- Study will consider regional hydrology, water availability, and water use and will consider the possible effects of climate change on water availability.

Front Range Climate Change Vulnerability Study

- Collaborative project between:

CWCB	Colorado Springs Utilities
Aurora Water	City of Boulder
Denver Water	City of Ft. Collins
NCWCD	Federal Agencies

- Develop regional hydrologic models that analyze the impacts of climate change

USGS Snowmelt Timing Study

CWCB grant funded detailed analysis of snowpack melt timing, stream flow runoff timing, & trends in monthly air temperatures & precipitation in high elevation areas in CO.



Ongoing study objective is to document recent trends in snowmelt and runoff timing, and to quantify how those parameters are affected by changing climate.

National Integrated Drought Information System (NIDIS)

- National drought early warning system to provide accurate, accessible, usable & integrated info on drought conditions
- Synthesize info from observations & monitoring systems, predictions, economic & environmental impacts assessments, & water professionals
- Upper CO River Basin Pilot Project – CO, NM, UT, & WY

Need for Local Drought Mitigation Planning

- Through the process of planning, water providers will be more successful at mitigating for climate variability and adapting to a changing climate, that will surely affect the availability and timing of water supplies.
- State incentives to do assist include technical assistance and funding.
- Possible legislation?



"My question is: Are we making an impact?"

Climate Change in Colorado: A Synthesis to Support Water Resources Management and Adaptation

Report by the Western Water Assessment for the
Colorado Water Conservation Board

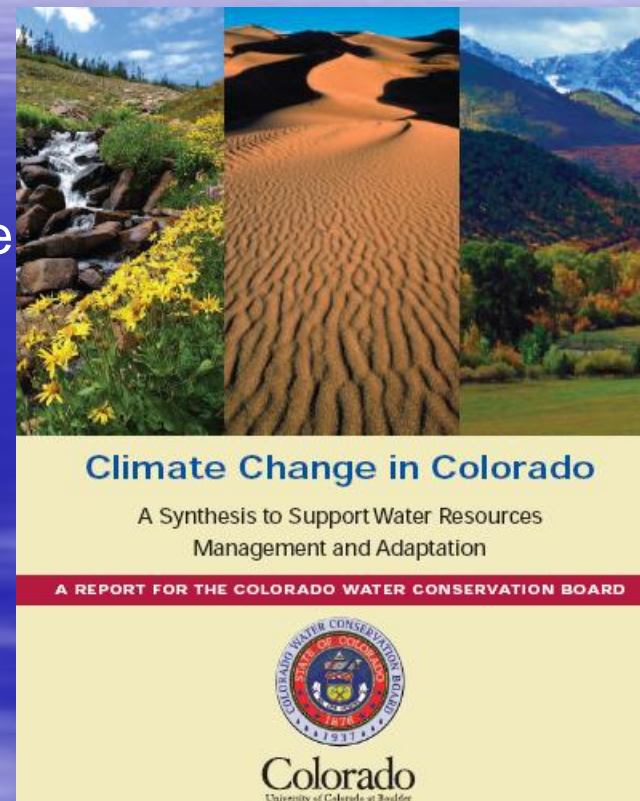


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October 2008



CWCB Goals

Report on the state of the science regarding the physical aspects of climate change that are important for evaluating impacts on Colorado's water resources, and developing adaptation strategies out to the mid-21st century

Science to Support:

- Governor Ritter's Climate Change Action Plan
- State Water Supply Initiative
- Governor's Conference on Managing Risks of Drought and Climate, Oct 8-10, 2008
- Complements several other efforts

Audience

- water-related planners, decision makers, and policymakers in Colorado

CWCB Goals

Geographic Scope

- Beyond the state's borders, because of Colorado's role as a headwaters for supply in the West

Technical Level

- More technical than "Citizen's Guide", less technical than the IPCC reports
- Jargon minimized; glossary; Fahrenheit units; published figures/data re-plotted for simplicity and to focus on CO
- Educate about models and their strengths and weaknesses

Key Implications

A synthesis of findings in this report suggests a reduction in total water availability by the mid-21st century

- 21st century climate may pose new challenges to water managers that are unlike those experienced in the 20th century.
- Even in the absence of climate change new understanding of past hydrology warrants a renewed focus on drought planning.

Key Implications

- Water supply systems are facing complex stresses, including increasing demands from a growing population and potential energy development.
- These challenges are magnified by the need to consider climate change. Therefore, there is an emerging need for vulnerability assessments, for adaptation planning, and for bringing climate change information into ongoing integrated resource planning.

Key Unresolved Issues

The “jury is still out” on these unresolved topics

- Insufficient data, research in progress or yet to be done
- In other cases, research is in progress, but the results may not be as robust as needed.
- These uncertainties limit projections for water supply

■ Modeling Issues

- Regional and local processes and their role in Colorado’s climate must be better modeled
- Precipitation projections and related phenomena are key uncertainties
- Finer spatial resolution to better represent Colorado’s mountainous terrain and precipitation processes

Key Unresolved Issues

- **Colorado-specific studies**
 - Relatively little work on the Arkansas, Rio Grande, Platte River basins
- **Understanding causes of drought**
 - Issues include runoff efficiency, effects of increased temperatures, uncertainty in precipitation projections, and the causes of the 2000s drought
- **Hydrologic projections for the Colorado River**
 - Large range among projections of river flows; a study is underway to reconcile these studies

Thank You

For more information about these programs and initiatives
visit the CWCB website

www.cwcb.state.co.us



As the director of the Colorado Water Conservation Board, Jennifer carries out the policies and directives of the Board relating to the conservation, development and utilization of the state's water resources, and works closely with the State Engineer, General Assembly, the Executive Director of the Department of Natural Resources, and the Governor on water resource issues for the State of Colorado. She acts as the representative for the state on interstate and intrastate water issues, including issues relating to flood control, water conservation and drought planning, water information, river restoration and environmental aspects of water management. As Director, she is involved with federal and state legislation pertaining to water resources and represents the State of Colorado on commissions and entities such as the Arkansas River Compact Administration, the Upper Colorado River Commission, the Colorado River Basin Salinity Control Forum, the Western States Water Council, and the Missouri Basin States Association.

Jennifer has over 20 years experience as a water attorney, working first for the Wyoming Attorney General and then for the Colorado Attorney General on water, natural resource, and environmental issues. Before accepting the Director position, Jennifer worked for the Department of the Interior and the Bureau of Reclamation on Indian water rights, collaborative efforts on the Middle Rio Grande In New Mexico, and state and federal water rights issues.