

New report highlights how climate change may affect water in Colorado

August 6 2014, by Katy Human

(Phys.org) —As Colorado's climate continues to warm, those who manage or use water in the state will likely face significant changes in water supply and demand, according to a new report on state climate change released today by the Western Water Assessment and the Colorado Water Conservation Board.

Rising temperatures will tend to reduce the amount of [water](#) in many of Colorado's streams and rivers, melt mountain snowpack earlier in the spring, and increase the water needed by thirsty crops and cities, according to the new [report](#), "Climate Change in Colorado: A Synthesis to Support Water Resources Management and Adaptation," which updates and expands upon an initial report released in 2008.

The Colorado report comes on the heels of international and national assessments that discuss likely impacts of [climate change](#) in broad regions, and it leverages those assessments to provide state-specific information. Because Colorado is located between an area likely to dry further (the U.S. Southwest) and one likely to get wetter (Northern Great Plains), our precipitation future is less certain.

"Despite some uncertainties around precipitation, it's clear that as temperatures rise in Colorado, there will be impacts on our water resources," said Jeff Lukas, lead author of the new report and a researcher at the Western Water Assessment, a program of the University of Colorado Boulder funded by the National Oceanic and Atmospheric Administration.

"Already, snowmelt and runoff are shifting earlier, our soils are becoming drier, and the growing season has lengthened," Lukas said. "Wildfires and heat waves have become more common, too. Climate projections suggest those trends—all of which can affect water supply and demand—will continue."

The newest climate models are split on whether the future will see increasing, decreasing or similar amounts of annual precipitation in Colorado. Even if the future brings more precipitation, the report notes, skiers, farmers and cities may not benefit because a warmer atmosphere will pull more moisture out of the state's snowpack, soils, crops and other plants.

In producing "Climate Change in Colorado," the authors sought to provide information that would be useful to people involved in making long-term decisions about Colorado's water in the face of climate change.

"This report will help to inform critical products like the Statewide Water Supply Initiative (SWSI) and Colorado's Water Plan," said James Eklund, Colorado Water Conservation Board director. "This report will add value, just as the 2008 report was widely used by the state and other entities to inform their long-term planning processes such as the Colorado Drought Mitigation and Response Plan and the city of Denver's Climate Adaptation Plan."

Among the findings presented in the new report:

- Colorado has warmed: Statewide average annual temperatures are 2 degrees Fahrenheit higher than they were three decades ago.
- Climate models indicate that the state's average annual

temperature will continue to increase, by 2.5 to 6.5 degrees by 2050.

- A 2-degree increase would make Denver's temperatures in 2050 more like Pueblo's today.
- A 4-degree increase would make Denver more like Lamar in southeastern Colorado, and a 6-degree shift would push Denver's temperatures beyond any found in Colorado today, to more like those in Albuquerque, New Mexico, today.
- Future warming in the state is likely to lead to more heat waves, wildfires and droughts. Observations show there have already been increasing trends in these three extremes over the past 30 years.
- Warmer temperatures and other changes (dust on snow) mean that snowpack is melting earlier, on average, by one to four weeks compared with 30 years ago. This creates a strain for farmers and other users who draw water directly from rivers.
- Colorado has seen no long-term increase or decrease in total precipitation or heavy rainfall events. Climate models are split about Colorado's future precipitation, showing a range of possible outcomes from a 5 percent decrease in precipitation to an 8 percent increase by midcentury.
- Climate models tend to show a shift toward higher midwinter precipitation across the state.
- Hydrology models show a wide range of outcomes for annual streamflow in Colorado's river basins, but an overall tendency towards lower streamflow by 2050, especially in the southwestern part of the state.

More information: Read a summary of the report at [cires.colorado.edu/news/press/ ... Report_Exec_Summ.pdf](https://cires.colorado.edu/news/press/.../Report_Exec_Summ.pdf), and see the full report at wwa.colorado.edu/climate/co2014report/.

Provided by University of Colorado at Boulder

Citation: New report highlights how climate change may affect water in Colorado (2014, August 6) retrieved 24 April 2024 from

<https://phys.org/news/2014-08-highlights-climate-affect-colorado.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.