

Written Testimony of  
Tom Easley  
Director of Programs, Rocky Mountain Climate Organization  
Subcommittee on Interior, Environment and Related Agencies  
Committee on Appropriations, U.S. House of Representatives  
Concerning  
Fiscal Year 2011 Budget Request for Climate Data Monitoring Networks

March 19, 2010

This statement is being submitted on behalf of the following representatives of government agencies, water providers, and organizations with a stake in Colorado's water future:

Nolan Doesken  
Colorado State Climatologist

Eric Kuhn  
General Manager  
Colorado River Water Conservation District

David Little  
Director of Planning  
Denver Water

Brett Gracely  
Water Resource Planning Supervisor  
Colorado Springs Utilities

Brad Udall  
Director  
CU-NOAA Western Water Assessment

Stephen Saunders  
President  
Rocky Mountain Climate Organization

Joel Smith  
Principal  
Stratus Consulting

Drew Beckwith  
Water Policy Analyst  
Western Resource Advocates

Drew Peterzell  
Director  
Trout Unlimited's Colorado Water Project

We respectfully request your consideration of inclusion of additional FY 2011 funding above the budget request for the following critical funding needs for climate data monitoring programs:

- Department of the Interior, U.S. Geological Survey, Water Data Program - \$1,440,000 for the stream gage network, and for FY 2012 and years beyond, \$1,264,000 per year for recurring operations and maintenance costs;
- Department of the Interior, U.S. Geological Survey, Water Data Program - \$272,000 for reservoir storage monitoring, and for FY 2012 and years beyond, \$95,200 per year for operations and maintenance costs;
- Department of the Interior, Bureau of Land Management, Remote Automated Weather Stations Program - \$162,000;
- Department of Agriculture, U.S. Forest Service, Remote Automated Weather Stations Program - \$258,000.

Since 2007 our organizations, and others in Colorado, have been collaborating on strategies to prepare for the changes that scientists have identified as the likely impacts of climate change on the most critical natural resource in the West– the water resources that enable our people, commerce, and natural systems to thrive. Key to our ability in this region to understand and adapt to the effects of climate change on water supplies will be good information on what changes are occurring with respect to such key elements as temperatures, precipitation, snowpack, the timing of snowmelt, streamflows, and soil moisture. The data collection systems that currently exist to gather this information were not designed to track changes in climate, and so are incomplete to meet today's needs. Many of the programs for collecting and disseminating these data have deteriorated or have been diverted over the last quarter-century, with the result that many long-term climate and streamflow records have been interrupted.

The additional climate/water monitoring needs we identify are for systems in Colorado and the Upper Colorado River Basin, but they are needed for national reasons. The state of Colorado supplies 70 to 75 percent of the water in the Colorado River. About 30 million Americans, or about one-tenth of all Americans, living in seven states – Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming – depend on Colorado River water. The largest city in each of those seven states depends on Colorado River water. Twenty-two of the 32 largest cities in those seven states depend on Colorado River water. Fifteen percent of the nation's crops and 13 percent of the nation's livestock depend on Colorado River water. Some of the nation's most spectacular natural resources, including our largest concentration of national parks, depend on Colorado River water.

Yet scientists consistently tell us that a changed climate is likely to reduce the flow of the Colorado River. As this is already the most over-allocated river in the nation, this presents a challenge of great national significance.

No less important to those who depend on them are the other rivers that originate in Colorado, including the Rio Grande, Arkansas, and North and South Platte rivers, which supply additional millions of Americans not just in our state but in downstream states. These rivers, too, may be substantially affected by the hotter and drier conditions projected to result in the interior West from a changed climate.

To be able to address these challenges, we have a pressing, critical need to know more than we now do about our water resources and how they may be affected over time. That is the purpose of our proposal for relatively modest increases in these key budget accounts:

1. Department of the Interior, United States Geological Survey (USGS) Water Data Program - stream gage network

Drought information users in the Upper Colorado River Basin (UCRB) would like increased opportunity to compare current stream flow with historical conditions. They call for the re-establishment of long term gaging stations, presently inactive, having at least twenty years of record. The USGS has identified over 80 stations meeting these criteria just in the portion of the basin in the State of Colorado. This effort would help address the strong desire of UCRB drought information users to have and maintain gaging stations on “indicator” or “sentinel” watersheds without storage or diversions, and many years of long term native flow. Near real-time reporting of observed flows, presented in historical context would give users the needed understanding of present natural conditions and how they compare with the past.

Our funding request: Costs to establish new gages are on the order of \$18,000 each, while annual O&M costs are \$15,800. Our funding request is for full re-establishment of these 80 stations, totaling \$1.44 million in capital investments. For FY 2012 and beyond, \$1.264 million per year is needed for recurring annual costs for operations and maintenance of these stations.

2. Department of the Interior, United States Geological Survey (USGS) Water Data Program – reservoir storage monitoring network

Knowledge of current reservoir levels and storage volumes is a vital component of drought monitoring in the UCRB. Only 27 of the 44 reservoirs in the basin that are systematically tracked for their levels and volumes by USGS and the U.S. Bureau of Reclamation have automated monitoring systems. For the remaining 17 reservoirs, a very labor intensive process of telephone reporting by the Department of Agriculture’s Natural Resources Conservation Service is required, which can only be accomplished once a month. A major monitoring gap could be filled by adding automated reservoir level recording to these 17 reservoirs.

Our funding request: The cost will be \$16,000 per reservoir monitoring station, for a total capital investment funding request of \$272,000 for FY 2011. For FY 2012 and beyond,

\$95,200 per year is needed for recurring annual operations and maintenance costs for these 17 stations.

3. Department of the Interior, Bureau of Land Management - Remote Automated Weather Stations (RAWS) network

There are about 70 sites of the Remote Automated Weather Stations (RAWS) network operated by the Bureau of Land Management (27 stations) and U.S. Forest Service (43 stations). The principal purpose of the network is to monitor fire danger, though they could provide valuable drought information at low elevations as well. A shortcoming of the stations is their measurement of precipitation with tipping bucket instruments, which unfortunately do not provide useful observations in the cold season.

Our funding request: Upgrading these stations to provide useful, year-round precipitation data would cost on the order of \$6,000 per station. Our FY 2011 funding request is for \$162,000 to upgrade the 27 Bureau of Land Management RAWS stations in the Upper Colorado River Basin. For FY 2012 and beyond, there will be a small increase in annual maintenance costs.

4. Department of Agriculture, U.S. Forest Service - Remote Automated Weather Stations (RAWS) network

See request number 3 above for justification.

Our funding request: The FY 2011 funding request is for \$258,000 to upgrade the 43 U.S. Forest Service RAWS stations in the Upper Colorado River Basin. For FY 2012 and beyond, there will be a small increase in annual maintenance costs.

We would welcome the opportunity to discuss these requests further, and stand ready to supply additional information as needed. I can be reached at the Rocky Mountain Climate Organization at 303-887-4626 or [eamley@rockymountainclimate.org](mailto:eamley@rockymountainclimate.org). I can engage with others on behalf of whom this testimony is submitted to get additional information if that would be helpful.