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TO: Colorado Water Conservation Board Members

FROM: Joe Busto
Watershed and Flood Protection Section

DATE: January 11, 2016

AGENDA ITEM #23: Rio Grande Forecasting Project Update

Background:
In 2011, the CWCB convened several agencies to develop projects to address volumetric errors in seasonal water supply forecasts in the Rio Grande. The Rio Grande, like the South Platte and Arkansas, is over appropriated. More exact water volume forecasts and confidence in the forecasts are needed for equitable apportionment among water users, recreation, the environment, and compacts. Tolerance for the existing errors and methods is waning.

About $661,000 of CWCB Construction Fund and WSRA funds and $89,000 in USBR Water Smart program funds were used for these projects. The projects sought to improve the process with better data and modeling. This was an end-to-end field campaign including a comparison of newer methods to the existing methods. The new data included: snow and stream flow data in data void areas, NOAA mobile radar in Alamosa to scan winter storms, and the NASA Aerial Snow Observatory data. The new model, known as WRF-Hydro, is the emerging federal operational water model. It is beyond the federal scope to fill in data gaps and do field projects to calibrate models. Future local, state, and federal field projects like this will greatly speed up modernization of methods for more accurate water forecasts.

The National Center for Atmospheric Research (NCAR) led the effort to deploy the new snow and stream flow data, run WRF-Hydro, and evaluate NASA and NOAA data in the model. It may take years for federal agencies to change and embrace WRF-Hydro. However the existing data and modeling processes are not serving Colorado well now nor will it in the future. There is a heavy reliance on a few discrete data points and historical data sets to make a forecast. This project was a demo of state of the art science used operationally and there are plans for one more winter in the Rio Grande basin. We wanted to help agriculture, administration, and build the case to fill in radar coverage gaps. Dave Gochis of the National Center for Atmospheric Research will help present the results and recommendations. A project report will be available for the board. Future peer reviewed published papers are needed for the scientific community. This report and the future CWCB Water Forecasting Projects authorization will help develop coalitions and similar work in other basins. Help from the board for marketing this project for future efforts in other watersheds will be needed.

Staff recommendation:
This is an informational item and no board action is requested.