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TO:	Colorado Water Conservation Board Members
FROM:	Brian Macpherson, P.E., Decision Support System Specialist, Interstate, Federal, and Water Information Section
DATE:	May 15-16, 2019 Board Meeting
AGENDA ITEM:	8. Colorado's Decision Support Systems Update

Staff Recommendation: This item is informational only, with no Board action requested.

Background: Colorado's Decision Support Systems (CDSS), a joint program between the CWCB and Division of Water Resources (DWR), has made recent innovations and continues to be an integral resource for Colorado water planning and development. Since its inception in 1993, CDSS has been developed to support three areas including Interstate Compact Policy Analysis, Water Resources Management, and Water Rights Administration.

Discussion: Ongoing development of the DSS is performed by CWCB and DWR staff as well as through contracting with engineering, software, and GIS consultants. Recent and ongoing efforts and accomplishments of the program include:

- Arkansas River DSS (ArkDSS) Phase I is ongoing. This DSS is the final major Basin DSS and to date has included GIS work, administrative tools for DWR Division 2, consumptive use modeling, and surface water modeling.
- A new CDSS website (https://www.colorado.gov/cdss) was launched and was a bronze medal winner of the 2018 Horizon Interactive Award for Excellence in Interactive Media Production. The new website includes several new tools for querying HydroBase data as well as enhanced geospatial viewing with the CDSS Map Viewers.
- The CDSS Open Source initiative (OpenCDSS) Phase I is complete and has brought CDSS software (StateMod, StateCU, TSTool, etc.) to an open source platform on GitHub. This encourages collaborative software development and allows users to tailor software to their needs.
- Many studies have recently been completed or are ongoing using the CDSS modeling software and datasets:
  - Colorado River Compact Compliance Study
  - Colorado River Risk Study Phase II and III
  - Colorado River Multi-Objective Robust Decision Making (NOAA, NCAR, Cornell)
  - Colorado Water Plan Technical Update modeling
  - Colorado River Water Availability Study (CRWAS) Phase II
  - Stream Management Plans
- The CDSS model datasets and database are used for Colorado Compact and federal program accounting and analyses:

- Rio Grande Groundwater Rules & Regulations groundwater modeling
- Programmatic Biological Opinion (PBO) accounting for the Upper Colorado River Endangered Fish Recovery Program, Platte River Recovery Implementation Program, and San Juan River Basin Recovery Implementation Program
- Upper Colorado River Commission (UCRC) depletion projections
- HI Arkansas River Compact model
- Colorado Water Court analyses
- Green Mountain Historic User Pool (HUP) beneficiary use estimates

Future needs for the program include:

- Updated irrigated acreage, particularly in the West Slope
- Work on crop ET estimation techniques and datasets
- Web access to data
- Updated software
- Updated model datasets
- Continuation of ArkDSS
- Incorporation of new data types in HydroBase
- Outreach and training