FY15 NM WRRI Research Progress Report Form

Report Due Date: April 1, 2014

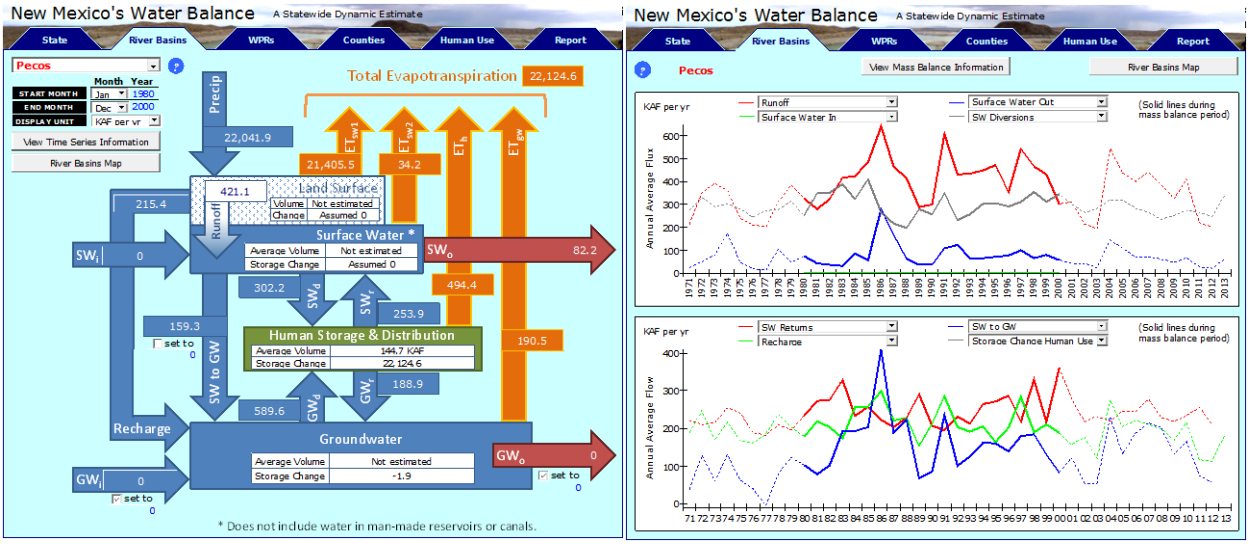
1. **Project Title:** A Dynamic Statewide Water Budget for New Mexico

2. **Investigators:** *Principal:* Jesse Roach Ph.D., Tetra Tech Inc. *Unfunded Collaborators*: Vince Tidwell Ph.D., Sandia National Laboratories, Bruce Thompson Ph.D., University of New Mexico. *Other researcher:* Kenneth Peterson M.S., New Mexico State University

3. **Description:** The dynamic, statewide water budget (DSWB) is synthesizing water supply and demand information from across the state into a single, easily accessible location, and in such a way that users can view information at a variety of spatial scales. The overall objective of the project is a holistic view of water resources in the state to help support local and regional education and planning to improve stewardship of New Mexico's limited and critically important water resources.

4. **Methodology:** The DSWB is being built by pulling existing information from a variety of sources, predominately the New Mexico Office of the State Engineer / Interstate Stream Commission's Regional Water Plans (NM-OSE-ISC, 1999-2008), the New Mexico Office of the State Engineer's Water Use reports (Longworth, Valdez, Magnuson, & Richard, 2013) and USGS stream gage information.

5. **Results to Date and Work Remaining:**
   a. Results listed in previous progress reports that have not been actively worked subsequently are not included here. Refer to those reports. This list represents results from work in the past 3 months.
   b. Model development documentation continues to be updated. Since the January 1, 2015 progress report (Item 5b of that report also), documentation efforts have focused on documenting basin specific methods used to define mass balance in the 7 major river basins of the state used by this effort: San Juan (Upper Colorado), Lower Colorado, Rio Grande, Interior Closed, Pecos, Canadian, and Texas Gulf Coast.
   c. Development of surface water fluxes by river basin, the initiation of which was reported in the January 1, 2015 progress report (Item 5g of that report) is nearly complete. The San Juan, Pecos, Canadian, Texas Gulf Coast, and Lower Colorado basins have been added, and the Rio Grande and Interior Closed are the only basins remaining to be completed. Most of the Rio Grande information exists and will be exported from the Upper Rio Grande Simulation Model (URGSiM).
   d. The model interface has been 90% developed. A screen shot of two of the interface pages is shown on the next page. The remaining interface work includes representing the various sectors of human use, including visualization of OSE use data (e.g. Longworth et al 2013), and incorporating documentation and help information into the interface.
   e. Automated mass balance checks on all river basins for all timesteps have been implemented. Remaining work includes correcting the model where necessary to eliminate any mass balance violations at any spatial or temporal scale.
   f. Remaining work: Complete mass balance at the WPR and County scales.
   g. Remaining work: Incorporate final report into model interface.



6. **Student participation:** None

7. **Special recognition awards or notable achievements:** Our efforts were summarized in WRRI's 12/2014 The Divining Rod. http://wrri.nmsu.edu/publish/dr/xxxvii2.pdf

8. **References:**

Longworth, J. W., Valdez, J. M., Magnuson, M. L., & Richard, K. (2013). *New Mexico Water Use by Categories 2010.* Santa Fe: New Mexico Office of the State Engineer.

NM-OSE-ISC. (1999-2008). *New Mexico Regional Water Plans.* Santa Fe: New Mexico Office of the State Engineer / Interstate Stream Commission.

9. **Progress toward uploading data to a common/standardized platform:** We have spoken with Fereshteh Soltani at NMSU about the type of data we expect to produce. Generally, the output from the DSWB will be available in Microsoft EXCEL file format.

10. **Provide two PP slides that provide summary information on your project appropriate for viewing by state legislators.**