

URGWOM

Lower Rio Grande Model

Executive Committee Meeting

December 5, 2013

Amy Louise, USACE

Lower Rio Grande Model

- Model Overview
- Model Representations
- Alluvial Aquifer Flows & Surface/Ground Water Interactions
- Summary
- Next Steps

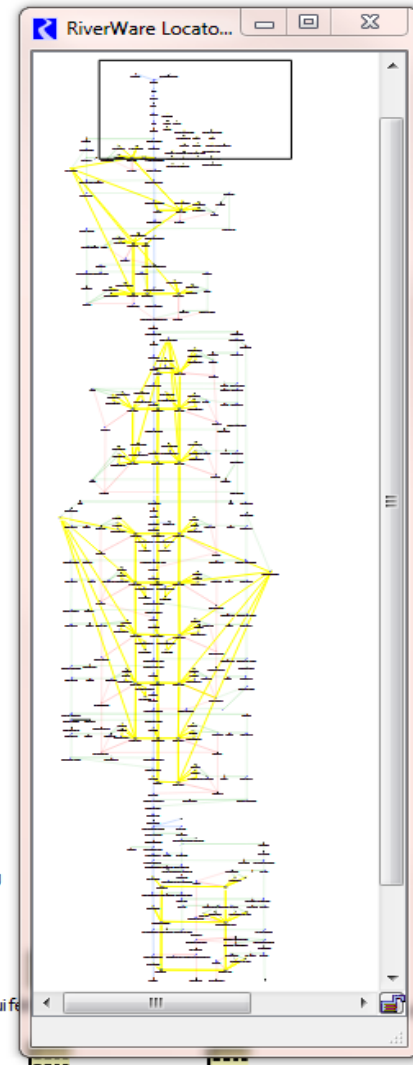
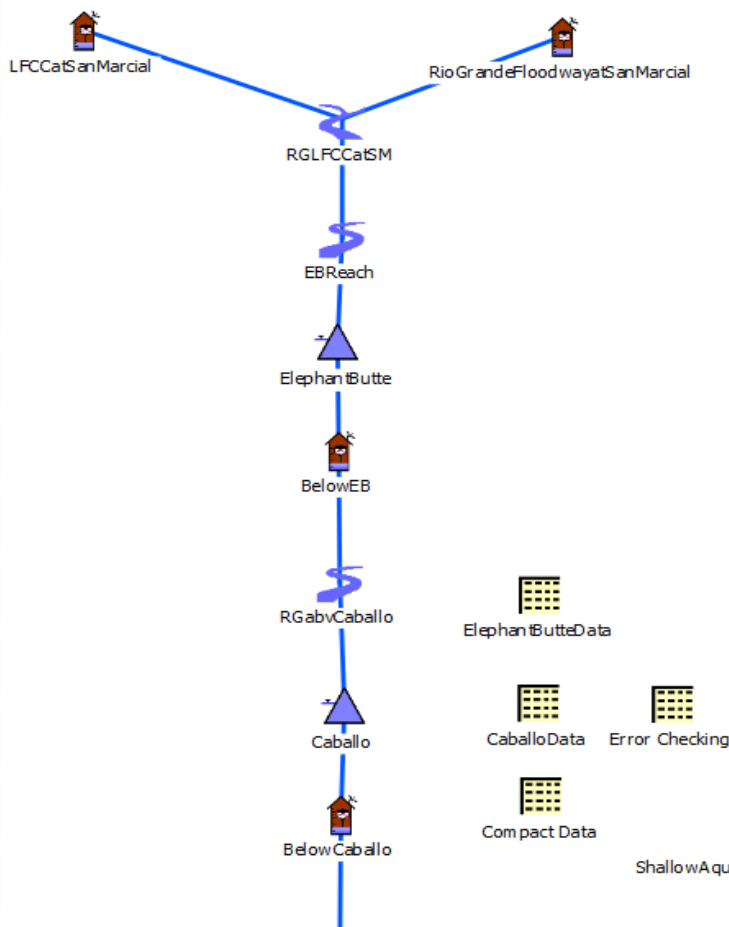
Model Overview

- San Marcial to Hudspeth County
- Eight Reaches
 - San Marcial to below Elephant Butte Dam
 - Below Elephant Butte Dam to Leasburg Dam
 - Leasburg Dam to Mesilla Dam
 - Mesilla Dam to Anthony
 - Anthony to El Paso (Courchesne Bridge)
 - El Paso to American Dam
 - American Dam to Hudspeth

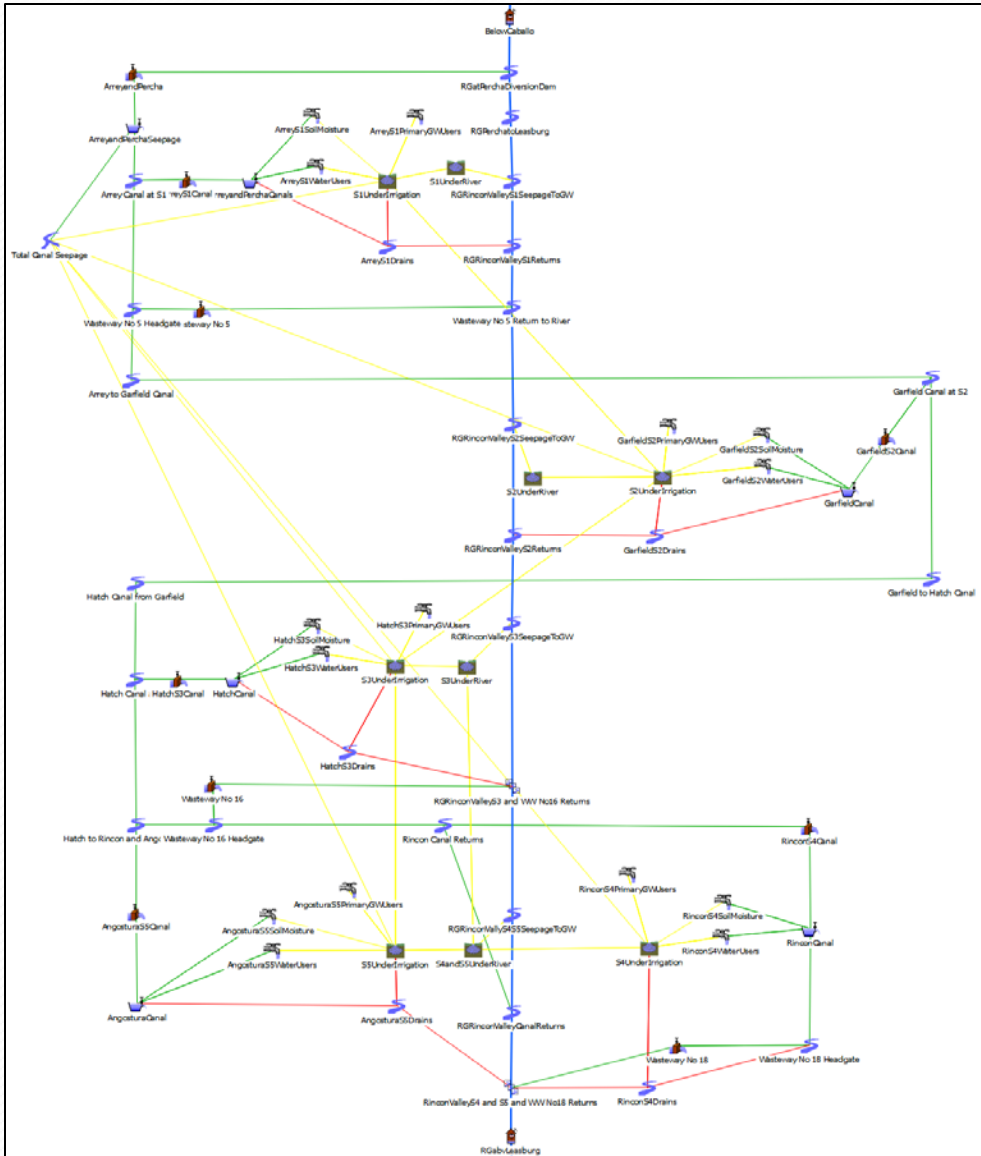
Model Overview

- Simulate River and Reservoir Operations using
 - Historical data
 - Historical inflows
- Based on 2008 Operating Agreement
- Historical Hydrology for Period 1975 to 2010
- Elephant Butte & Caballo Reservoirs
- Six Major Diversion Structures

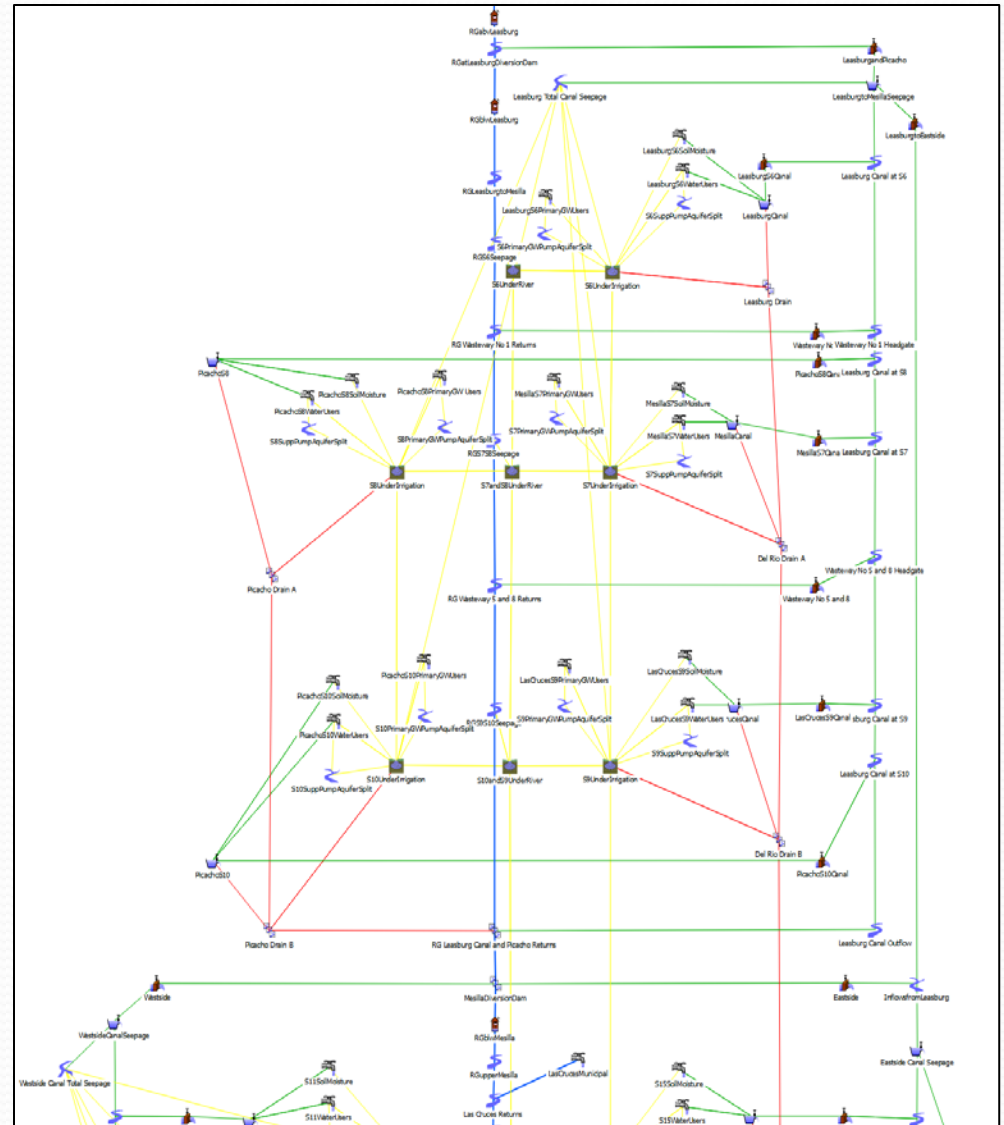
Elephant Butte & Caballo Reservoirs



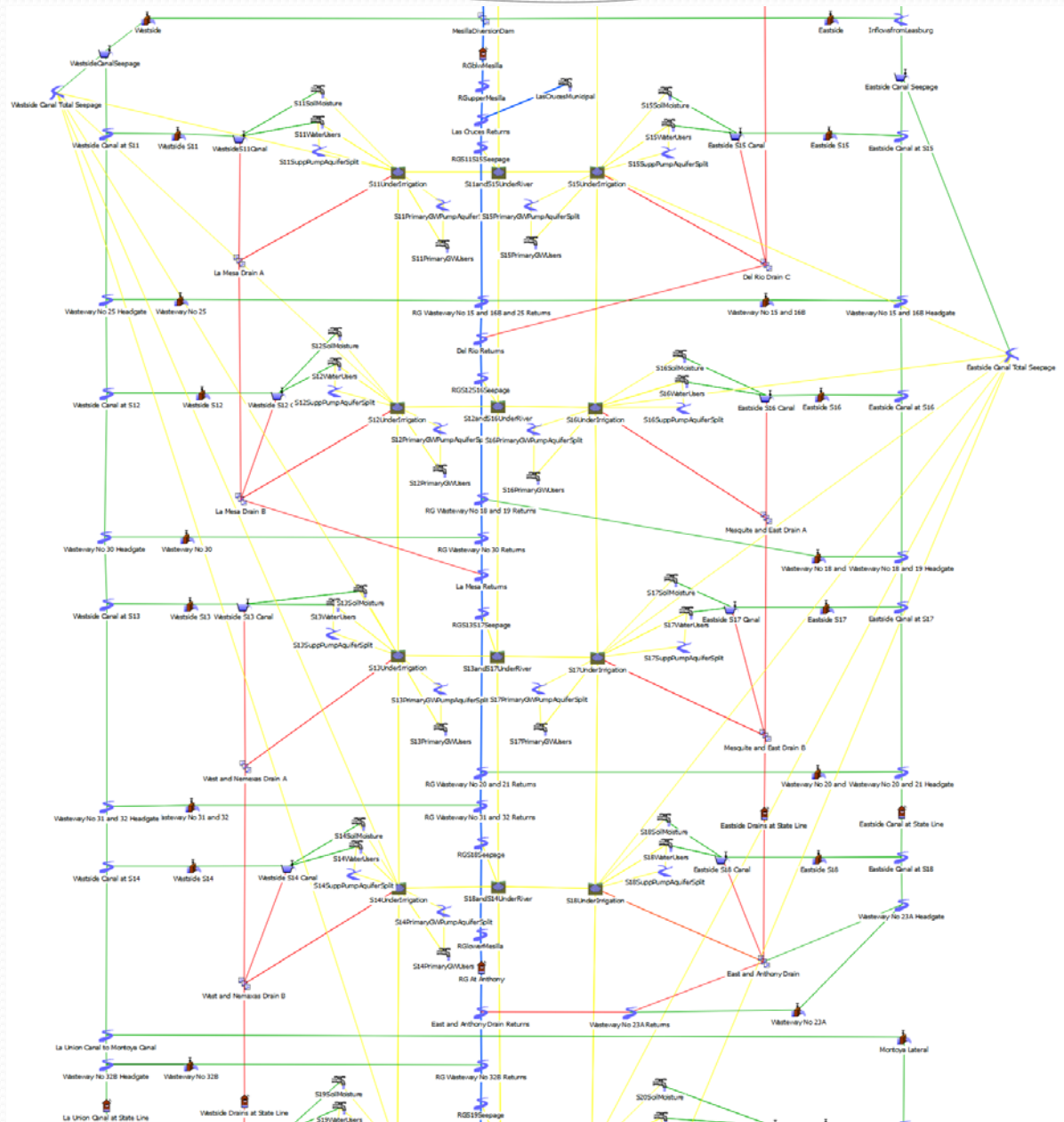
Rincon Valley



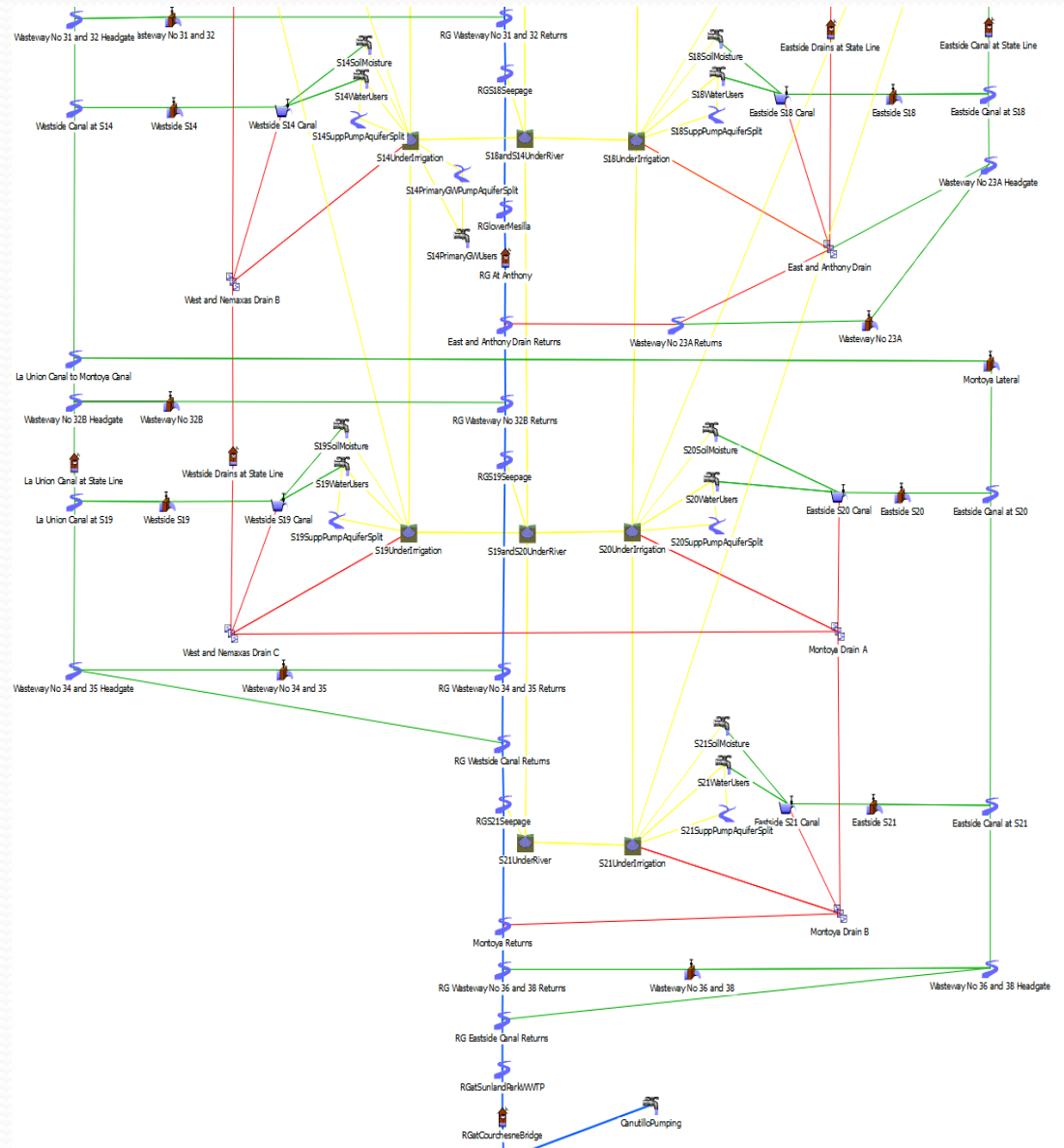
Leasburg Valley & Las Cruces



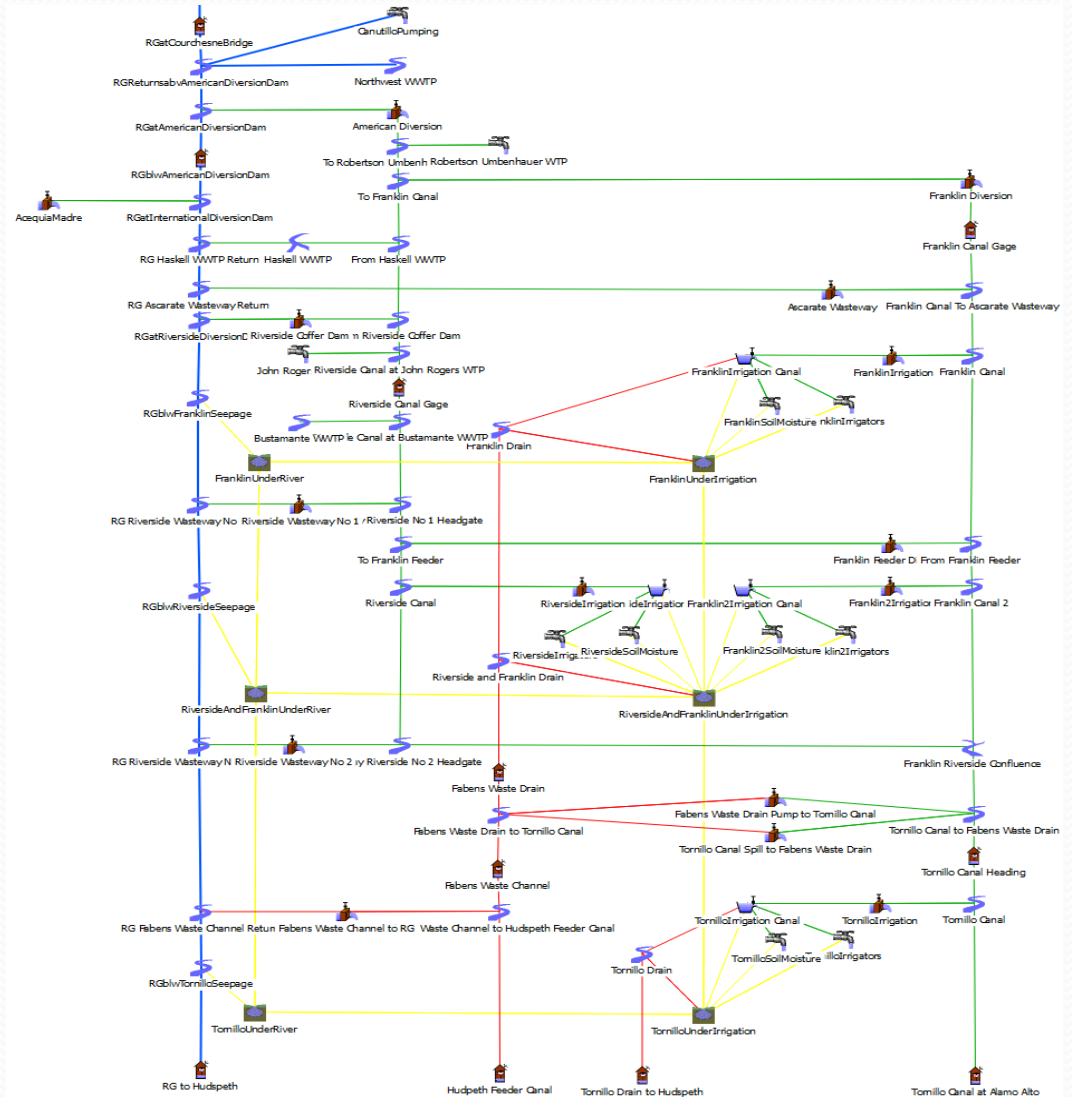
Upper Mesilla Valley



Lower Mesilla Valley

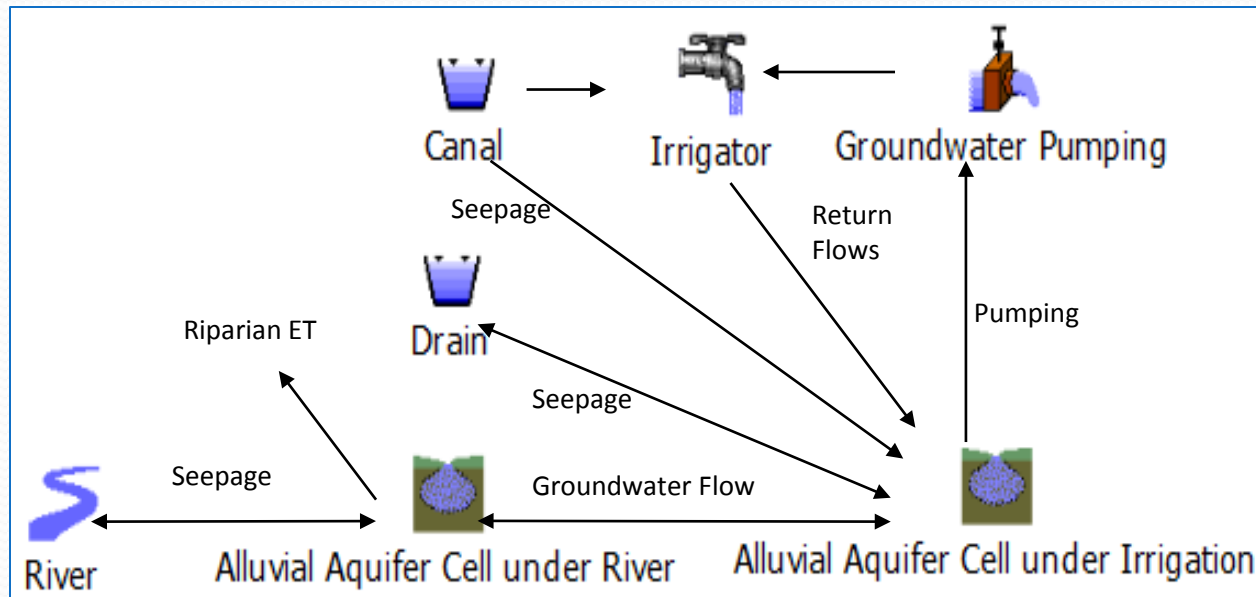


EP #1 Service Area Downstream of Courchesne Bridge



Simulation of Alluvial Aquifer Flows & Surface/Ground Water Interactions

Single ground water object under an irrigated sub-area and an associated groundwater object beneath the adjacent reach object



Summary

- Discrepancies in drain flows as compared to gaged data
 - Especially Rincon & El Paso Valleys
 - Coarse scale of ground water objects
 - Lack of reliable drain/wasteway/municipal flow data
 - Timing issue of observed river headgate diversions with historical estimated CIR
- Inadequate calibration of alluvial aquifer objects in El Paso
 - Groundwater interaction between Mexico & El Paso is not modeled
 - No groundwater data for Mexico could be found

Next Steps

- Enhancement of existing Lower Rio Grande model
 - Lag times
 - Daily CIR values
 - Refinement of D3 Policy
 - Addition of alluvial aquifer objects
 - Obtain additional data for EP#1 area
 - Add local inflow points
 - Improvements to ruleset efficiency and model usability
- Calibration
- Merge Lower and Middle Valley portions



Questions?