

Cuyama Basin Groundwater Sustainability Agency

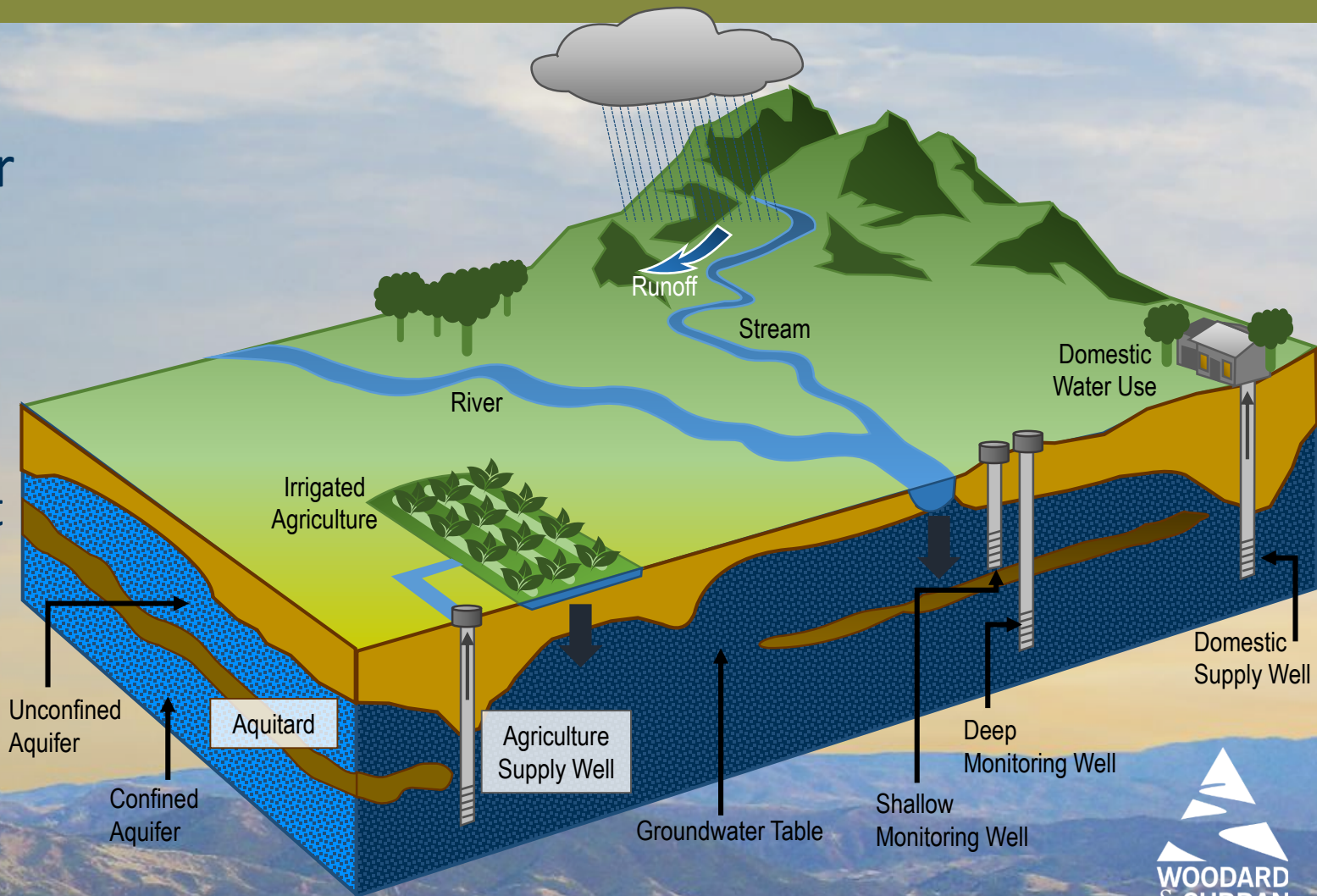
SGMA Educational Item: How a Model Works – Current and Future Conditions

August 30, 2018

Approach for Cuyama Basin Model Development




- Developing a Robust and Defensible Integrated Water Flow Model (IWFM)

- Robust Model Grid
- Agricultural and Municipal Water Demands
- Simulates physical movement of water

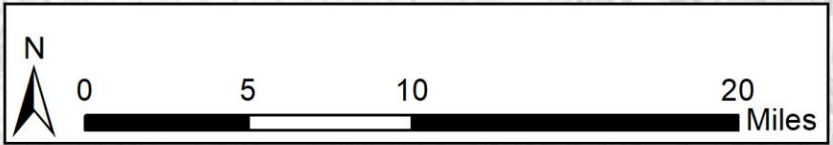
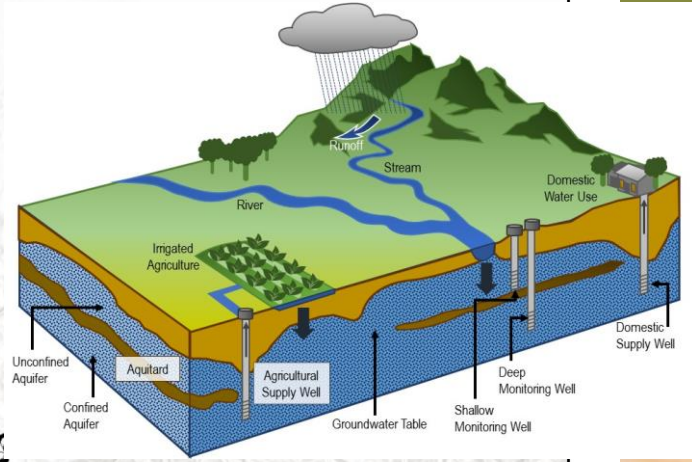


IWFM Model Grid

Legend:

-  Cuyama Basin
-  IWFM Model Grid
-  Faults Used in Model

6,582 elements
Avg element area: 36.8 acres



Water Budgets - Time Frames

Historical Conditions

Historical Land Use and
Population

1967 - 2017 historical hydrology

Current Conditions

2017 Land Use and Population

1967- 2017 historical hydrology

Future Conditions

Year 2040 Land Use and Population

1967- 2017 historical hydrology

With and without climate change

Current Conditions Scenario Assumptions

- Land Use and production wells
 - Most recent Bolthouse & Grimmway data (2017, 2018)
 - Use 2016 DWR land use for other parts of the Basin
 - Adjusted for significant recent changes (e.g. Grapevine Capital vineyards)
- Domestic Water Use
 - Population based on recent census information
 - Per person water use (gallons per capita per day) based on historical Cuyama CSD data
- Hydrology – simulate with 1960-2017 data

Future Conditions Scenario Assumptions

- Land Use and production wells – assume no changes from current conditions
- Domestic Water Use:
 - reflect projected changes in population (if available)
 - No change in per capita water use
- Hydrology – simulate with data from 1960-2017
 - Simulate with and without climate change
 - With adjustments to:
 - Temperature
 - Precipitation
 - Evapotranspiration