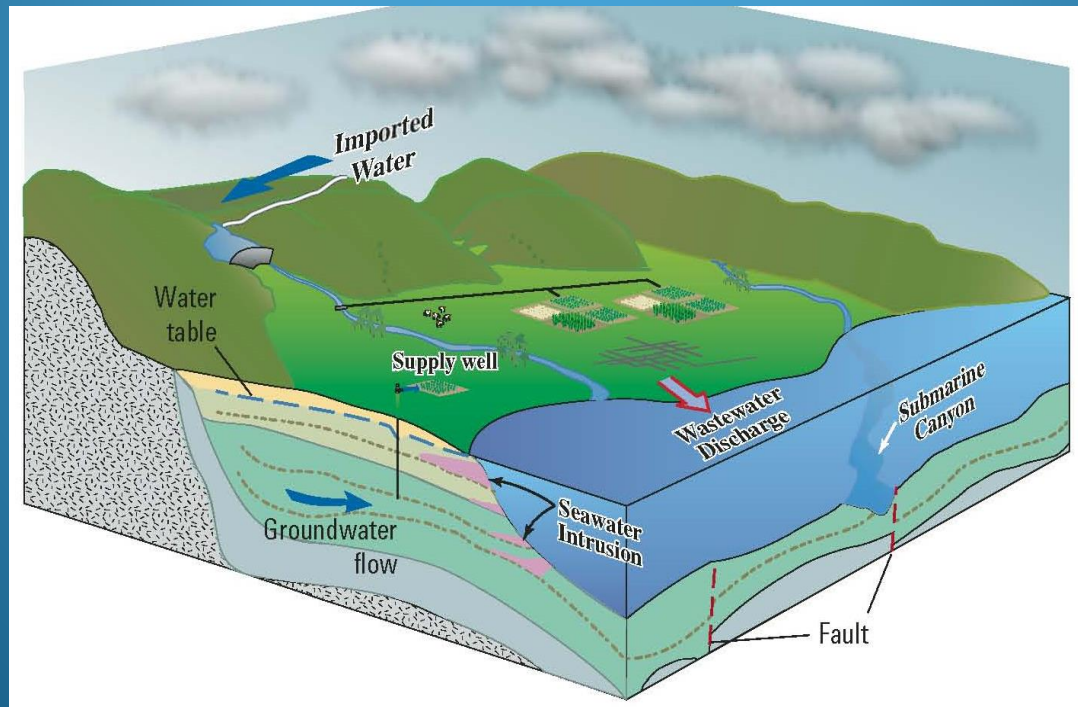


UWCD Groundwater Model Development

FPBGSA Board Meeting, February 21, 2019



Who We Are:

United Water Conservation District is a public agency that encompasses about 214,000 acres of central Ventura County.



The District's mission statement is:

United Water Conservation District shall manage, protect, conserve, and enhance the water resources of the Santa Clara River, its tributaries and associated aquifers, in the most cost-effective and environmentally balanced manner.

UWCD Groundwater Model

- United helped fund the USGS Santa Clara-Calleguas groundwater flow model in 1990s
- Used for various project evaluations and 2007 Fox Canyon GMA Management Plan Update
- Staff recognized need for an improved model to guide policy decisions.
- UWCD Board asked for development of a new model that could address aquifer-specific questions
- Basin Conceptual Model (BCM) development was initiated in 2013, Dr. Jason Sun hired in fall 2013

UWCD Groundwater Model

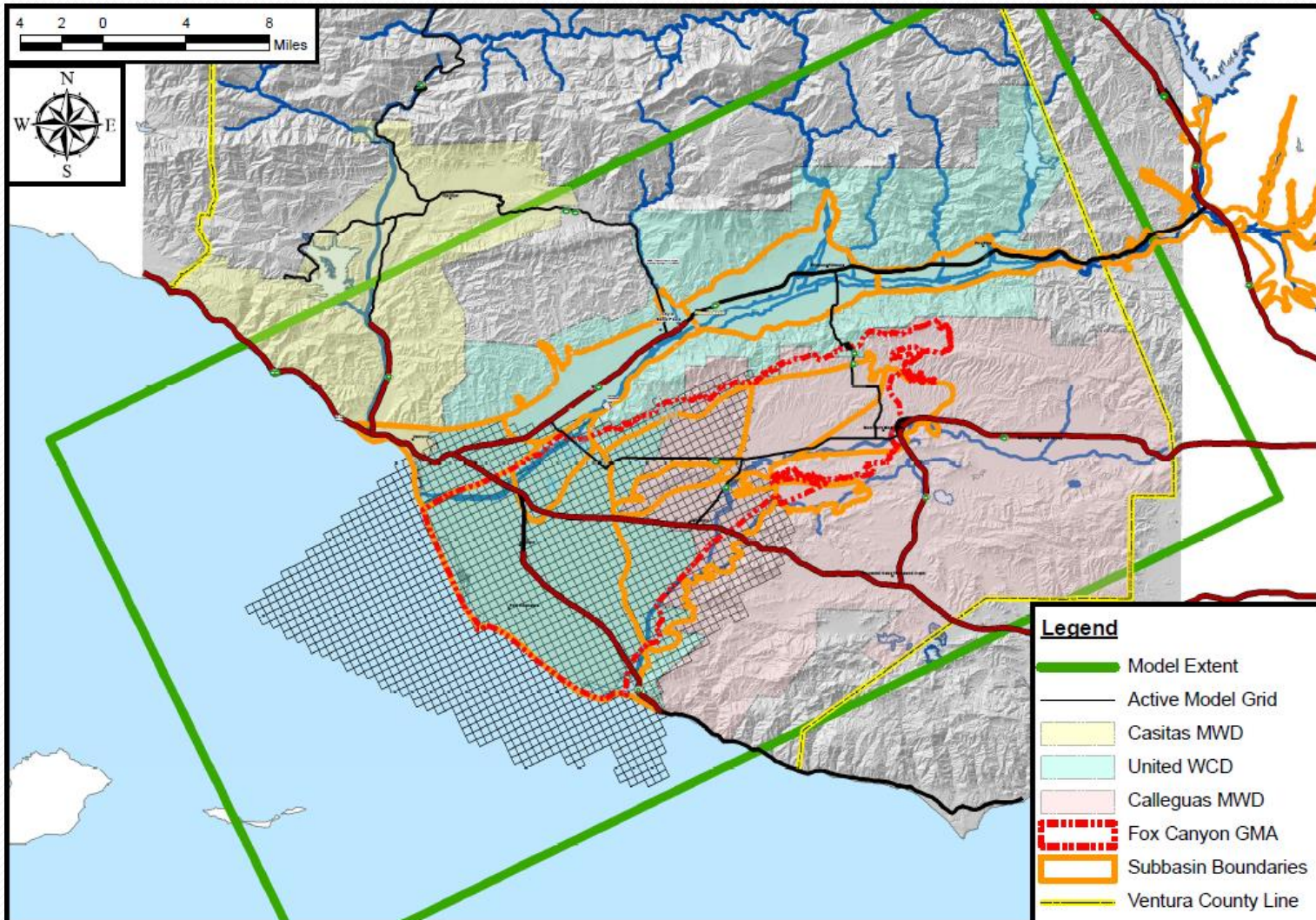
- SGMA (2015) requires Groundwater Sustainability Plans for basins
- Groundwater flow models useful for:
 - Determination and analysis of water budgets (sustainable yield)
 - Evaluating the effectiveness and impacts of potential water management scenarios, such as
 - Changing the volume or distribution of pumping
 - New water supply projects
 - Groundwater-surface water interactions
 - Future climate conditions

Hydrogeologic Conditions

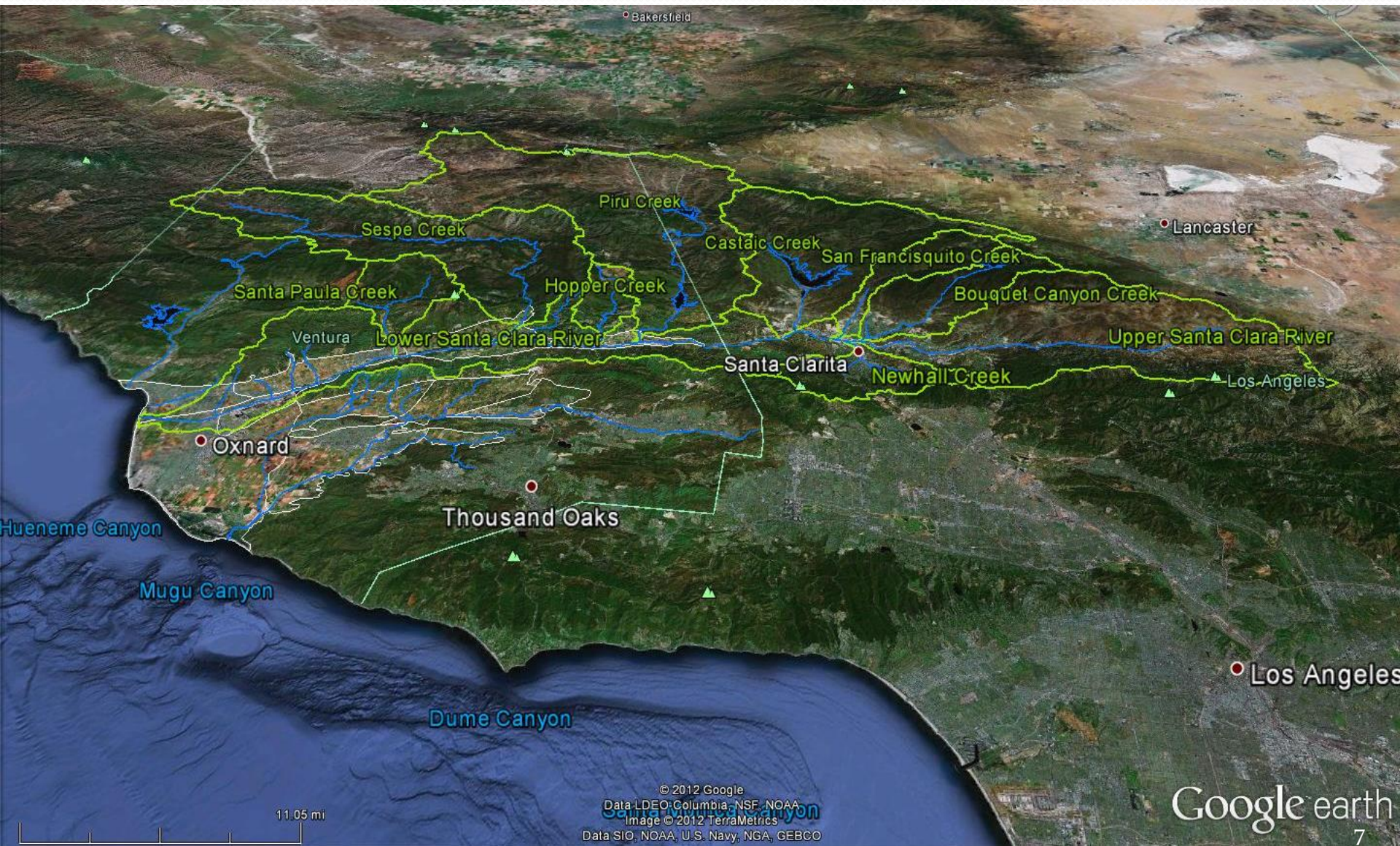
A conceptual model of the basins is required before a numerical model can be developed, which includes

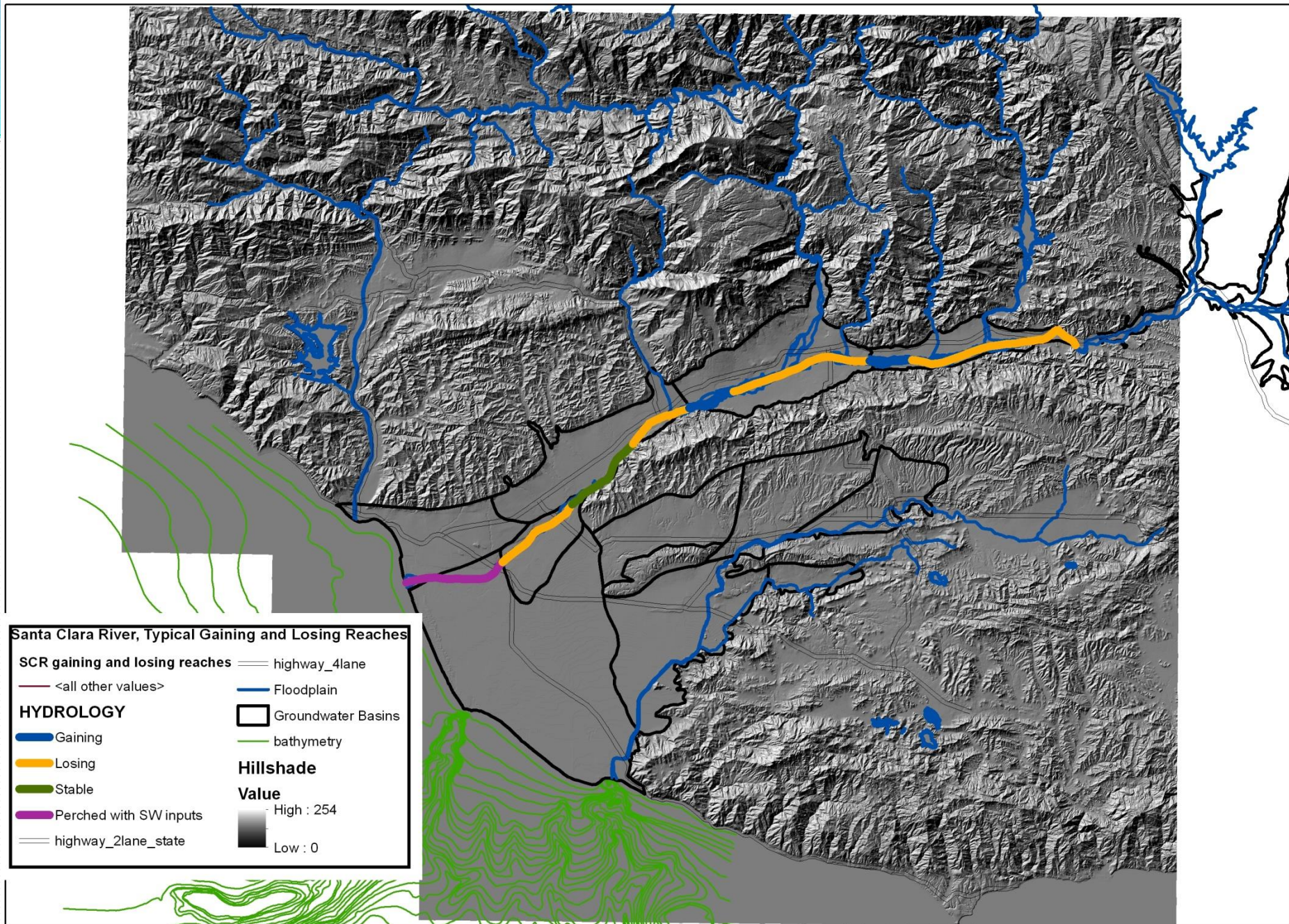
- Mapping of hydrostratigraphic units (geologic framework)
- Sources of recharge, including precipitation and streamflow sourcing from outside the model domain
- Consumptive use of water within the model domain
- Groundwater and surface water discharge

Model Domain and Grid

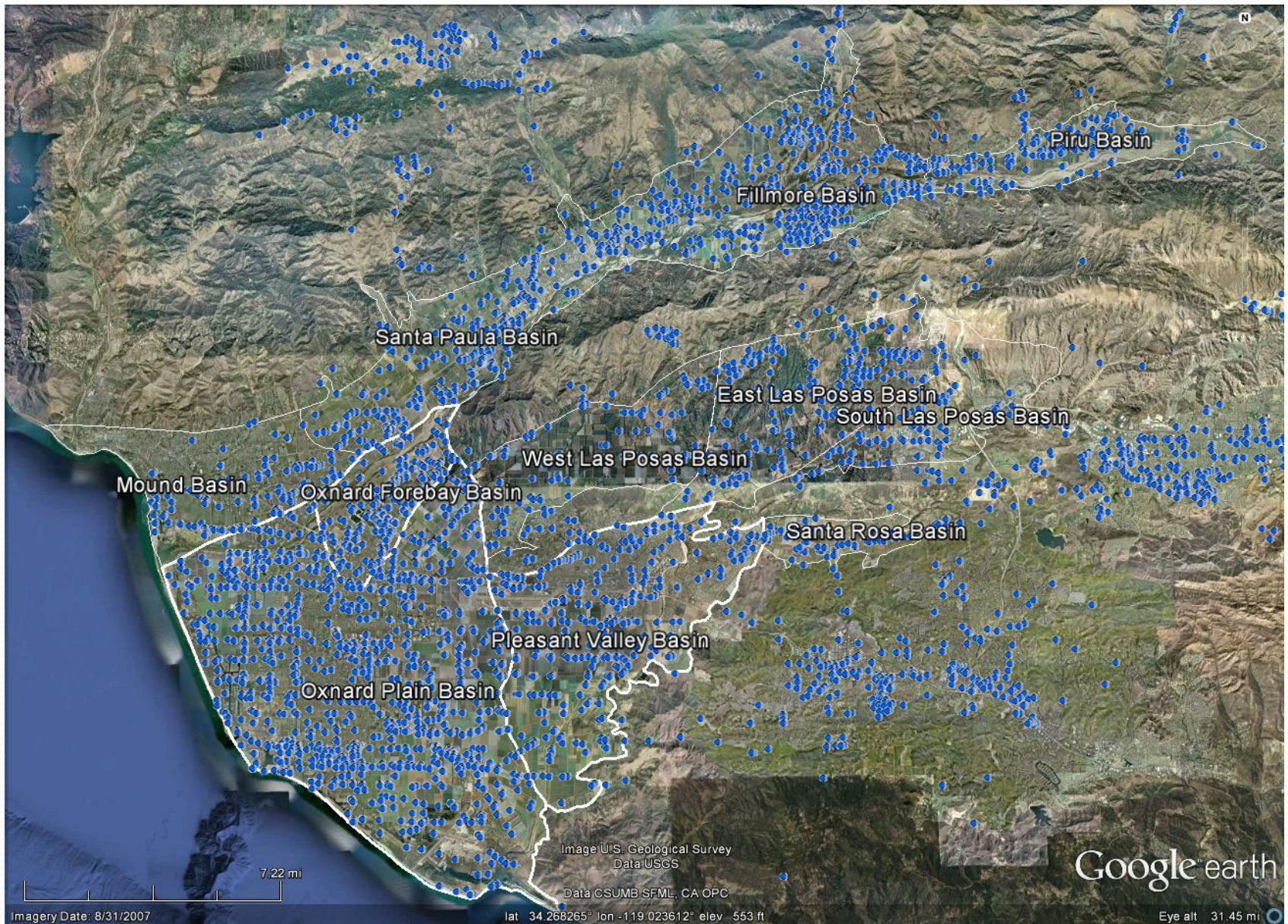


Sub-watersheds of the SCR

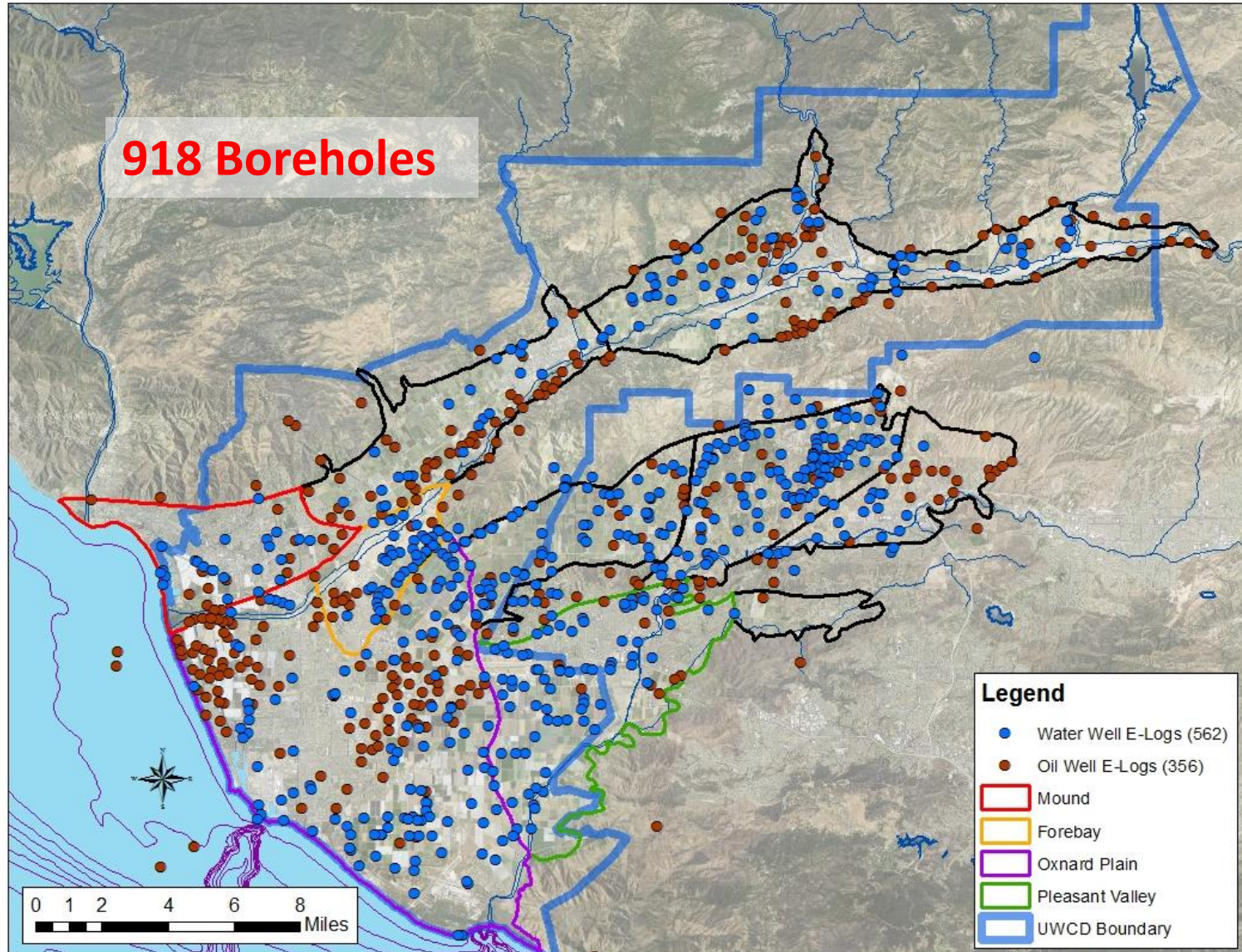




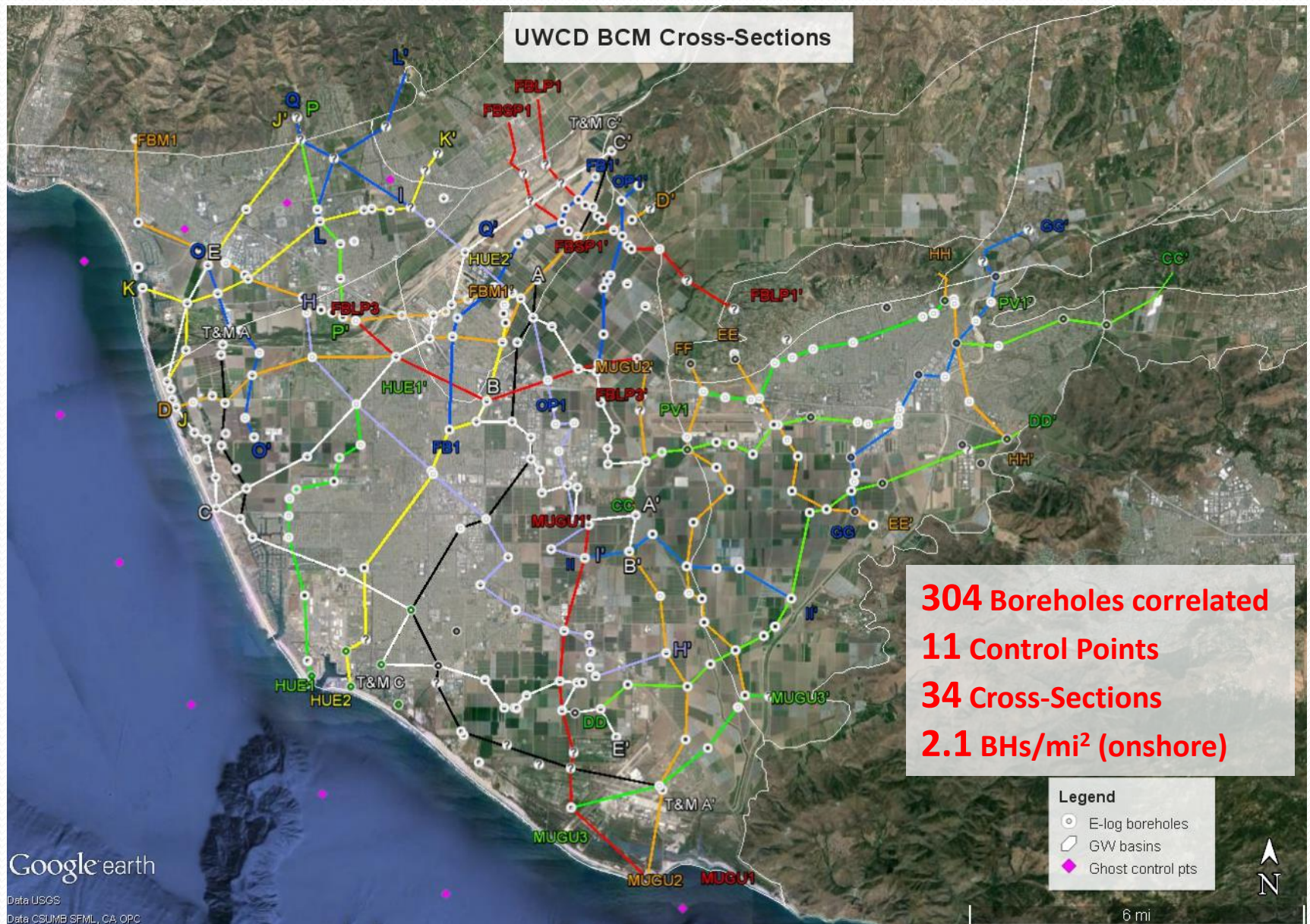
Water Wells- All Historic Wells



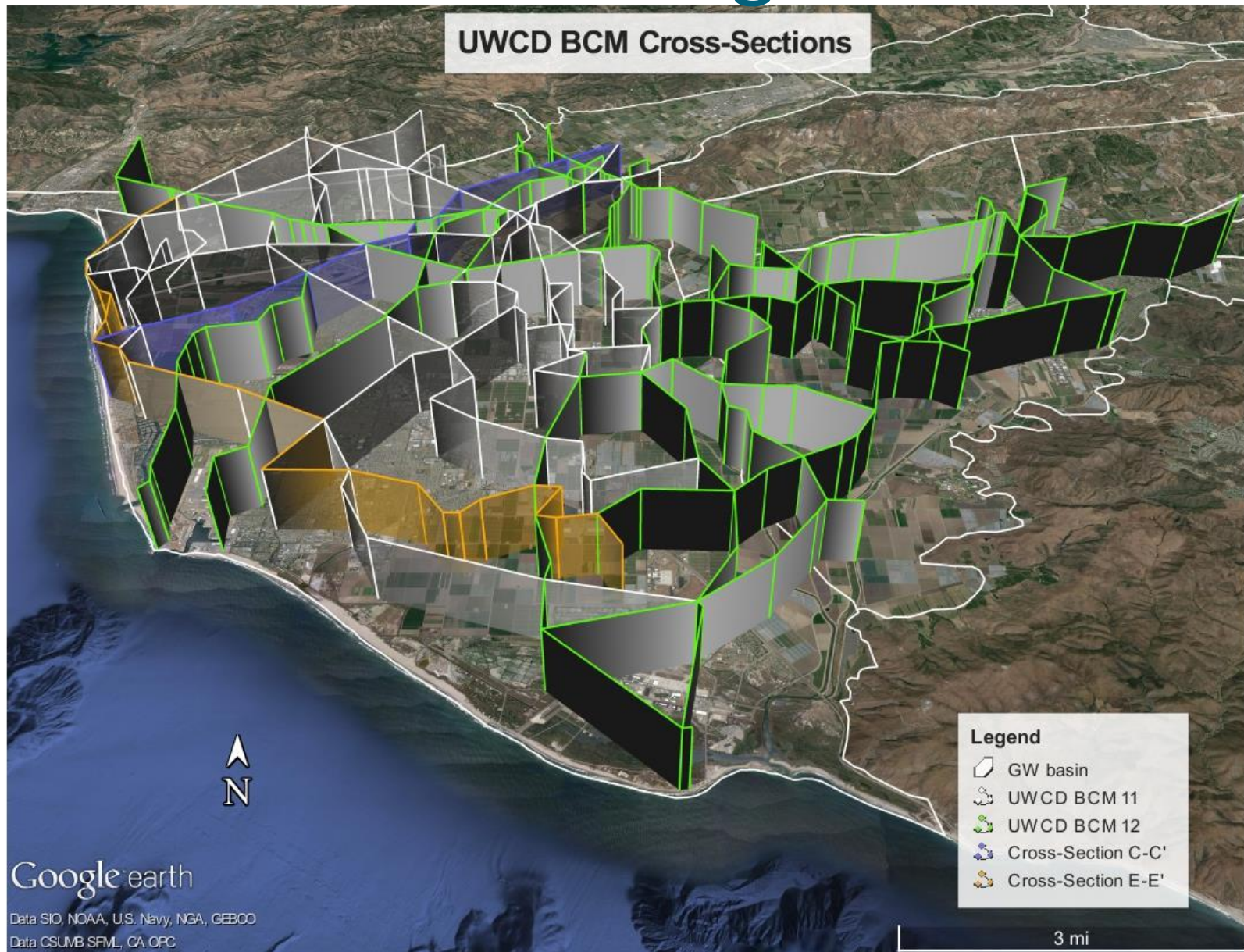
UWCD E-Log Archive (RockWorks)



BCM 12 Section Lines



BCM 12 “Fence Diagrams”



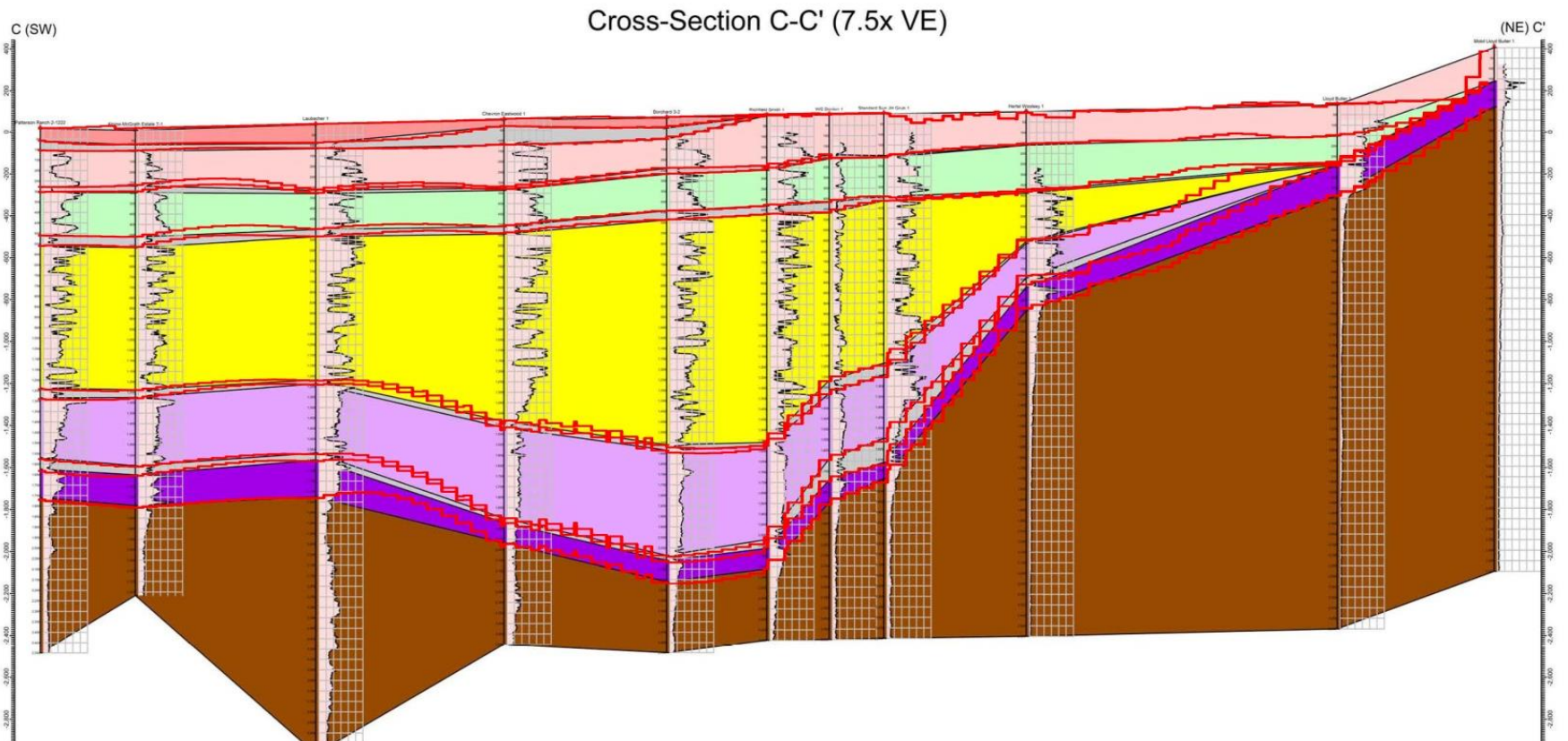
Hollywood Beach Area

South Mountain



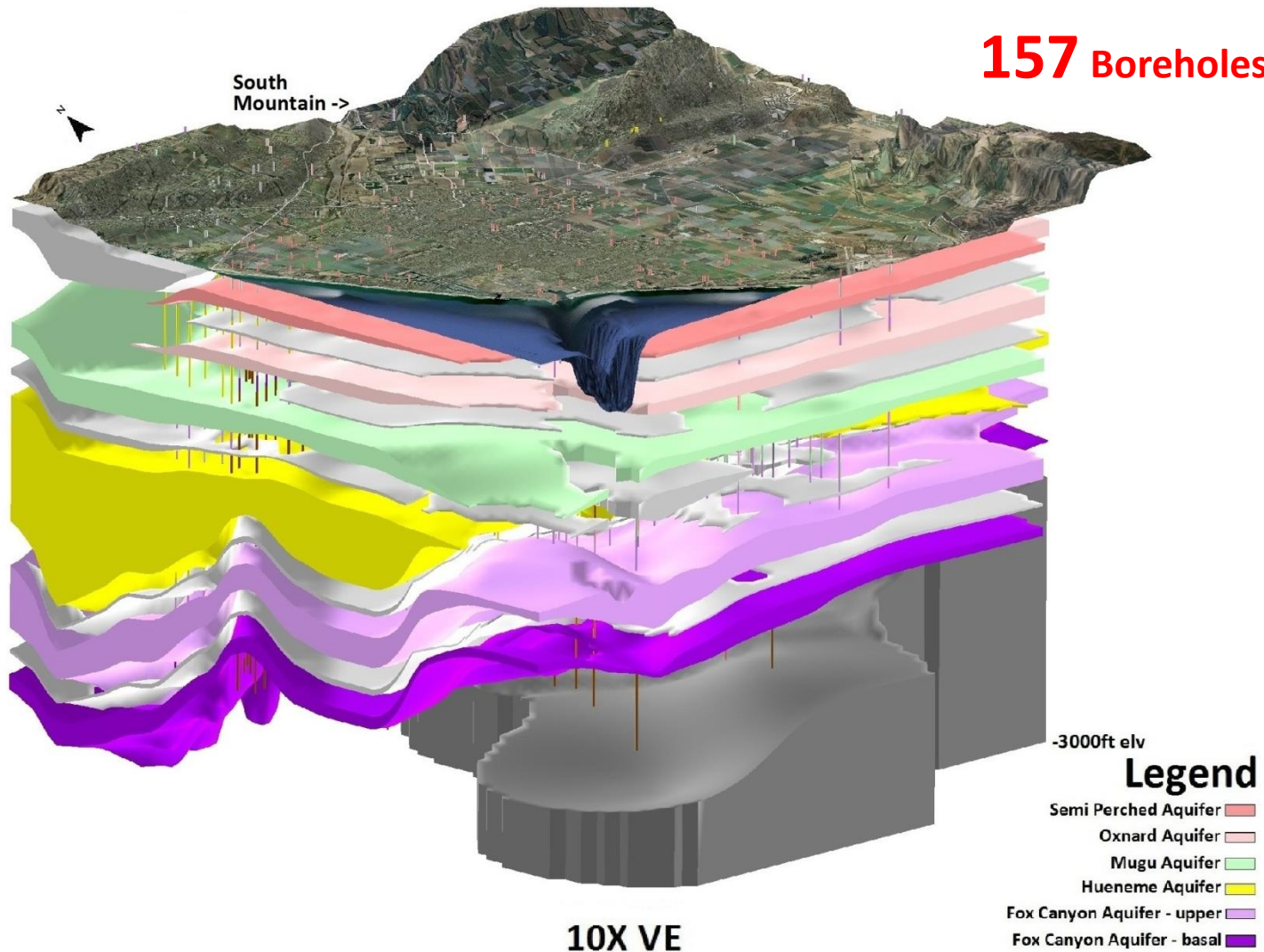
Generate surfaces, fit to grid cells

Stratigraphy	
Aquitard	
Semi Perched Aquifer	
Oxnard Aquifer	
Mugu Aquifer	
Hueneme Aquifer	
Fox Canyon Aquifer - main (upper)	
Fox Canyon Aquifer - basal	
Santa Barbara and/or other Formation	
Grimes Canyon Aquifer	
Volcanics	



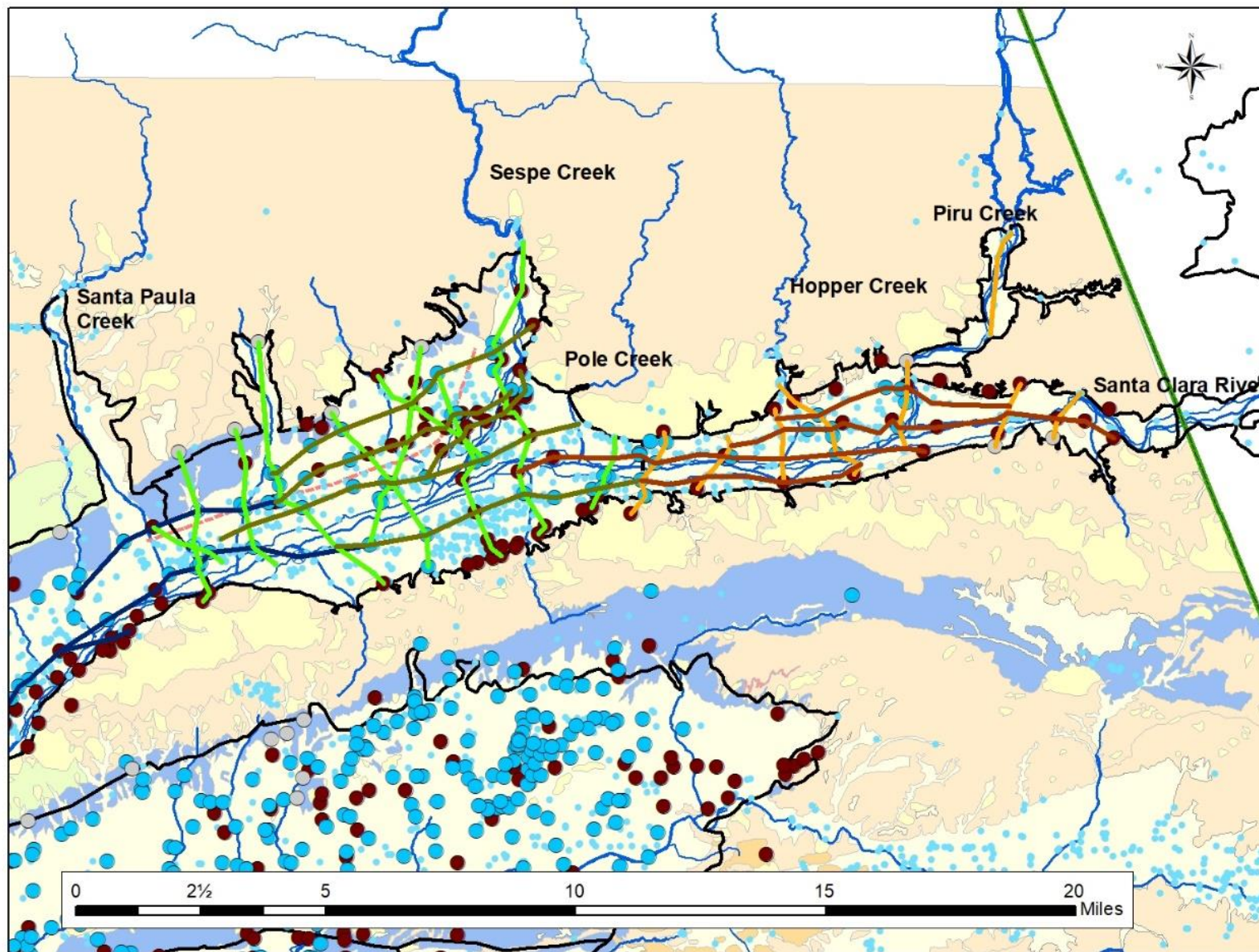
UWCD: Conceptual Model BCM 11

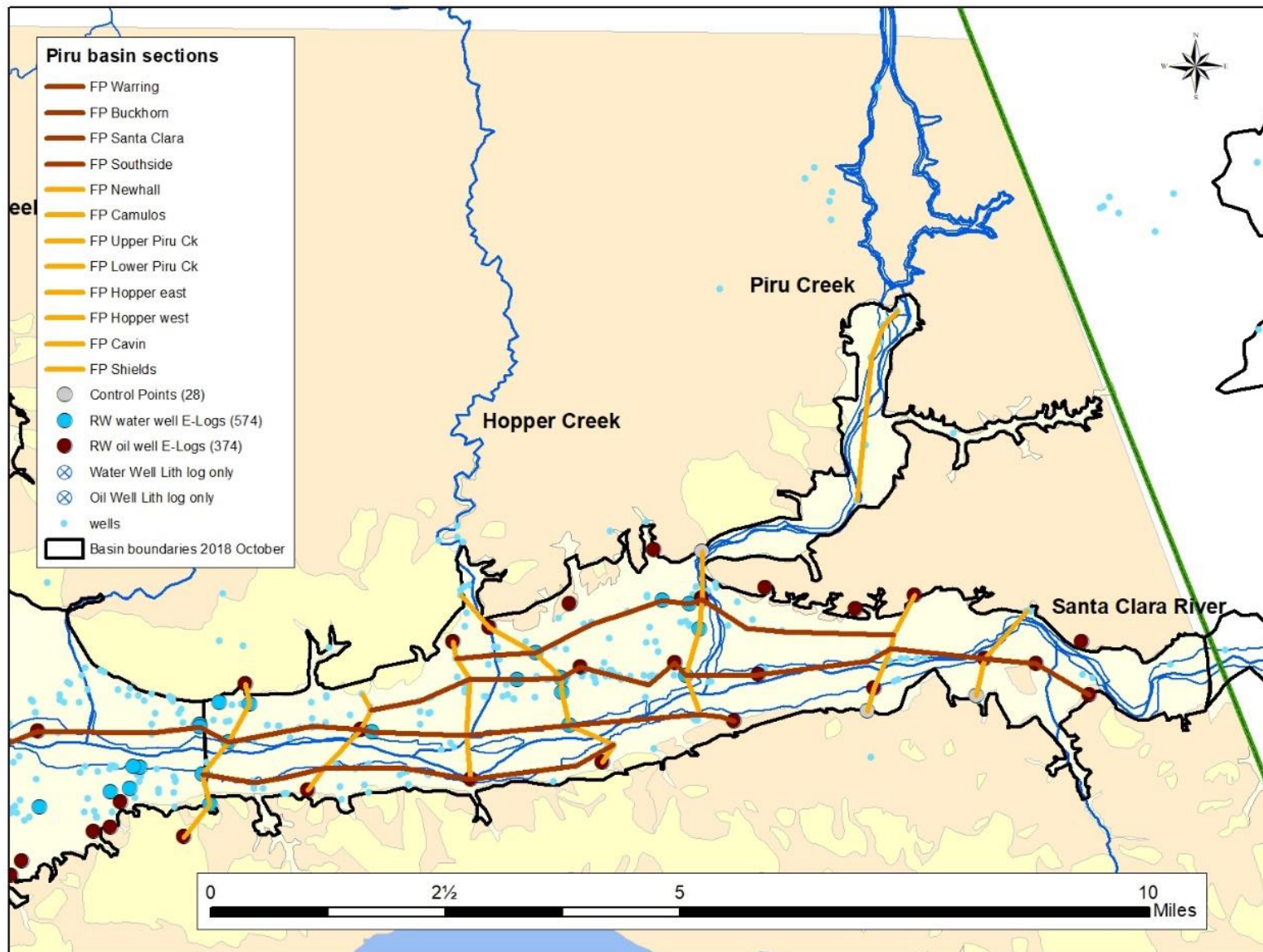
157 Boreholes

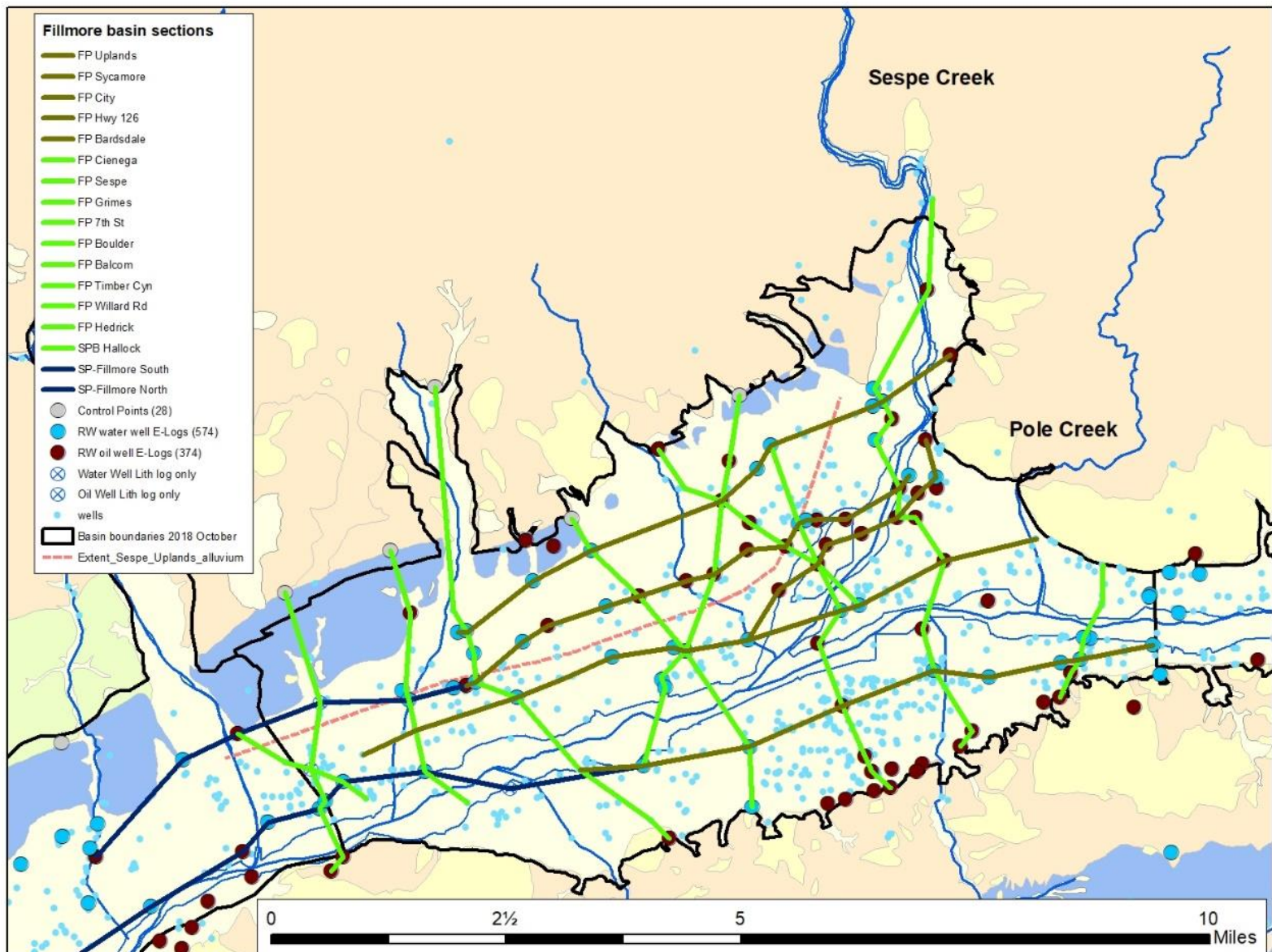


Model Development Process

- Understand hydrogeologic conditions
- Develop conceptual model for basin framework and SW-GW interactions
- Model construction
 - Discretization
 - Input parameters
 - Boundaries/stresses
 - Select software packages
- Model calibration and validation
- Publish model documentation
- Use model (historical or assumed future conditions)







Questions?