



# Butte County

LAND OF NATURAL WEALTH AND BEAUTY

**WATER AND RESOURCE CONSERVATION**  
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## The Lower Tuscan Aquifer Monitoring, Recharge and Data Management Project

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### Key Points

- The project involves tasks that will produce scientific data
- Does not involve conjunctive water management
- Not related to any other project or planning effort
- Will not involve installation of any production wells
- A cooperative effort among the counties of Butte, Colusa, Glenn and Tehama
- A preliminary environmental review was completed and site-specific environmental reviews will be done at appropriate stages of the project
- Implementation of the study will be made through consultation with a Technical Steering Committee

### What Tasks will be conducted?

The Tuscan Aquifer Monitoring, Recharge, and Data Management Project will improve the scientific understanding regarding the parameters of the Lower Tuscan aquifer and the ability to assess the impact to recharge resulting from increased utilization. Specifically the project will:

- **Map the Tuscan Formation**  
This task will involve more comprehensive mapping the geologic and soil components of the Tuscan Formation outcrops along the eastern margin of the northern Sacramento Valley and conduct stream infiltrometer tests at strategic locations.
- **Improve the Groundwater Monitoring Network**  
This task will involve adding and/or replacing monitoring wells in various locations around the county to improve and expand the groundwater monitoring network.
- **Assess the Recharge of the Lower Tuscan Formation**
  - **Soils infiltration tests** will quantify the recharge potential of formational materials within the Lower Tuscan outcropping. Natural aquifer recharge occurs in part when precipitation and surface runoff infiltrate into the aquifer system.
  - **Stream gauging** will characterize the stream-aquifer interactions and monitor riparian habitat by determining the volume and rate of surface water that recharges into or is discharged from exposures of the Lower Tuscan Formation along perennial streams.

- **Stream-aquifer temperature gradient tests** will determine how groundwater is influenced by the influx of surface waters to the aquifer or the movement of groundwater toward the ground surface.
- **Characterize the Lower Tuscan Formation Aquifer**  
Basic information on aquifer characteristics will be collected by pumping of existing production wells. Coupled with a reanalysis of previously conducted tests, the Tuscan transmissivity and storage will be better understood. This information can lead to a better understanding of the vertical interformational leakance between the Lower Tuscan Formation aquifer system and other aquifer units.

***Together the project tasks will:***

- Further identify the geological make-up of the Lower Tuscan Formation aquifer system
- Further define inter-connectivity of the Lower Tuscan with other geologic layers
- Provide more public information and understanding of the Tuscan Aquifer
- Promote regional coordination through the Four County MOU

***Outcomes of the Study:***

- Improved and expanded monitoring network
- Provide additional stream gauge data
- Improve the Butte Basin Groundwater Model
- Better understanding of the Tuscan aquifer
- Inform local land use decisions

***More About the Butte Basin Groundwater Model***

The Butte Basin Groundwater Model was developed in the 1990s by the Butte Basin Water Users Association (BBWUA) to assess the groundwater resources of the Butte Basin. This tool can be used to develop a quantitative hydrologic understanding of the groundwater resources, and assist in evaluating regional hydrologic impacts on the groundwater through alternative water policy decisions. Efforts to improve the model include:

- **2008** – The Butte Basin Model was updated in 2008 to incorporate better hydrologic data and utilize the Integrated Water Flow Model (IWFM). The IWFM is a water resources management and planning model that simulates groundwater, surface water, surface-groundwater interaction as well as other components of the hydrologic cycle. IWFM was formerly known as IGSM2 (Integrated Groundwater and Surface Water Model 2nd generation).
- **2009** - The Watershed Environmental Hydrology (WEHY) model through the University of California, Davis. The improved understanding of watershed contribution will complement the Butte Basin Groundwater Model and verify or refine the inputs associated with the recharge component.
- **2009-2011** – The Lower Tuscan Aquifer Monitoring, Recharge and Data Management Project