Surface Water Demand Scenarios

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Edisto River Basin Council
Meeting #9 (Virtual)
January 6th, 2021
Surface Water-Demand Scenarios

• Planning Framework requires four scenarios to be reviewed by each River Basin Council:
  1. Current Surface Water Use
  2. Permitted and Registered Water Use Scenario
  3. Business-as-Usual Water-Demand Projection
  4. High Water-Demand Projection

• Optional scenario – simulation of unimpaired surface water hydrology.

• Scenarios focus on “water demand” side as opposed to “water supply” side.

• Additional water demand scenarios can be recommended by the RBC:
  • Based on different assumptions used in existing projections (more aggressive growth rates, for example)
  • New water-demand projection scenarios must be submitted to SCDNR in writing by the RBC for consideration.
1. Current Surface Water Use Scenario

- Demand based on “current” water use defined as recent 10-year average (2009-2018) of reported water use.
- Simulates Surface Water Supply and Shortages resulting from a repeat of the historic drought of record (2002) under current withdrawals.
- Shortages would highlight the need for *short-term planning*.
2. Permitted and Registered Water Use Scenario
   • Water demand based on maximum legally allowable water use for surface water permits and registrations.
   • Identifies shortages that would occur under a repeat of the drought of record under maximum legally allowable withdrawals.
   • Addresses whether surface water source is currently over-allocated.
   • “Baseline” scenario:
     • Defines Surface Water Supply when no Surface Water Shortages are identified.
     • Surface Water Supply estimated under this scenario denotes unallocated available water.
     • RBC must consider shortages under this scenario when developing Surface Water Management Strategies.
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• Two Water-Demand Projection Scenarios:
  3. **Business-as-Usual Water-Demand Projection Scenario** – demand based on projection of water use assuming normal climate and moderate population and economic growth.
  4. **High Water-Demand Projection Scenario** – demand based on projection of water use assuming drier conditions and high population and economic growth.

• Provide information on when and where shortages are likely to occur:
  • 50-year Planning Horizon
  • Simulations completed in 5- to 10- year intervals.

• If projections exceed registered and permitted amounts:
  • Surface Water Shortages will be larger than identified in the Permitted and Registered Water Use Scenario.
  • Surface Water Management Strategies should be developed to address the Shortages identified in the projection scenarios.
• Definitions:
  • **Groundwater Supply** – the volume of water that can be withdrawn annually from a specified aquifer in a designated location without violating any applied Groundwater Conditions on the groundwater source.
  • **Groundwater Conditions** – a physical limitation on the amount of groundwater that can be withdrawn from an aquifer and which can be applied to evaluate Groundwater Supply for planning purposes.
  • **Groundwater Shortage** – occurs when current or future groundwater withdrawals from a specified aquifer are violating or are expected to violate a Groundwater Condition applied on that aquifer.
  • **Groundwater Area of Concern** – an area where current or future groundwater withdrawals from an aquifer are causing or are expected to cause unacceptable impacts to the resource or to the public health and well-being.

• **Groundwater Demand Scenarios**
  • Predevelopment Groundwater Use Scenario
  • Current Groundwater Use Scenario
  • Permitted Groundwater Use Scenario
  • Business-as-usual Water-Demand Projection Scenario
  • High Water-Demand Projection Scenario