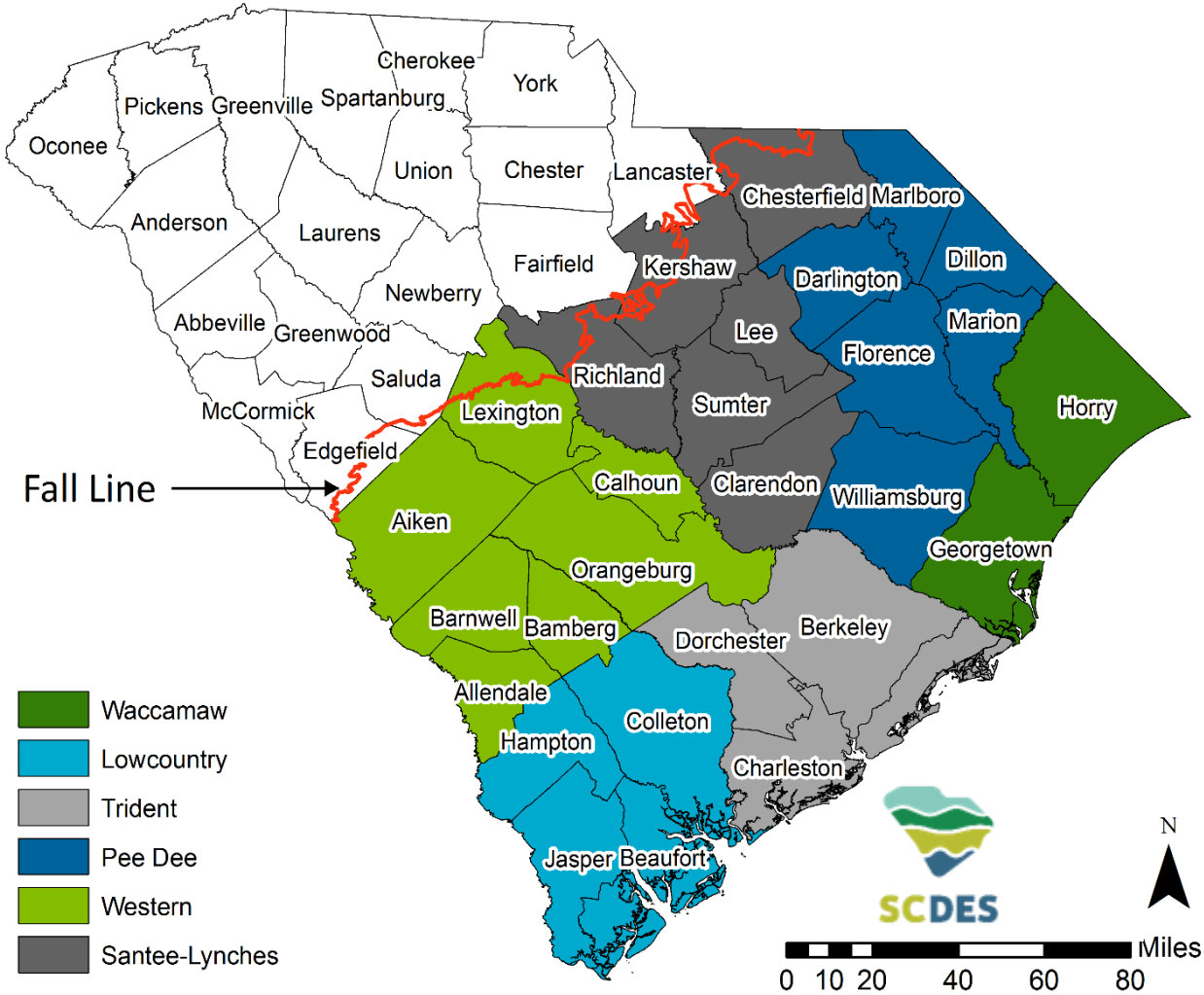




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# **Waccamaw Capacity Use Area**

## **Groundwater Conditions & Management**



The Waccamaw Capacity Use Area (Waccamaw Area), which includes the whole of Georgetown County and Horry County, was the first of six currently designated areas of South Carolina’s Coastal Plain to be incorporated into the Capacity Use Program.

# Groundwater Evaluation Reports

Every 5 years permitting cycle total annual groundwater withdrawals will be compiled and compared to available aquifer potentiometric maps. The report includes the following

Listing of all permitted withdrawers, permitted withdrawal limits, and average groundwater withdrawal;

Evaluation of withdrawal by category and by aquifer;

Identification of areas of aquifer stress, current conditions, monitoring well, and all withdrawers utilizing the stressed aquifer(s).



## Waccamaw Capacity Use Area Groundwater Evaluation Report

**Permitting Year 2024**

Prepared by:  
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**Bureau of Water**  
Jennifer Hughes, *Bureau Chief*

**Water Monitoring, Assessment, and Protection Division**  
Joseph M. Koon, *Director*

**Water Quantity Permitting Section**  
Leigh Anne Monroe, *Manager*

Technical Report Number: 006-2023

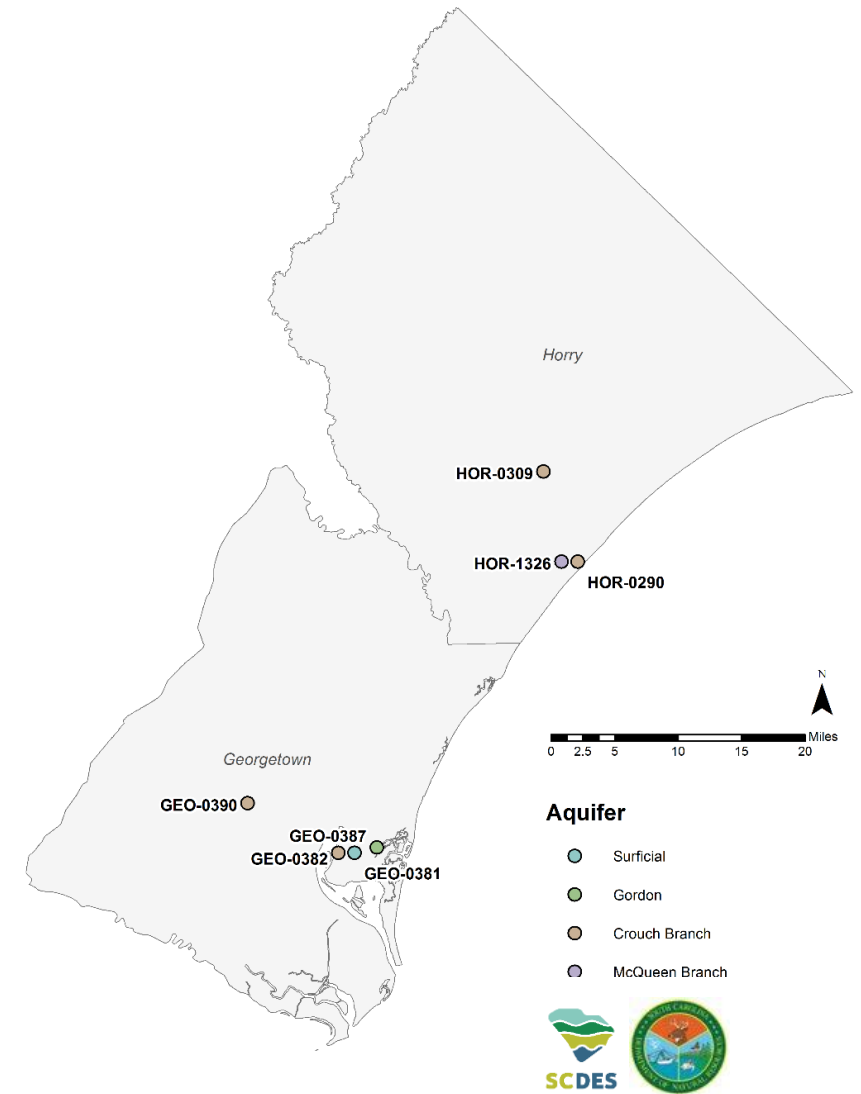
# Groundwater Conditions



# SCDES Hydrology Monitoring Wells

Well ID	Agency	County	Aquifer	Record Length (years)
GEO-0381	SCDNR	Georgetown	Surficial	9
GEO-0382	SCDNR	Georgetown	Crouch Branch	9
GEO-0387	SCDNR	Georgetown	Gordon	7.7
GEO-0390	SCDNR	Georgetown	Crouch Branch	4.2
HOR-0290	SCDNR	Horry	Crouch Branch	15.1
HOR-0309	SCDNR	Horry	Crouch Branch	22.8
HOR-1326	SCDNR	Horry	McQueen Branch	7.6

\*Water level measurements collected before July 1, 2024, were obtained by the SCDNR Hydrology Section. Water level measurements collected on or after July 1, 2024, were obtained by the SCDES Hydrology Section.



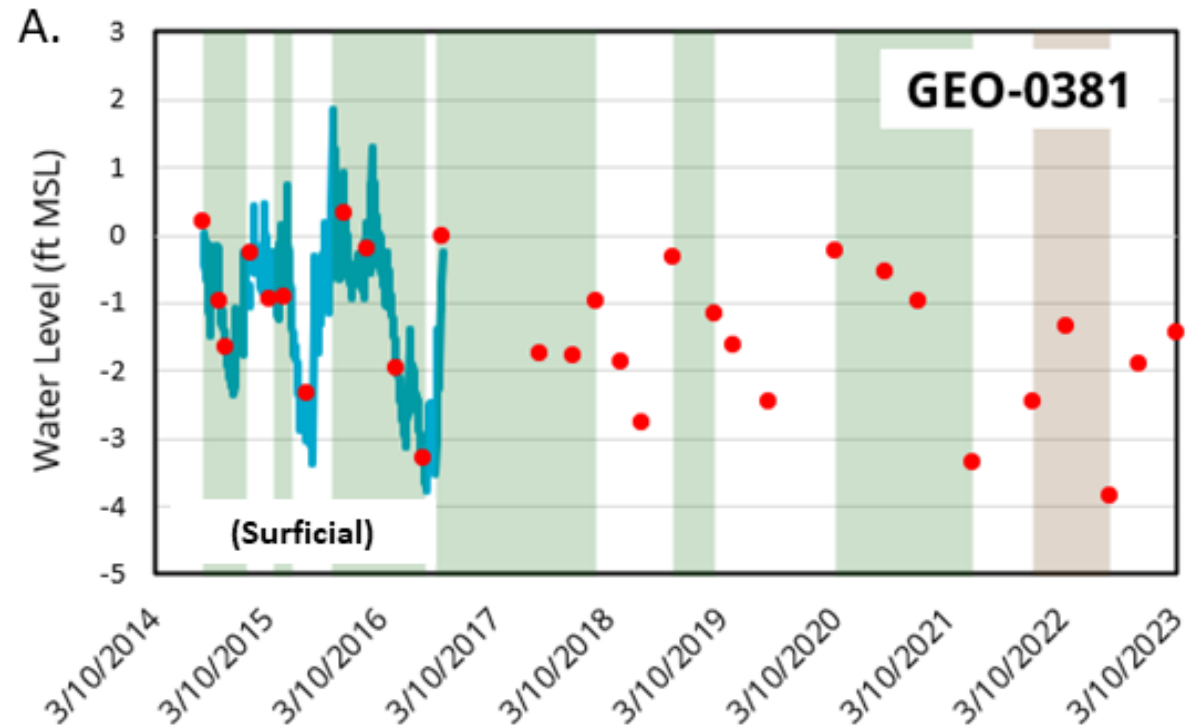
# Surficial Aquifer

Water levels remained stable overall, but the data indicates that levels decline in the spring and summer months and rebound in the fall and winter.

These declines and rebounds are due to the local recharge the Surficial aquifer receives through infiltration of precipitation and surface water bodies which causes the water level profile to reflect the local climate.

## GEO-0381

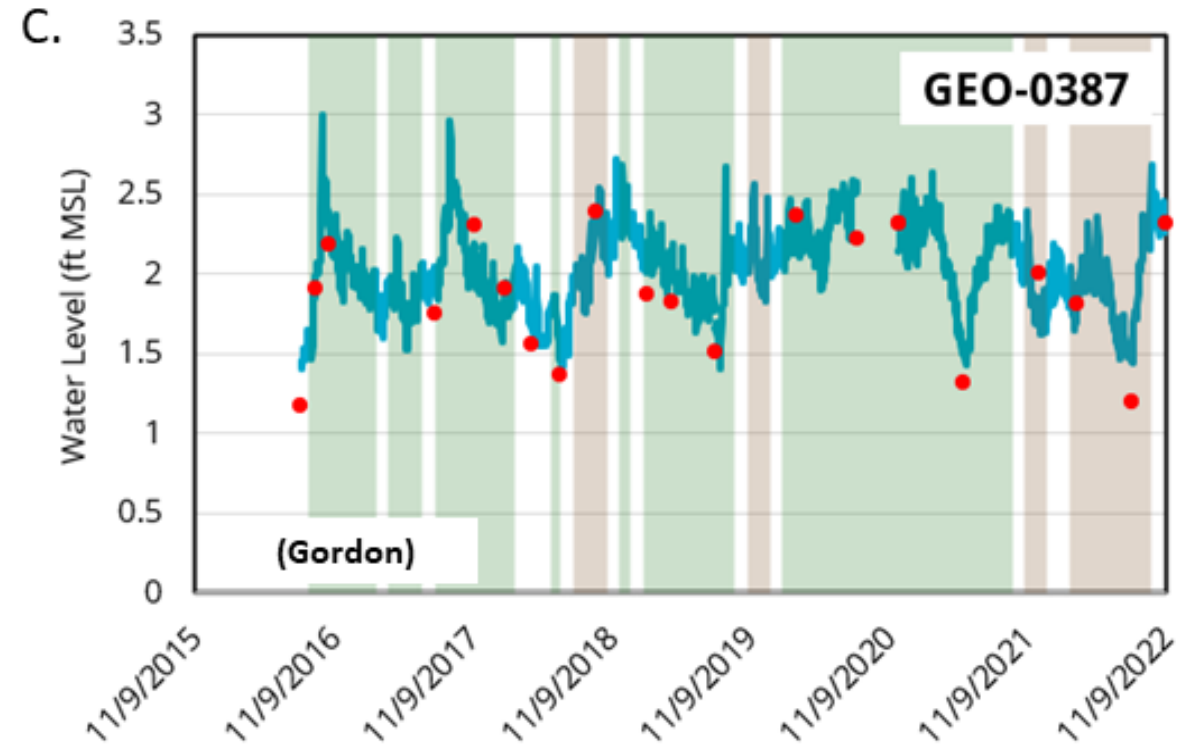
- Has the longest record with 9 years of water level data.



# Gordon Aquifer

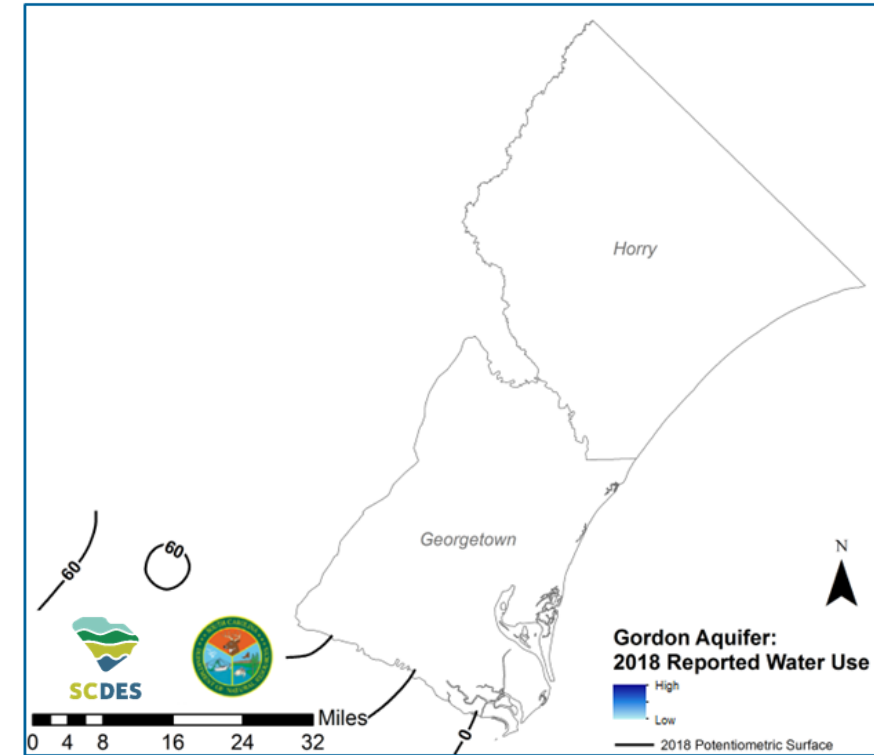
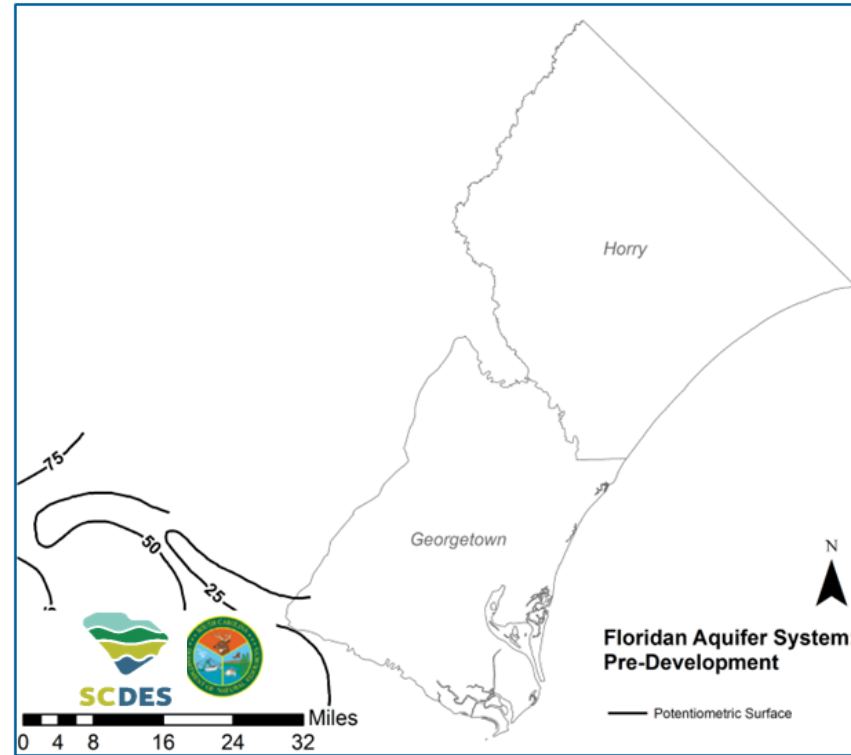
## GEO-0387

- stable overall, but the data indicates that levels decline in the spring and summer months and rebound in the fall and winter.
- declines and rebounds are present because the recharge area for the Gordon aquifer extends through the southernmost part of Georgetown County.
- Allows water level profile to reflect the local climate.



# Floridan Aquifer

- No significant change altered since pre-development and the flow remains in a southeasterly direction.
- The zero-contour line remains near the coast in southern Georgetown County.





# Crouch Branch Aquifer

Georgetown wells indicate continued declines of approximately 2 feet per year.

## GEO-0382

- Decline of approximately 17 feet since 2014.

## GEO-0390

- Decline of approximately 10 feet since 2019.

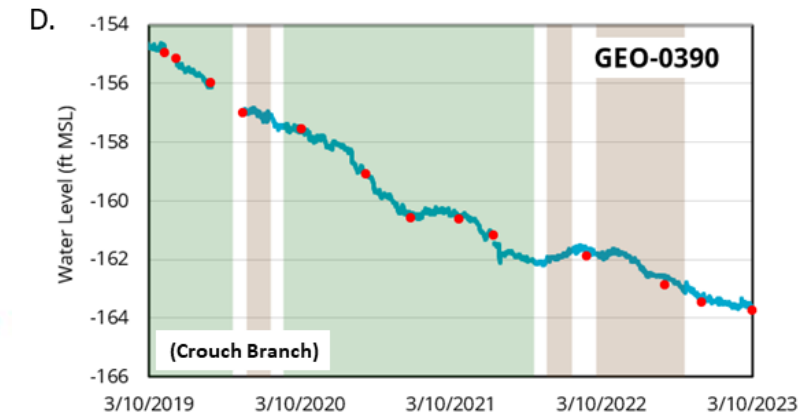
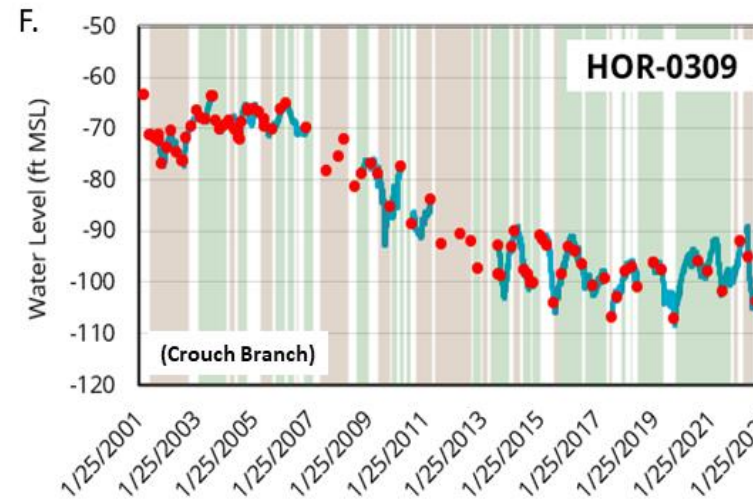
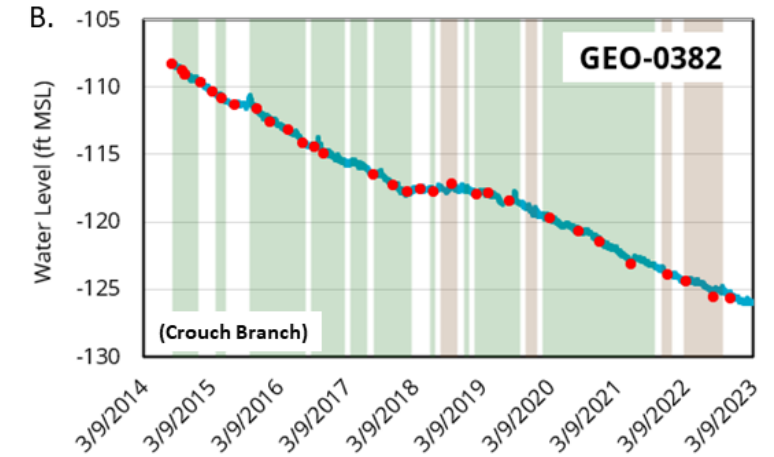
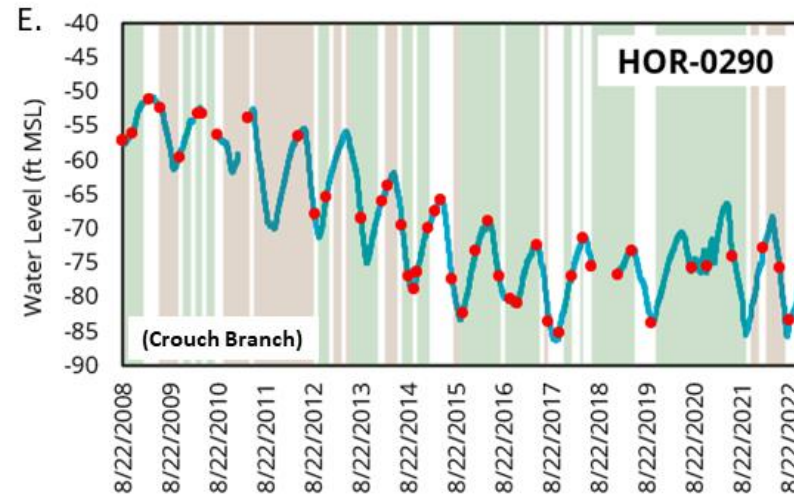
Horry County wells indicate a decline from mid 2000s to late 2010s then become relatively stable or have increased slightly.

## HOR-0290

- Decline of about 17 feet then stabilize.

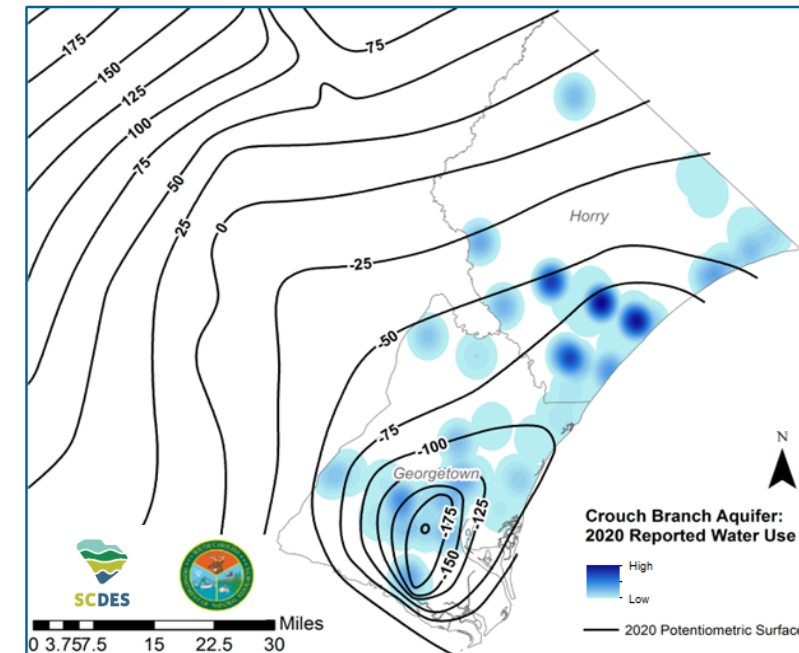
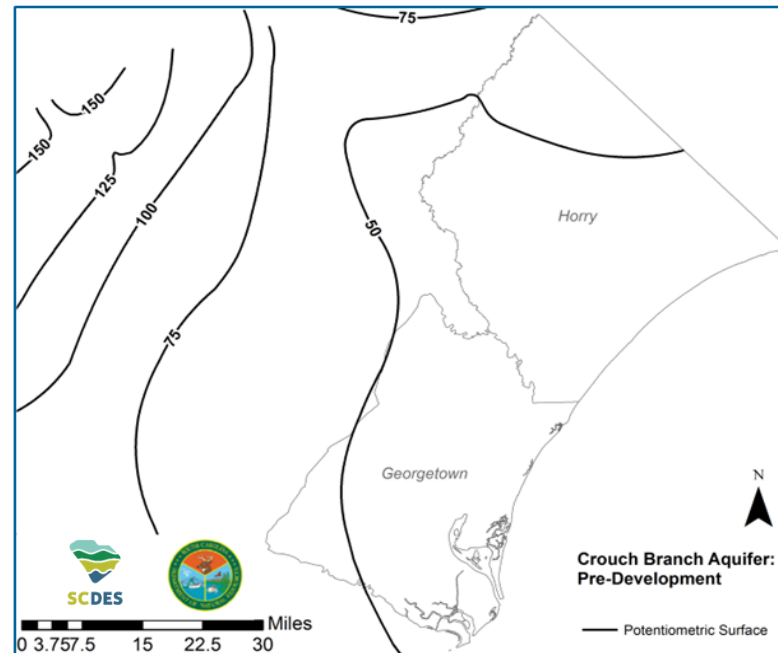
## HOR-0309

- Decline of approximately 28 feet overall but slight increase since 2017.



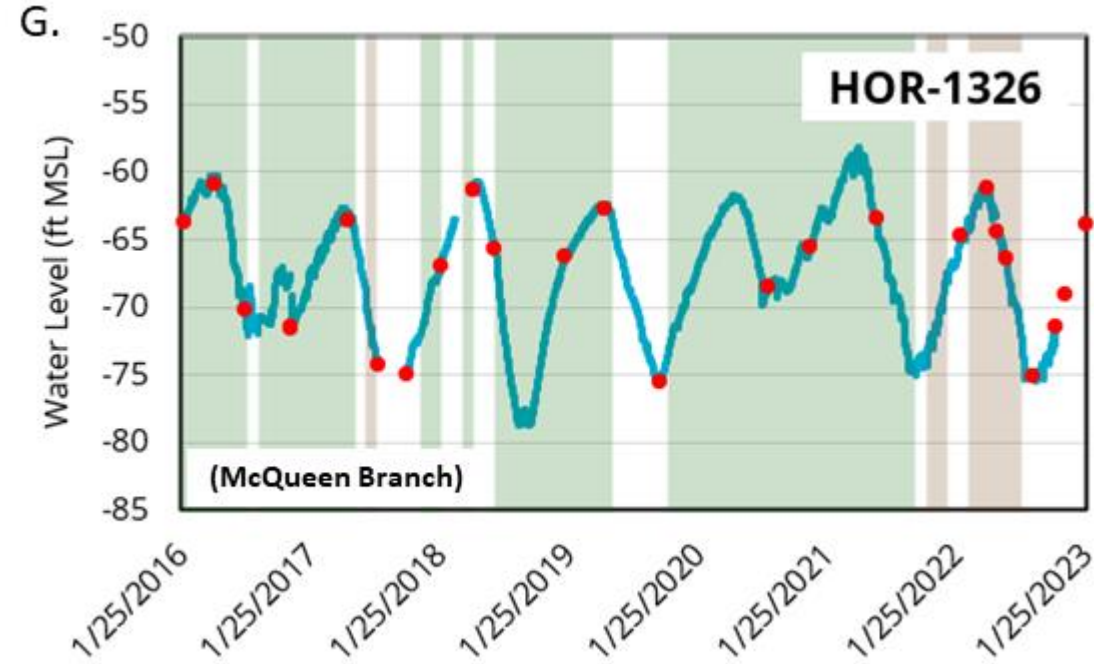
# Crouch Branch Aquifer

- Pre-development approx. 50 ft below msl
- pressure surface had lowered by 225 feet in southern Georgetown County
- Lowered by 50 to 75 feet in northern Horry County.
- Pumping cone has developed below the southern Georgetown county and has reversed the groundwater flow from a southeasterly direction to a westerly direction along the Georgetown county coastline.



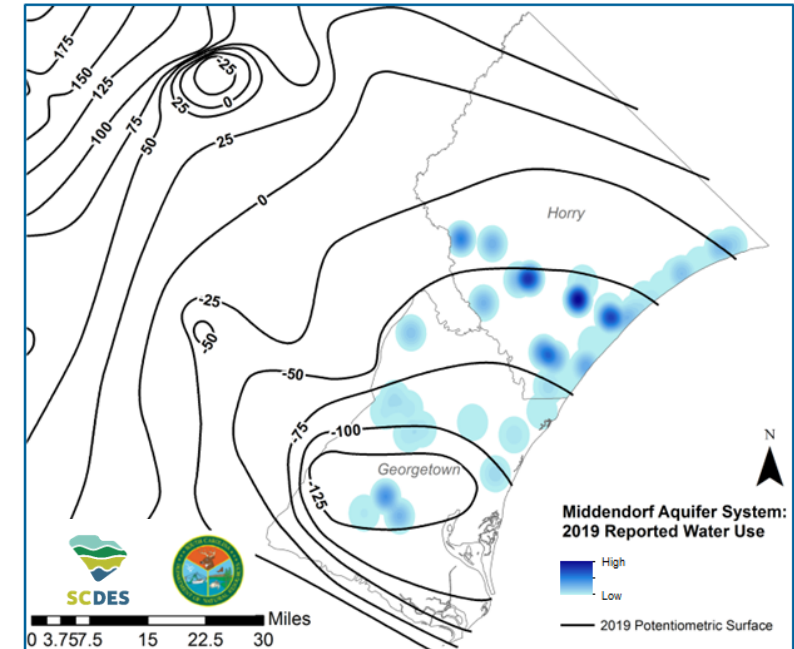
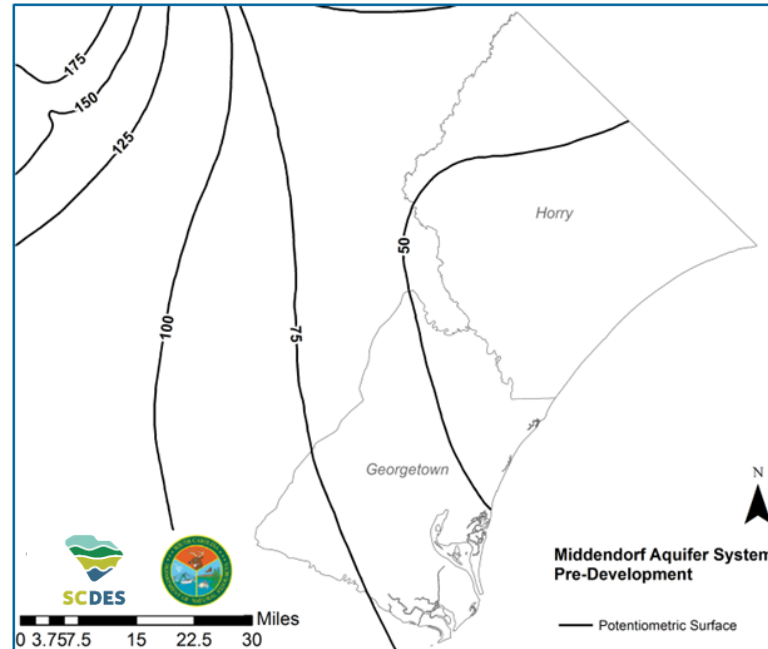
# McQueen Branch Aquifer

- Wells cross-screened in the Crouch Branch-McQueen Branch, Crouch Branch-McQueen Branch-Charleston.
- Monitoring well HOR-1326 is the only SCDNR monitoring well
- Spring and summer drawdown to approximately 75 feet below MSL and have consistently rebounded to approximately 63 feet below MSL during the fall and winter months since 2016.



# Middendorf Aquifer System

- The pressure surface had lowered by 200 feet in southern Georgetown County
- southern Horry County had lowered by 100 feet in.
- The groundwater flow has shifted to a southerly direction below northern Georgetown and Horry Counties and has shifted to a northerly direction in southern Georgetown County due to the pumping cone that has developed below southern Georgetown County .



# Charleston and Gramling Aquifers

- There are currently no SCDNR monitoring wells screened in the Charleston aquifer in the Waccamaw Area.
- Although present below the Waccamaw Area counties, there are currently no capacity use wells or SCDNR monitoring wells screened in the Gramling aquifer in the Waccamaw Area.

# Recommendations for Management



# Recommendations For Crouch/Mcqueen Branch Aquifers

- No increases withdrawal rates or construction of new wells should be approved for wells in either county This hold should remain in effect until the Waccamaw Area undergoes its next 5-year review in 2029 at which time the hold on withdrawal rate increases should be re-evaluated based on new water level information.
- New Groundwater Withdrawal Permit Applications and renewals with requested withdrawal rate increases which propose to use the Crouch Branch aquifer or McQueen Branch aquifer should be diverted to the Surficial, Charleston, or Gramling aquifers in Georgetown and Horry Counties as appropriate for the proposed use.
- Increase the use of Aquifer Storage and Recovery (ASR) wells and increase the use of Artificial Recharge (AR) to aid in the recovery of the pumping cone below southern Georgetown County.
- Each new and renewal permit for water supply wells should require that a water audit be conducted annually in accordance with the American Water Works Association policy statement for Water Loss Management, Metering, and Accountability (2019).

# Recommendations For Waccamaw Capacity Use Area

- Encourage the use of surface water as a source for future water demands to further reduce the groundwater demands in and around the Georgetown County pumping cone to aid in recovery of the cone and to minimize the risk of saltwater intrusion and land subsidence in the region.
- Encourage groundwater withdrawers to discontinue using and properly abandon wells that have been screened across multiple aquifers and ensure that all future wells are screened in the target aquifer only, with appropriate grouting starting at the plug above the screen interval or the first confining bed immediately above the target aquifer to the top of land surface.
- Cooperative work with SCDES should continue in preparing the potentiometric surface maps, and future maps should be based on data from individual aquifers to the greatest extent possible to better aid in evaluation of how groundwater withdrawals from capacity use wells (which must be screened into single aquifers) are impacting the local groundwater conditions.
- Work toward educating all South Carolinians on best practices for water conservation must continue in cooperation with all stakeholders.
- Work in conjunction with local, state, and federal partners to expand the groundwater monitoring network in all Waccamaw Area aquifers by identifying wells scheduled for abandonment that may be incorporated and of benefit to the well network.





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# Questions?

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