The McQueen Branch, Charleston, and Gramling aquifers are the deepest coastal aquifers in the Coastal Plain of South Carolina and are an important source of water for many public, industrial, and agricultural users. In late 2019, the South Carolina Department of Natural Resources (SCDNR) collected static (non-pumping) water levels in 142 wells to produce a potentiometric map of the McQueen Branch aquifer. The map delineates the approximate updip limits of the McQueen Branch aquifer and includes a potentiometric surface for this map. The map also shows the boundaries of the McQueen Branch aquifer used for this map are those defined by Gellici and Lautier (2010), who delineated the aquifer using geologic (corehole, fossil, and borehole geophysics) and water-level data. The McQueen Branch is a late Cretaceous-age aquifer extending over most of the Coastal Plain. The aquifer, which consists primarily of interbedded quartz sand and clay, outcrops along the Fall Line and reaches its maximum thickness of 70 ft [17 m] in Dillon County.

The map presented here was constructed using static (non-pumping) water levels measured in 142 wells during late 2019. Of those 142 wells, 109 are screened solely in the McQueen Branch aquifer. Although this is only SCDNR’s second potentiometric map using the boundaries of the McQueen Branch aquifer—the first being made from data collected in 2016—the 2019 map suggests that, downdip from the recharge areas and outside of the western edge of the aquifer, water levels throughout much of this aquifer have declined 50 to 100 ft below predevelopment levels (Aucott and Speiran, 1985). The map also shows that the water levels are generally shallower and the aquifer more confined as one moves toward the Fall Line.

Although this is only SCDNR’s second potentiometric map using the boundaries of the McQueen Branch aquifer, the first being made from data collected in 2016, the 2019 map uses a different data set and incorporates additional data collected since 2016. The 2019 map was constructed using static (non-pumping) water levels measured in 142 wells during late 2019. Of those 142 wells, 109 are screened solely in the McQueen Branch aquifer. Although this is only SCDNR’s second potentiometric map using the boundaries of the McQueen Branch aquifer—the first being made from data collected in 2016—the 2019 map suggests that, downdip from the recharge areas and outside of the western edge of the aquifer, water levels throughout much of this aquifer have declined 50 to 100 ft below predevelopment levels (Aucott and Speiran, 1985). The map also shows that the water levels are generally shallower and the aquifer more confined as one moves toward the Fall Line.

The 2019 McQueen Branch-Charleston-Gramling potentiometric surface map shows a generally upward trend in water levels, especially in the eastern portion of the aquifer, where water levels trended upward in the map during 2016 to 2018. Water levels in the aquifer have declined 50 to 100 ft in some areas, which is consistent with recent trends shown in the 2016 map. Water levels in the McQueen Branch aquifer are generally shallower than in the Charleston and Gramling aquifers, and water levels in the McQueen Branch aquifer are generally shallower than in the Charleston and Gramling aquifers.

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