

### Recharge and Maximum Saturated Evapotranspiration

In the NFSEG model verification simulation, separate external arrays of recharge and maximum saturated evapotranspiration (MSET) rates were developed for 2010 using HSPF models developed for the NFSEG model (see Chapter 9 for more information). Figure 5-3 shows the distribution of the 2010 MSET as well as average annual MSET in 2001, 2009 and 2010 within delineated groundwater basins (GWBs). Figure 5-4 shows the difference between MSET in 2010 relative to the years 2001 and 2009 within delineated groundwater basins (GWBs). Despite similarity in average annual MSET within each GWB among all three years, there is evident spatial variation in MSET in 2010 relative to each calibration year. In the year 2010, MSET was generally lower than 2001 and 2009 along the western model boundary and higher along the eastern model boundary (Figure 5-4).

The applied recharge rate in 2010 and average annual recharge rate for 2001, 2009 and 2010 within each GWB are shown in Figure 5-5. There appears to be greater variation in the average annual recharge rate within each GWB relative to MSET. The spatial variations in the recharge rate in the year 2010 relative to 2001 and 2009 are shown in Figure 5-6. In the year 2010, the recharge rate was higher than in 2001 and 2009 in the southwest portion of the model and generally lower along the eastern model boundary. In parts of southern Georgia, the recharge rate in the year 2010 was generally higher than in the year 2001 but lower than in the year 2009 (Figure 5-6). Like rainfall distribution, geographic variations in MSET and applied recharge rates in 2010 are distinct from those in 2001 and 2009.

### Drain and River Package

Stage and bottom elevation estimation for development of the 2010 Drain and River Packages followed the same methodology used for 2001 and 2009. Sources of actual stream and lake stage data for 2010 include the USGS and various water management districts, which provided median water levels for 2010. Where stage data were unavailable, land surface elevation was used to represent stage. In the Suwannee River and some of its tributaries, stages for 2010 were obtained from the SRWMD HEC-RAS surface water models. A hydrodynamic model developed by SJRWMD was the source of stages for the St. Johns River for 2010.

### Well and Multi-Node Well Packages

The Well Package was used to represent single aquifer withdrawal wells, while the Multi-Node Well Package was used to represent withdrawal wells open to both the Upper and Lower Floridan aquifers in 2010. All water uses represented in the 2001 and 2009 groundwater withdrawal dataset are included in 2010. Figure 5-7 through Figure 5-8 show the distribution of groundwater withdrawals by water use type and counties in 2010. Influxes due to rapid infiltration basins (RIBS), natural sinks, drainage wells and injection wells were also simulated with the Well Package (see section 3 for more information). Figure 5-9 includes the multi-aquifer withdrawal wells included in the 2010 simulation. Table 5-1 includes the total groundwater withdrawals and influxes (in mgd) in 2010 compared to those in 2001 and 2009.