

Central Florida Water Initiative



Hydrologic Analysis Team

The Hydrologic Analysis Team (HAT) is directed to apply the most appropriate science to the modeling and data analysis to support decision making for the Central Florida Water Initiative (CFWI) and to ensure work completed is defensible, understood by the initiative participants and collaboratively developed. The CFWI area includes southern Lake, Orange, Osceola, Polk and Seminole counties.

Team Objectives

Provide necessary modeling tools and data analysis and work collaboratively with other CFWI teams to:

- Evaluate the current and future availability of groundwater.
- Assess future municipal and agricultural water supply and management strategies.
- Develop processes to assess the long-term effectiveness of the management strategies.
- Support collaborative water supply planning.
- Support future changes in regulations, as needed.

Principal Hydrologic Analysis Tools

East-Central Florida Transient (ECFT) Groundwater Model

The ECFT model is a computer model of the hydrologic system in Central Florida that was developed by scientists at the United States Geological Survey (USGS). The model is being used to evaluate the effects from changes in groundwater withdrawals and other components of the water cycle on water levels in lakes and wetlands. It represents the natural groundwater flow in the environment and includes rainfall, stormwater runoff, groundwater recharge, groundwater withdrawals, landscape and agricultural irrigation as well as evapo-transpiration. The model simulates groundwater flow in the surficial, Upper Floridan, and Lower Floridan aquifers. The model will be used to support the efforts of other technical teams that are part of the CFWI effort:

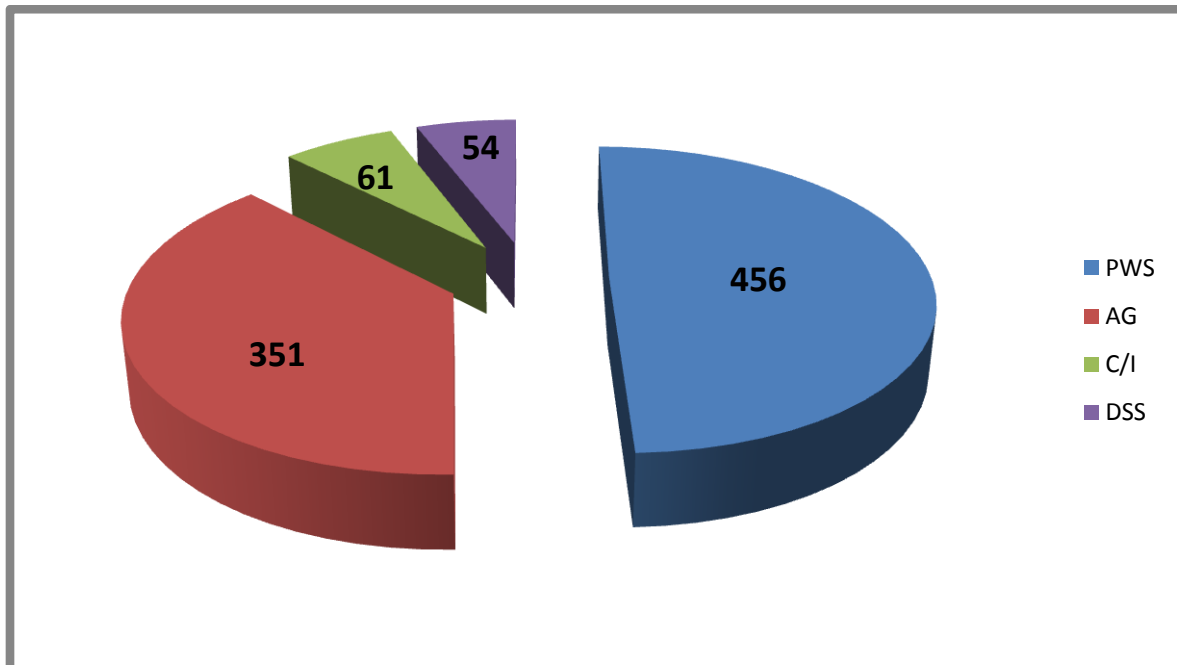
- Minimum Flows and Levels (MFLs) Team and Environmental Measures (EM) Team – the model will be used to simulate the effects of withdrawals on groundwater levels that in turn will be used to evaluate the impacts of withdrawals on lakes and wetlands.
- Groundwater Availability Team (GAT) – the model will be used to evaluate the sustainable amount of groundwater that is available in the area and how close we may be to that amount now and in the future.
- Regional Water Supply Planning (RWSP) Team – the model will be used to evaluate solution options for future water supply based on the results of the GAT.
- Water Use Permitting – the model will also be used to support future water use permitting activities.

Data Analysis

Statistical analysis and other data analysis techniques will be used to further investigate and quantify the factors affecting water levels in lakes and wetlands. Relationships that are developed will be used to corroborate results of the ECFT groundwater model and quantify effects of withdrawals on lakes and wetlands.

Facts about the East-Central Florida Transient Groundwater Model

1. The model covers 9,000 square miles including all or portions of Brevard, Lake, Marion, Orange, Osceola, Polk and Seminole counties.
2. The model has seven aquifer layers covering a depth of over 3,000 feet.
3. The model is calibrated, or tested, for the period of 1995 through 2006.
4. Average groundwater withdrawals in the model total 922 million gallons per day (MGD) and are distributed as outlined below (in MGD).



[PWS=potable water supply; AG=agriculture; C/I=commercial/industrial; DSS=domestic self supply]

5. A total of 22 springs are included in the model with a total annual average discharge of 361 MGD.
6. The model is used to predict effects of future groundwater withdrawals on water levels to 2035.