

## **A NEW METHOD FOR ESTIMATING WATER WITHDRAWN FROM PRIVATE DOMESTIC WELLS IN FLORIDA**

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Sustainable water-use planning benefits from comprehensive knowledge of the current demands and sources for all categories of water use. In 2018, nearly 550 million gallons per day of groundwater was withdrawn for public-water supply in the Southwest Florida Water Management District (SWFWMD). This potable water is used for purposes such as drinking, cooking, and bathing, as well as outdoor uses like lawn irrigation. In addition to public-supplied water, many households supplement their outdoor water supply with water from a private well. In 2015, over 101,000 wells were identified within the SWFWMD as lawn-irrigation wells. The withdrawals from lawn-irrigation wells are likely the largest unaccounted use of water in the SWFWMD for which there are currently no good estimates. The U.S. Geological Survey Caribbean-Florida Water Science Center (CFWSC) and the SWFWMD are working together to better quantify this use.

The CFWSC, in cooperation with the Alachua County Environmental Protection Department, conducted a pilot study from 2018 to present to develop a methodology for measuring the volume of groundwater withdrawn from private domestic wells. Twelve domestic wells in Alachua County were used to develop the methodology which uses an inexpensive electromagnetic meter that records how long the well pump runs. Flow rates are measured periodically at each well using a non-invasive ultrasonic flow meter. Together, the flow rate and run time data are used to calculate the volume of flow produced by each well per month. The Alachua Count pilot study led to a project in cooperation with the SWFWMD in which approximately 40 private wells will be monitored during 2022 in Sarasota and Polk Counties to estimate the average water use for lawn irrigation.

**PRESENTER BIO:** Marco Pazmiño-Hernandez has been working with the USGS CFWSC as a Cherokee Contractor for two years and specializes in water-use modeling. Marco received his master's degree from the University of Florida in the Department of Agricultural and Biological Engineering Department.