

## **WATER SUPPLY VULNERABILITY ASSESSMENT FOR FLORIDA'S LOWER EAST COAST PLANNING REGION**

*Anushi Obeysekera, Pete Kwiatkowski, Alicia Magloire, Ana Carolina Coelho Maran*

South Florida Water Management District, West Palm Beach, FL, USA

Groundwater supply from coastal wellfields is the major water supply source for over 6 million people in South Florida. The South Florida Water Management District (SFWMD) is conducting a Water Supply Vulnerability Assessment (WSVA) aimed at understanding how future development and climate conditions may impact regional water supply.

The WSVA will leverage water supply planning methodologies and independently analyze climate effects on growth rates, withdrawal rates, and water supply availability. Sea-level rise, extreme rainfall and evapotranspiration projection datasets will inform scenario formulation.

In support of the Lower East Coast Water Supply Plan and the WSVA, the SFWMD is developing the East Coast Surficial Model (ECSM), which is a density-dependent groundwater flow and transport model of the Surficial Aquifer System (SAS). ECSM will be calibrated to daily water levels and monthly water quality for a period of record from 1985 – 2016. Once calibrated, the model will be capable of evaluating the impact of projected increases in withdrawal rates, sea level rise, and future climate conditions on groundwater quality and availability, with consideration of surface-groundwater interactions.

To properly analyze the long-term effect of climate change 50-year model scenarios are being developed. Scenario formulation is proposing degrees of warming, dryness, and sea level rise, along with growth scenarios and withdrawal rates. A set of model runs will be conducted and compared to an existing baseline to identify differences in water levels, water quality, and determine regions within the SAS that may have adverse impacts due to future conditions, including potential impacts into groundwater recharge from surface water systems. The outputs of these scenario runs should allow SFWMD to understand how future conditions may impact water availability throughout the system, and mainly within the SAS. This presentation will focus on ECSM development and the data that will be utilized to conduct the WSVA.

PRESENTER BIO: Anushi Obeysekera is the Section Leader of the Groundwater Modeling Unit at South Florida Water Management District. She has worked on various regional groundwater models across South Florida and is currently serving as the lead modeler and project manager on the development and calibration of the East Coast Surficial Model.