Watershed Assessment Model (WAM) Contract

Stacey Ollis PMP
Office of State Policy & Agricultural Coordination, Northern Everglades

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Watershed Assessment Model (WAM)

- *A GIS-based model* that simulates the complex hydrology and water quality responses in the Lake Okeechobee watershed
- Used to evaluate total phosphorus (TP) management scenarios or "what if" alternatives including:
  - Agricultural and urban Best Management Practices (BMPs)
  - Existing source control and regional projects
  - Future load reduction management measures
  - Identifying nutrient contributions at different spatial scales
- The Coordinating Agencies (FDEP/FDACS/SFWMD) have identified WAM as the best tool to perform such evaluation

Background

- Mid-1990s – WAM developed by Soil & Water Engineering Technology, Inc. (SWET) as a stand-alone model
- 2004 – WAM simulation results included in the CERP report, *Lake Okeechobee Watershed Project Management Plan*
- 2009 – Model enhancement and applications update
- 2017 – WAM calibration and sensitivity/uncertainty analyses for the Lake Okeechobee watershed

WAM Current Contract

- Mid-2017 – The Coordination Agencies identified further WAM assessment (e.g., defining pre-drainage conditions) as a *critical need* for the BMAP

- April 2018 – A new contract was executed with SWET for WAM model implementation and application in support of:

  - Lake Okeechobee Basin Management Action Plan (BMAP)

  - Lake Okeechobee Watershed Protection Plan (LOWPP) Update

Objectives & Activities

Objective: Compare existing conditions to pre-drainage conditions

- **Characterize pre-drainage conditions** *(completed)*
  - Land use, topography and soils were incorporated into the model using data from Zahina et al., 2007; McVoy et al., 2011; Said & Brown, 2010
  - Simulates historical, pre-drainage conditions in the watershed for incorporation into WAM to establish a baseline reference (year 1850)

Objectives & Activities (cont.)

Objective: Evaluate the effectiveness of abatement strategies against existing conditions

- **Evaluate abatement scenarios** *(underway)*
  1. Advanced fertilization BMPs for major crops
  2. Recent farm-level water management BMPs
  3. Lake Okeechobee Watershed Construction Projects
  4. Fully-implemented Kissimmee River Restoration Project and Upper Basin Initiatives
- **Perform cost-benefit analyses** *(underway)*
  - Cost-effectiveness ("value-for-money") estimates for TP removal provided by BMPs using a combination of sources

Next Steps

- January 2019 – Draft Abatement Scenario Report
- March 2019 – Final Abatement Scenario Report
- Spring 2019 – SWET technical presentation on WAM at next FDEP BMAP public meeting (*to be scheduled*)
- May 2019 – Final Comprehensive Report