SJRWMD PLRG Development

Sherry Brandt-Williams, Ph.D
SJRWMD

PLRG Purpose

- **Potential nutrient sources insufficiently evaluated prior to 1st TMDL**
  - **N fixation**
  - **Sediment nutrient cycling**
  - **Groundwater loads**

PLRG Approach

- Use HSPF model to determine watershed and nutrient budgets
- Use water quality data to determine target TP concentration
- Use WASP7 as in-lake model to calculate load reductions

PLRG Approach

- **Use HSPF model to determine watershed and nutrient budgets (District Engineering)**
  - **Updated land use**
  - **Updated BMP layer**
  - **Use results from Seminole County groundwater study and FIU sediment nutrient cycling to define model coefficients, to calibrate model and to complete nutrient budget**
  - **Use rainfall, atmospheric deposition and evaporation from the EFDC model simulated for the WSIS study**

PLRG Approach

- **Use water quality data to determine target TP concentration**
  - **Load-response and threshhold relationships between key analytes**
  - **Verify using reference lakes, Vollenweider and TSI**

PLRG Approach

- **Use WASP7 as in-lake model to calculate load reductions**
  - **Simulate/calibrate using current data**
  - **Simulate using new target concentrations**
  - **Subtract target loads from current loads to determine reduction goals**
  - **Use outputs from WSIS hydrodynamic models**

WASP7

Water Quality Analysis Simulation Program

- Helps predict water quality responses to natural phenomena and manmade pollution
- Dynamic program including both the water column and the underlying benthos
- Includes time varying processes of advection, dispersion, point and diffuse mass loading and boundary exchange
- Can be linked with hydrodynamic and sediment transport models to provide flows, depths velocities, temperature, salinity and sediment fluxes
- WASP has been used by EPA to examine
  - eutrophication of Tampa Bay, FL
  - phosphorus loading to Lake Okeechobee, FL
  - PCB pollution of the Great Lakes
  - eutrophication of the Potomac Estuary

Estimated PLRG Timing

- **HSPF and WASP7 modeling complete January/February 2014**
- **Draft PLRG report February/March 2014**
- **Interface w/FDEP January – May 2014**