Proposed Model Simulations

Central Florida Coordination Area

Tools Development Team Workshop

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South Florida Water Management District

Calibration Water Use Data

- PWS – actual reported use for 1995 – 2006
- Irrigation – best available information
  - SWFWMD – reported use and estimated use based upon reported use
  - SJRWMD – AFSIRS estimated use using 1995, 2000 and 2005 land use maps
    - Limited to permitted areas and documented pasture uses
    - Field verified in many locations
  - SFWMD - AFSIRS estimated withdrawals using 1995, 2000 and 2005 land use maps
    - Limited to permitted areas and documented pasture uses
    - Limited field verification, basin renewal in 2008
- Other type uses – industrial, power, etc.
  - Reported use in all three Districts

Simulation Water Use Datasets

- Simulation Water Use Datasets
  - Presumed that PWS is the only major water use changing in basin
  - All other remaining water use is presumed to be consistent with the 1995-2006 reported/estimated use
  - Initial Model Scenarios to address groundwater availability
    - 1995-2006 base run
    - 1995 water use
    - 2006 water use
    - “no / reduced pumping” simulation
    - Permitted use *(date stamp of summer 2009)*
    - 2013 Estimated use
      - 2009 BEBR based estimates
      - Values found in regional water supply plan updates
- Other scenarios as required to assess availability
- Solution development scenarios *(longer term)*

Use of Tools in Review of Environmental Concerns

- Types of environmental criteria proposed for evaluation:
  - MFL and non-MFL lakes
  - Springs
  - Saltwater intrusion
  - Wetlands

Evaluation of MFL Lakes

- Lakes *with* Minimum Flows and Levels
  - SJRWMD
    - the ECFT model will generate a time series of water levels within the footprint of the lake for each of the model's 5 layers
    - information will be used to modify the MFL spreadsheet models utilized by SJR to identify the MFL's found in 40C-.8, F.A.C.
  - SWFWMD
    - lakes are located predominantly along the Lake Wales Ridge
    - DWRM will be utilized to identify potential changes in groundwater levels beneath the Ridge Lakes
    - water levels at 5 Floridan wells (ROMP wells) must maintain a minimum 91.5 ft NGVD on a ten year rolling average.
    - surficial aquifer changes surrounding each lake will be examined as a secondary evaluation criteria.
  - SFWMD – no MFL lakes for evaluation

Evaluation of Non-MFL Lakes

- Lakes *without* Minimum Flows and Levels (16 locations)
  - set of lakes that, while not having a MFL established, the District's have identified as one of increased interest
  - water levels generated in the first layer of the DWRM or ECFT models will be used to produce drawdown maps, stage hydrographs and water budget graphics among other tools
  - Information provided to environmental assessment team as tool in the overall site-by-site assessment

Evaluation of Springs

- 24 springs are identified in the ECFT model
  - 8 of these have established MFL's in 40C-8, F.A.C. *(SJRWMD)*
  - Springs are simulated as drains which have monthly head and discharge values generated for each simulation
  - Generated graphics include stage and discharge hydrographs, stage duration graphics
  - Results of these simulations will be evaluated in accordance with 40C-8, F.A.C.
  - Non-MFL springs will be evaluated individually based upon changes in the annual median spring discharge
- No springs of concern within SWF and SF WMD's

Evaluation of Salt Water Intrusion Potential

- Review of water budget in model cells at the depth and location of the known salt water interface
- 5 transects identified in ECFT
- ECFT or DWRM are not solute transport models
- The differences in flow quantity and direction will be evaluated to assess the potential for saltwater movement at given locations
- SWUCA recovery plan addresses salt water movement separately

Evaluation of Wetlands

- Independent environmental assessment underway
  - 400+ sites investigated
- Modeling results are provided to complement the environmental assessment effort
  - Output in the form of drawdown maps, stage and stage-duration hydrographs are generated for individual wetland sites
  - Cumulative assessment review for regional patterns in observed impacts