Water/Wastewater Utility Perspective on North Florida Water Challenges

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Common Goals/Needs

- Meet water supply needs for people
- Protect/Restore Natural systems
Water Challenges

- Technically complex issues
  - Nutrient vs. flow impacts
  - Natural cycles vs. manmade impacts
  - Long range

- Growing population
  - Increasing needs for public supply, self supply, agriculture, etc.

- Funding limited
Utility Needs for Policy & Regulations

- Sound science based
- Well vetted w/ realistic cost impacts
- Fair & equitable
- Results oriented
- Consistency & stability
Recent Developments for North Florida

- Joint Regional Water Supply Plan
- MFLs
  - North Florida Southeast Georgia (NFSEG) Model
- 2016 Water Legislation
- Potential Reclaimed Water Legislation
North Florida Regional Water Supply Partnership

- Organized approach with stakeholder input for joint water supply plan
- Plan expected to provide robust list of potential projects
- North Florida Utility Coordinating Group members collectively submitted 99 projects totaling $370M to $480M over 20 yrs
North Florida Regional Water Supply Partnership

• Projects needed should be defined when MFLs & Recovery & Prevention Plans are set
• Critical MFLs currently being re-evaluated
  – Lakes Geneva and Brooklyn
  – Lower Santa Fe & Ichetucknee Rivers
  – Other MFLs

• North Florida Southeast Georgia (NFSEG) model key to Water Supply Plan and MFLs
North Florida Utility Group Water Use

<table>
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<tr>
<th>Year</th>
<th>Average Daily Water Use (MGD)</th>
<th>Estimated Population Served</th>
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North Florida Southeast Georgia (NFSEG) Groundwater Model
Why do we need models?

• **Separating effects of rainfall vs. pumping is critical & difficult**
  – Short & Long-term weather patterns drive dramatic flow & level changes
  – Public tends to remember “the way things were”
    • Difficult to perceive weather trends & correlate them with flows & levels
Lower Santa Fe & Ichetucknee River MFLs

- **Droughts in 1990s & 2000s**
  - Unprecedented low rainfalls
  - Record low river & spring flows & levels
  - Public concern
Rainfall & Lower Santa Fe River Flows

- Monthly Rainfall (in)
- River Flow (2 yr Avg)
- Rainfall (2 yr Avg)

Year


River Flow (cfs)
Water Use in North Florida Region Flat

Average Daily Water Use (Million Gallons per Day)

<table>
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<td>2005</td>
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<td>2010</td>
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</table>
Lakes Brooklyn & Geneva

Wet period
(Perceived “normal”)

Dry period
Lake Brooklyn Water Level & Rainfall
Conclusions

• Rainfall variation dominate variations in flows & levels in these systems
  – Low flows in Santa Fe & Ichetucknee Rivers & springs driven by unprecedented drought in 1990s & 2000s
  – Keystone lake levels driven by multi-decadal rainfall patterns

• Even with sophisticated statistical analyses, difficult to discern effects from pumping vs. weather
Simplified Water Balances Do Not Work

• Pumping impacts on flows and levels generally not one for one
  – Depends on magnitude & distance from water body

• Evapotranspiration (ET)
  • ET ~68% of water budget vs. Pumping ~1-2%
  • Varies spatially
  • Varies significantly w/ rainfall and other factors
  • Mitigates for low rainfall, pumping, other stresses

• Return flows & other mitigating factors
Groundwater Modelling

• Understanding complex hydrologic systems requires complex models

• NFSEG Model
  – Expected to be significant step forward in modeling
  – Very complex
  – Collaborative development process
  – Needs to be well vetted before used for planning or regulatory decisions
2016 Water Legislation

• Some Key Provisions:
  – More organized approach for prioritizing funding major water supply projects
  – Consumptive use permit incentives for water conservation
  – Priority Focus Areas for Outstanding FL Springs
    • OSTDS Remediation Plan
    • Some concern about timeline & emergency rulemaking provision for MFLs for Outstanding FL Springs
    • Agriculture BMPs
    • Advanced Treatment Requirements for new WWTPs
Reclaimed Water

• FDEP Reclaimed Water Workgroup
• Florida national leader in reclaimed water
• Reclaimed water important component of water supply development
  – Should not set mandates on amount of reuse
  – Types & amount of reuse vary significantly by region due to geology, demographics, & proximity to potential reclaimed water users
  – Reuse systems require significant investment from utility ratepayers

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Reclaimed Water

• Interest/development of potable reuse
• Improve opportunities for reuse through funding & some policy changes
Conclusions

• Water supply & water quality issues are increasing concern statewide
• Funding improving but still limited
• To be successful, water policy must be
  – Sound science based
  – Equitable
  – Collaborative
  – Results based