Northwest Florida Water Management District

Solutions for Springs
Spring Management Challenges

Jackson Blue Spring
• Nutrient pollution from agriculture
• Agricultural irrigation consumptive use demands on spring
• MFL study initiated in 2014

Wakulla Springs
• Nutrient pollution from wastewater and stormwater runoff
• Evaluation of future consumptive use demands on spring
• MFL study initiated in 2013

Econfina Creek Springs Complex
• Groundcover/habitat restoration
• Managing recreational use
Average Nitrate Concentrations in Springs
2001-2013 (mg/L)

- Econfina Creek Springs: 0.20 mg/L
- Wakulla Springs: 0.63 mg/L
- Jackson Blue Springs: 3.35 mg/L

Florida Springs Numeric Criteria: 0.35 mg/L
Jackson Blue Spring

- Average Daily Flow – 130 cfs (84 mgd)
- High nitrates from agricultural fertilizer application
- EDB (Ethylene Dibromide, a crop fumigant) in Floridan Aquifer in NE Jackson County
Location of Water Supply Wells and Irrigated Farm Land in Jackson Blue Groundwater Contribution Area
Jackson County Water Use in 2012
25.5 MGD

- Agriculture (17 mgd)
- Domestic Self-Supply (2.7 mgd)
- Public Supply (2.1 mgd)
- Commercial/Industrial (1.7 mgd)
- Power Generation (1.5 mgd)
- Recreation Irrigation (0.5 mgd)

2012 Permitted Use = 44 MGD
Nutrients leaching into groundwater represents fertilizer lost to growers and increased nitrate levels in the springs and Merritt’s Mill Pond.

**Estimated Fertilizer Loss:**
580 tons fertilizer/year
~ $174,000 Economic Loss

**Estimated Nitrogen Sources in Jackson Blue Spring**

Maximum drinking water standard for nitrate is 10 mg/l. There is about 0.22 mg of nitrate in one hot dog.

The current Nitrate concentration of Jackson Blue Spring water is about 3.5 mg/L, equal to about 1.3 mg N per 16oz glass of water.
Springs Protection

Jackson Blue Spring Protection Total - $752,000

- $71,125 Mobile Irrigation Lab to evaluate the efficiency of pivot irrigation systems
- $680,875 for Agricultural BMP Equipment Cost Share Grant Program
  - 36 producers enrolled
  - 2 executed contracts
  - 118 pending applications

75% Paid by Grant
25% Paid by Producers
WAKULLA SPRINGS
Leon & Wakulla Counties Water Use in 2010
47.0 MGD

- Agriculture (0.7 mgd)
- Domestic Self-Supply (6.8 mgd)
- Public Supply (32.4 mgd)
- Commercial/Industrial (1.1 mgd)
- Power Generation (3.3 mgd)
- Recreation Irrigation (2.7 mgd)

2010 Permitted Use = 47 MGD
Relative Sources of Nitrogen in Wakulla Springs Contributory Area

(Estimated 2007 Sources (1))

- Wastewater Treatment Facility: 46%
- Groundwater North of WWTF: 23%
- Septic Tanks: 20%
- Other: 10%
- Atmospheric Deposition: 1%
Active Development of Minimum Flows and Levels

Prior to 2012 - 0 - 2012 - Present - 6 -
MFL Accomplishments – FY14

• Developed Work Plans for:
  - St. Marks River Rise  
  - Wakulla Springs  
  - Sally Ward Spring

• Initiate Work Plan development for:
  – Jackson Blue Spring
  – Coastal Floridan Aquifer in Okaloosa, Santa Rosa & Walton counties

• Determined MFL strategies for Franklin Co. Floridan Aquifer

• Installed ground and surface water data collection stations

• Initiated hydrologic monitoring of the Spring Creek complex
### FY14 MFL Priority List

<table>
<thead>
<tr>
<th>Blue font = work underway</th>
<th>MFL Initiation</th>
<th>Estimated Technical Completion</th>
<th>Rule Adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Marks River Rise (1\text{st} mag)</td>
<td>2013</td>
<td>2018</td>
<td>2020</td>
</tr>
<tr>
<td>Wakulla Springs (1\text{st} mag)</td>
<td>2013</td>
<td>2021</td>
<td>2023</td>
</tr>
<tr>
<td>Sally Ward Spring (2\text{nd} mag)</td>
<td>2013</td>
<td>2021</td>
<td>2023</td>
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<tr>
<td>Floridan Aquifer – Coastal Franklin County</td>
<td>2014</td>
<td>2019</td>
<td>2021</td>
</tr>
<tr>
<td>Floridan Aquifer–Coastal Region II (SR, OK, WL)</td>
<td>2015</td>
<td>2020</td>
<td>2022</td>
</tr>
<tr>
<td>Jackson Blue Spring (1st mag)</td>
<td>2016</td>
<td>2022</td>
<td>2024</td>
</tr>
<tr>
<td>Floridan Aquifer – Coastal Bay County</td>
<td>2018</td>
<td>2023</td>
<td>2025</td>
</tr>
<tr>
<td>Econfina Creek &amp; Spring Complex (1\text{st} &amp; 2\text{nd} mag)</td>
<td>2019</td>
<td>2024</td>
<td>2026</td>
</tr>
<tr>
<td>Deer Point Lake</td>
<td>2020</td>
<td>2025</td>
<td>2027</td>
</tr>
<tr>
<td>Yellow River / Shoal River</td>
<td>2021</td>
<td>2026</td>
<td>2028</td>
</tr>
<tr>
<td>Apalachicola and Chipola Rivers</td>
<td>Reservations established</td>
<td>2006</td>
<td></td>
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</tbody>
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1 Subject to fiscal constraints, climatic extremes, data & analysis needs, peer review, rule challenge, etc.
Econfina Creek Springs
Econfina Creek Watershed Area

Bay and Washington Counties
Econfina Watershed Conservation Lands

41,328 Acres in Conservation (32% of contribution area)
Econfina Creek Springs Complex Groundwater Contribution Area
Washington County Water Use in 2010
4.06 MGD

- Agriculture (1 mgd)
- Domestic Self-Supply (1.1 mgd)
- Public Supply (1.1 mgd)
- Commercial / Industrial (0.4 mgd)
- Recreation Irrigation (0.4 mgd)

2010 Permitted Use = 4.8 MGD
Econfina Springs Discharge
(2003-2004)

Gainer Spring Group: 165 cfs (107 mgd)

Glowing Spring: 34 cfs (22 mgd)

Devils Hole: 32 cfs (21 mgd)

Willford Spring: 29 cfs (19 mgd)

Sylvan Spring: 17 cfs (11 mgd)

Bluff, Fenceline, Barking, Bathtub, Strickland, Pitt, Blue, Tupelo, Palm Springs: 1 to 10 cfs (0.6 -6.5 mgd)

Mean Econfina Creek: 538 cfs (348 mgd)
Groundcover Habitat Restoration is Management Priority to Maximize Recharge
Econfina Recreational and Restoration Challenges
Econfina Springs Complex
Restoration & Protection
Challenges and Successes

Public Access & Recreation Impacts
(Econfina Creek – Class I Waterbody)

Spring restored, erosion and stormwater runoff problems fixed

Pitt Spring
(1993)

Pitt Spring
(2005)

Pitt Spring
(2013)
Williford Spring Restoration Project
$1.5 million project
Thank you

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