

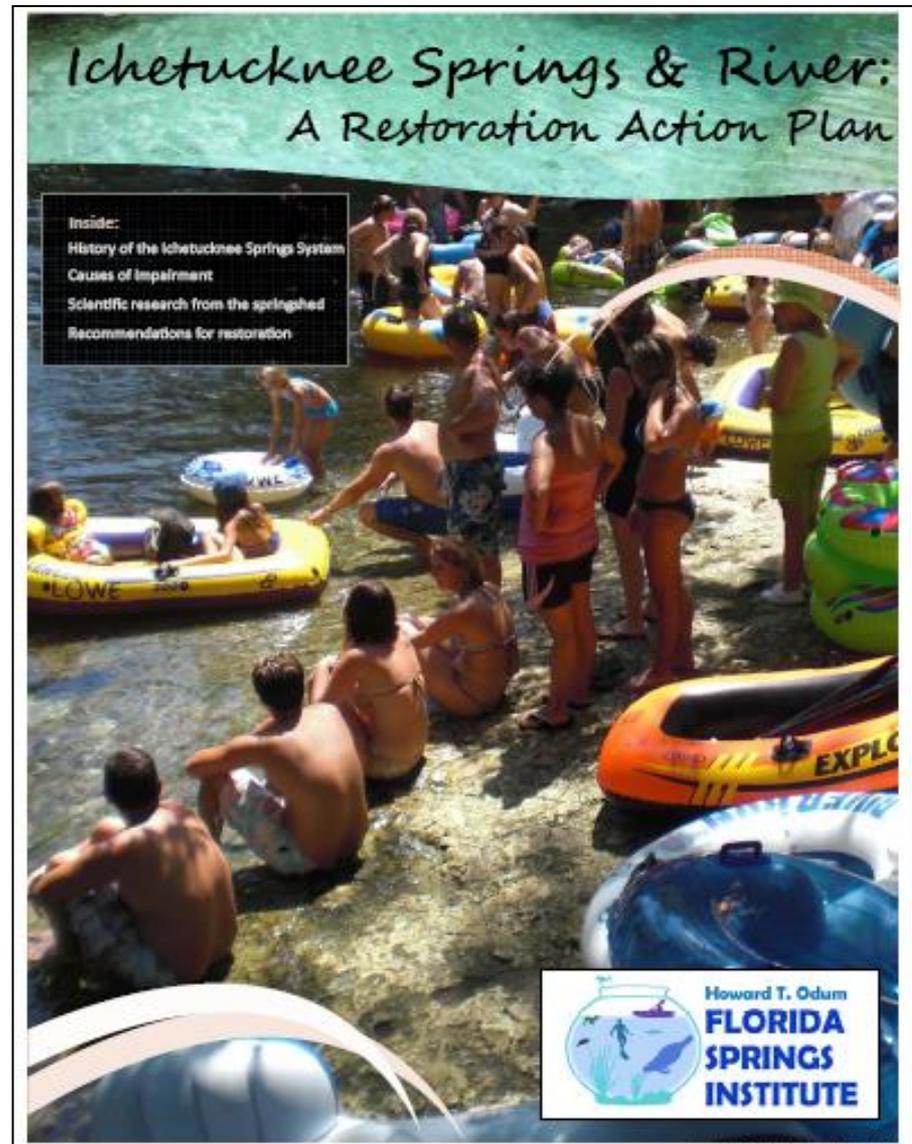
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Ichetucknee Alliance

Ichetucknee Springs Impairments and Recovery



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**FLORIDA
SPRINGS
INSTITUTE**



Map of the Ichetucknee Springs State Park

There are a total of 8 principal springs along the Ichetucknee River upstream of the US 27 bridge. Springs provide the entire flow at the US 27 gauge.

US 27 Gauge



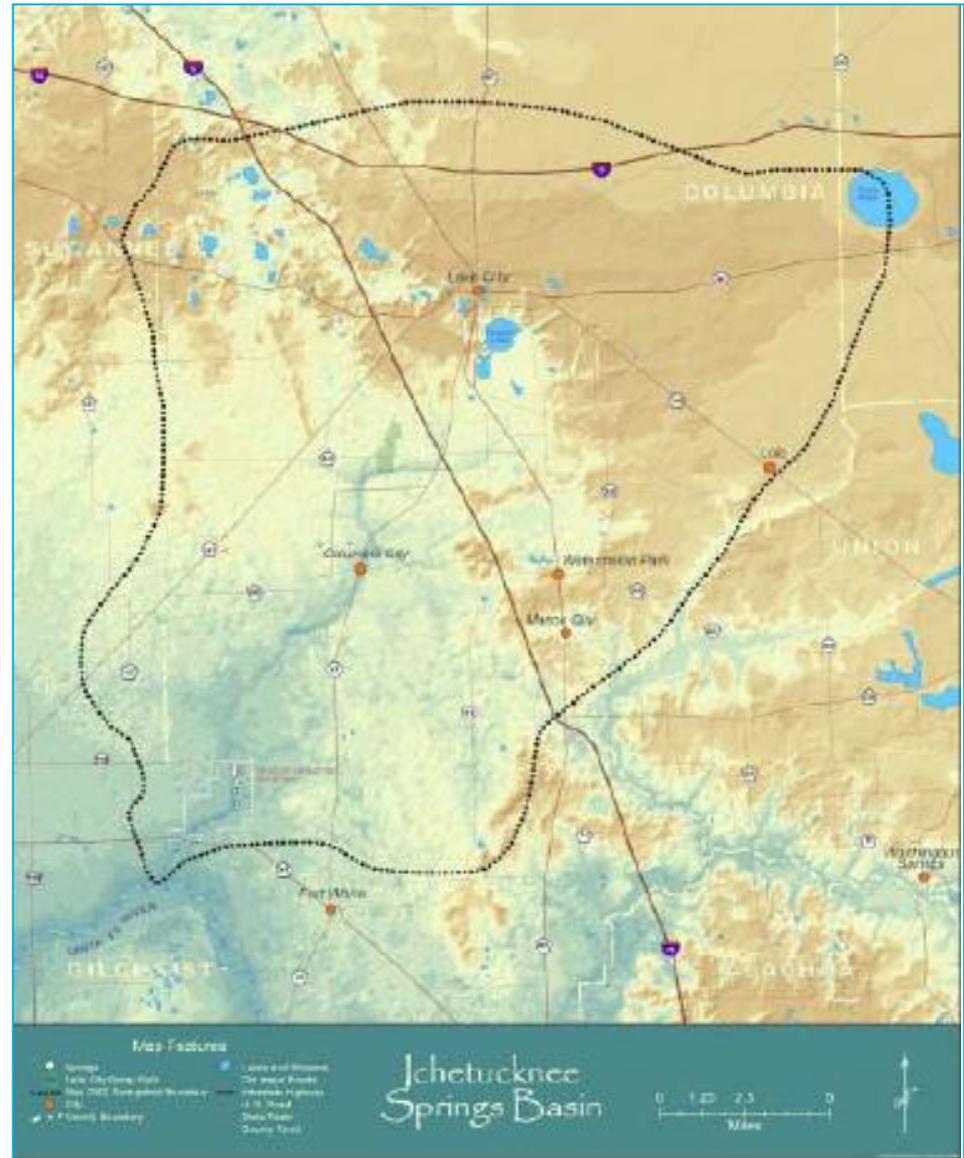
Ichetucknee Springs is an Economic Engine



Ichetucknee
Springs
State Park
contributes
more than
\$23 million
per year to
the local
economy

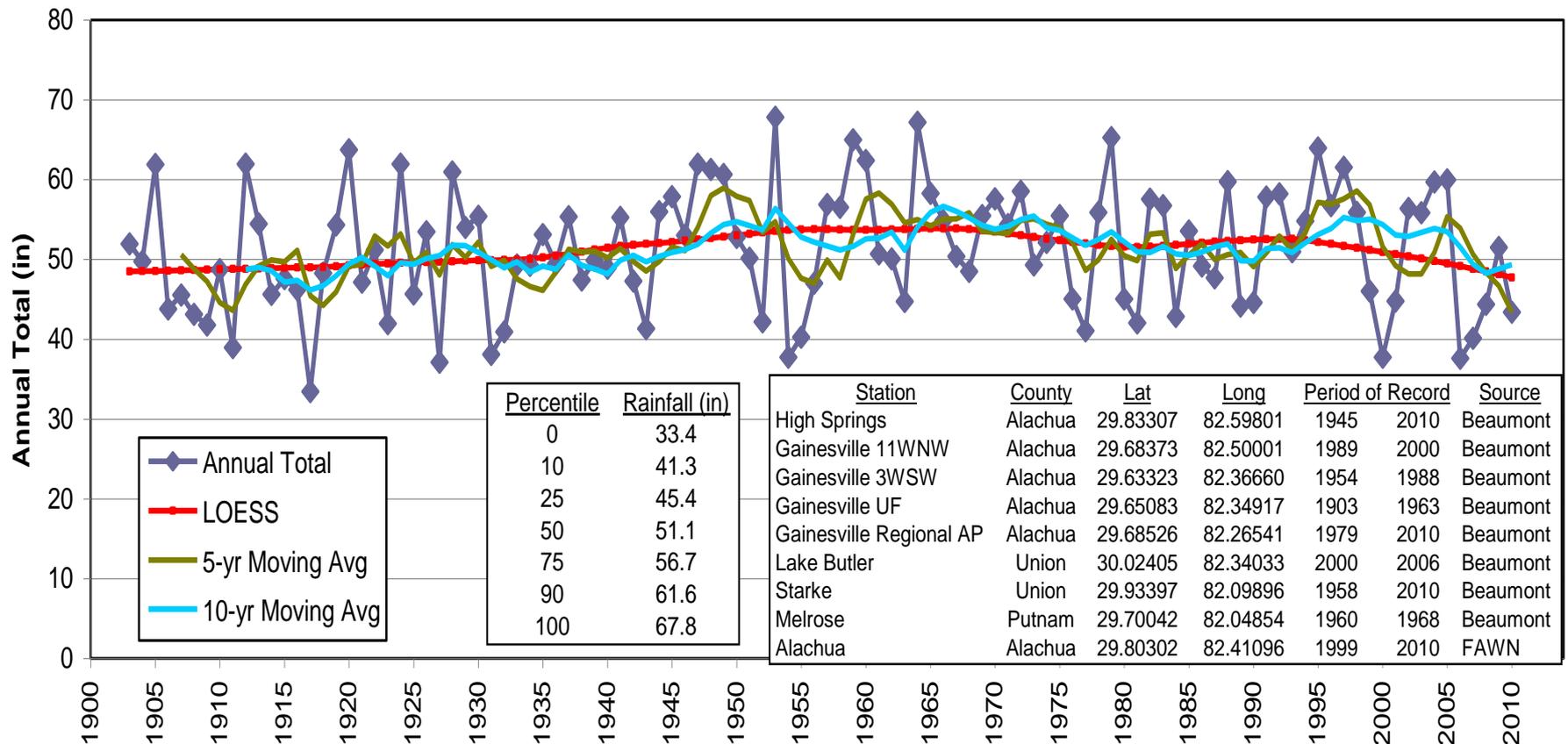
Ichetucknee Springshed

The groundwater contributing area to the Ichetucknee System is about 371 square miles. This includes areas of low and high recharge potential. The historic flow of the Ichetucknee System was about 360 cfs (230 MGD).



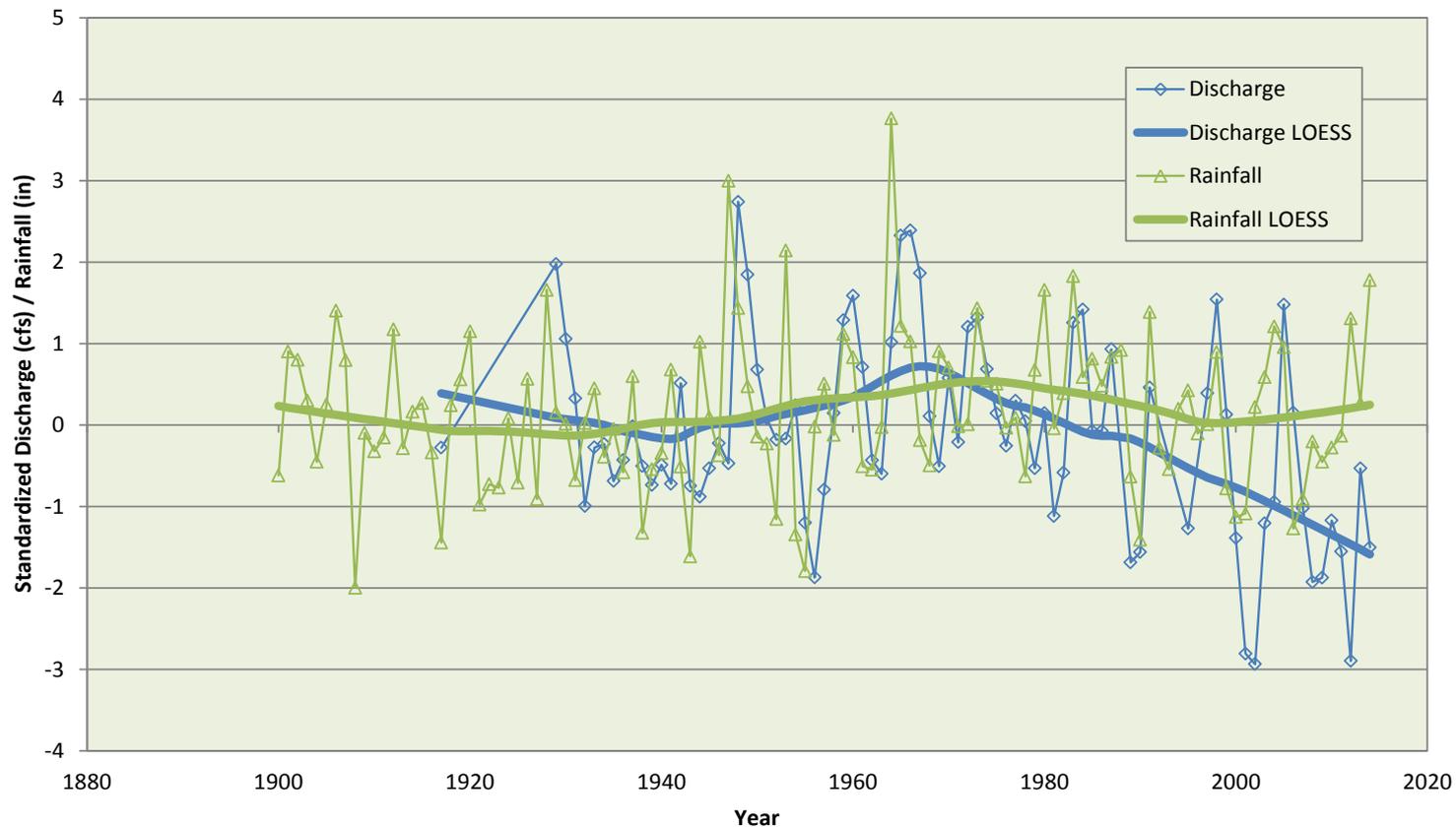
There is No Long-Term Decline in Rainfall

The median annual rainfall between 1903 and 2010 was 51 inches with average annual totals between 33 and 68 inches. Linear regression indicates a positive but non-significant trend in rainfall amounts during the entire period-of-record.



Ichetucknee River Flows are Declining in Spite of Relatively Constant Rainfall

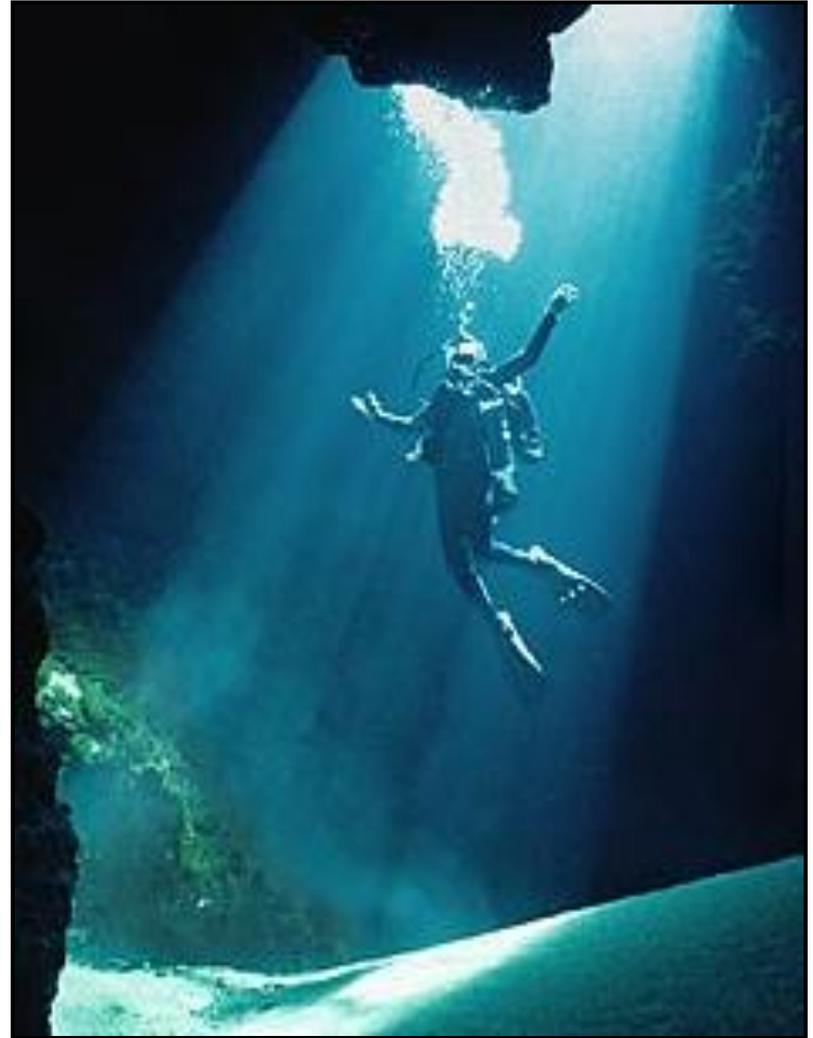
Ichetucknee River annual average and Loess rainfall and flows at US 27 gauge. The flow trend line departed from the historic normal in the 1960's. For an average 51 inch rainfall year Ichetucknee River flows have declined by about 72 cfs or 46 MGD (20% decline). The SRWMD estimates the existing flow reduction at 6.7% (15 MGD).



USGS Previously Concluded Pumping Has Reduced Ichetucknee Flows by >20%

“Ichetucknee River flow has declined by about 40 million gallons per day, or about 23% of the average flow. The magnitude of this decline appears to be consistent with an estimate of the amount of groundwater that has been diverted away from the Suwannee basin. This diversion likely occurred as ground-water levels fell disproportionately, north and east of the Suwannee River Basin, causing the Ichetucknee contributing area to contract.”

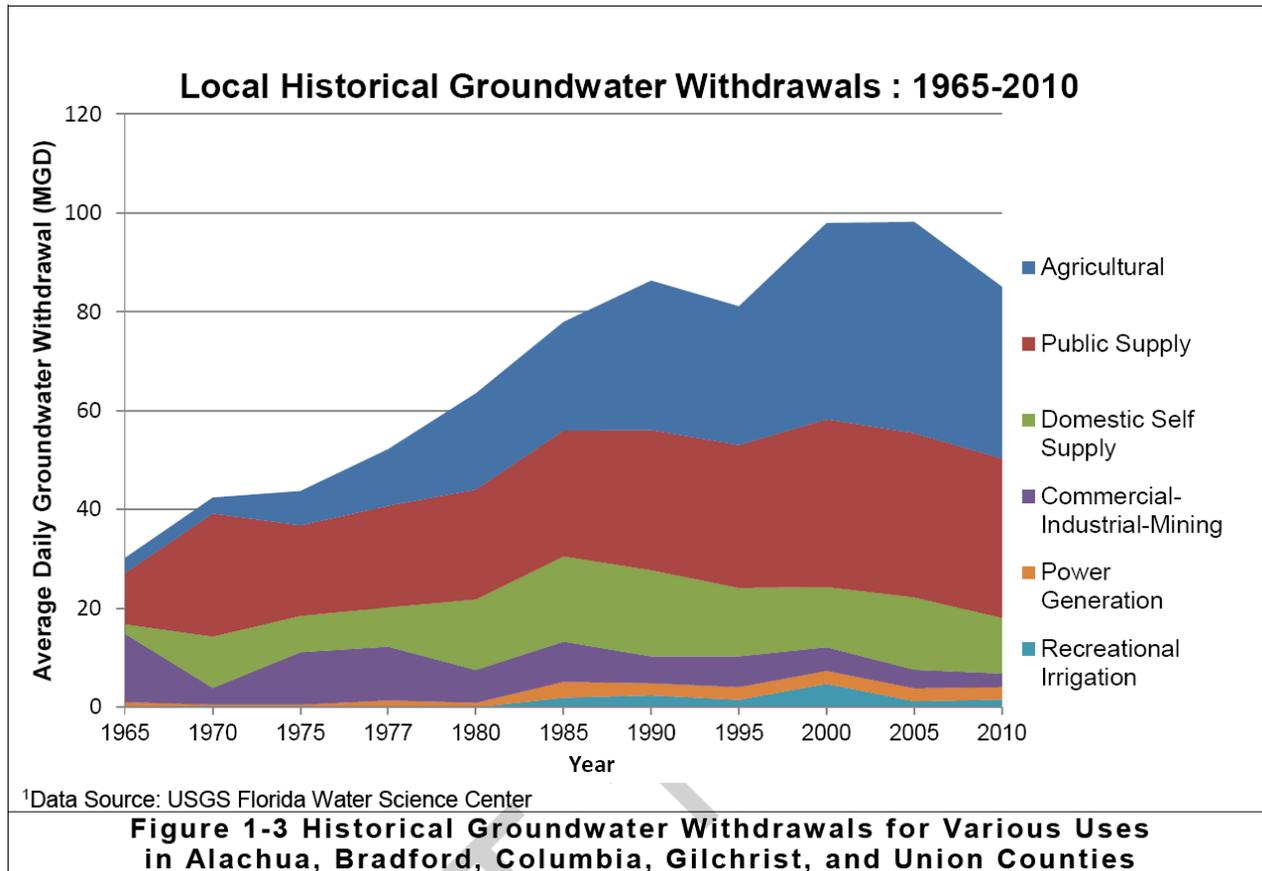
(J. Grubbs 2011)



Blue Hole by John Moran

Local Effects of Groundwater Withdrawals (FDEP 2013)

- “Among the various user groups, agricultural use within the Santa Fe River Basin has increased significantly since the 1970s...”



Regional Effects of Groundwater Withdrawals (FDEP 2013)

- *“A significant portion of the stream and spring flow impacts to the Lower Santa Fe and Ichetucknee Rivers and priority springs are the result of groundwater withdrawals originating outside of the SRWMD’s boundaries”.*
- *“These regional groundwater level declines have been identified in the Upper Floridan aquifer throughout the North Florida region...”*



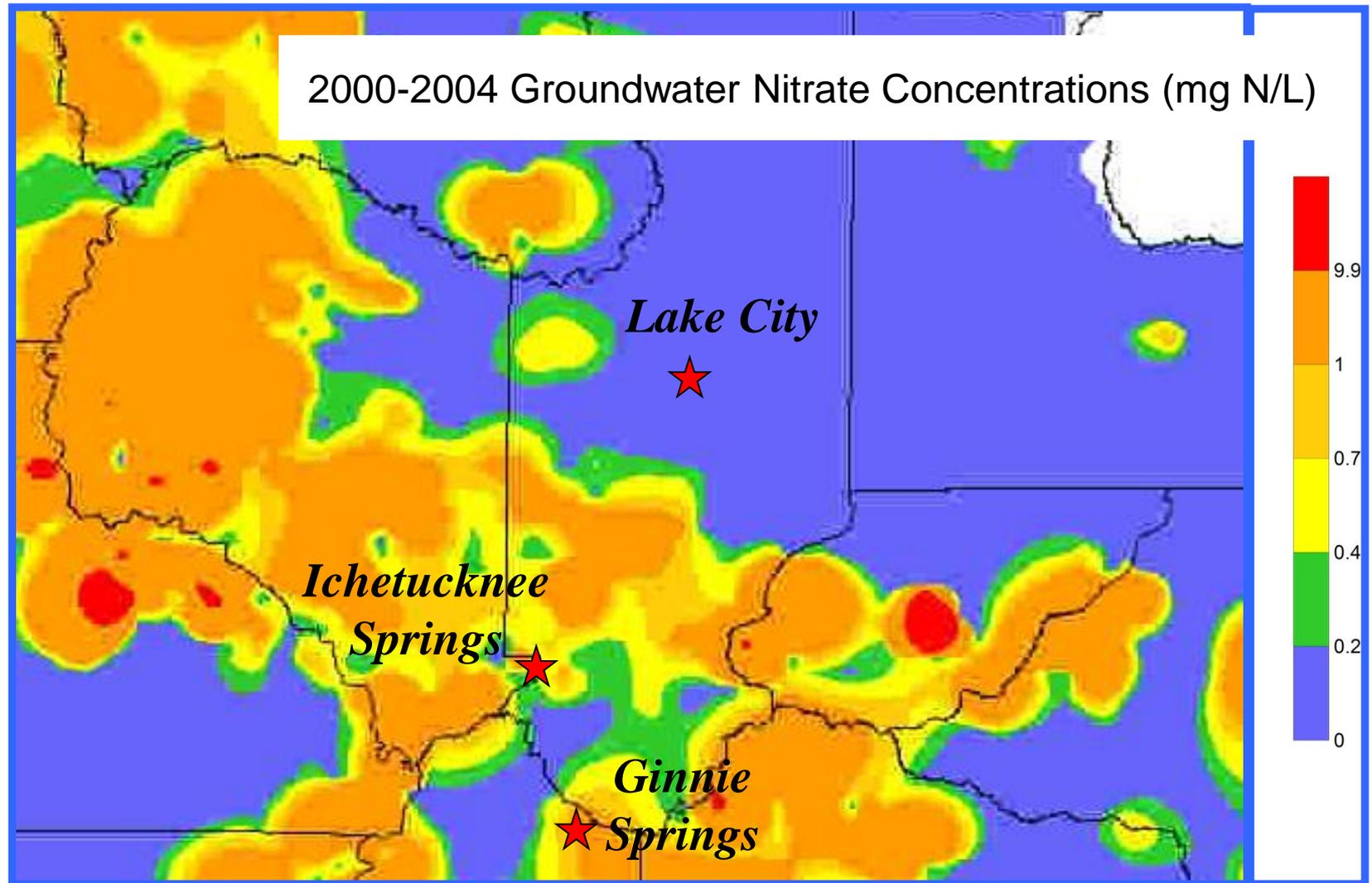
Ichetucknee River and Spring Flows are Declining

Key Findings:

- Average flows in the Ichetucknee river and springs have declined by an estimated 20 to 23%;*
- A significant portion of these flow declines can be attributed to an increase in the consumptive water uses throughout North Florida;*
- These flow declines are well beyond the range recognized as “significant harm”.*

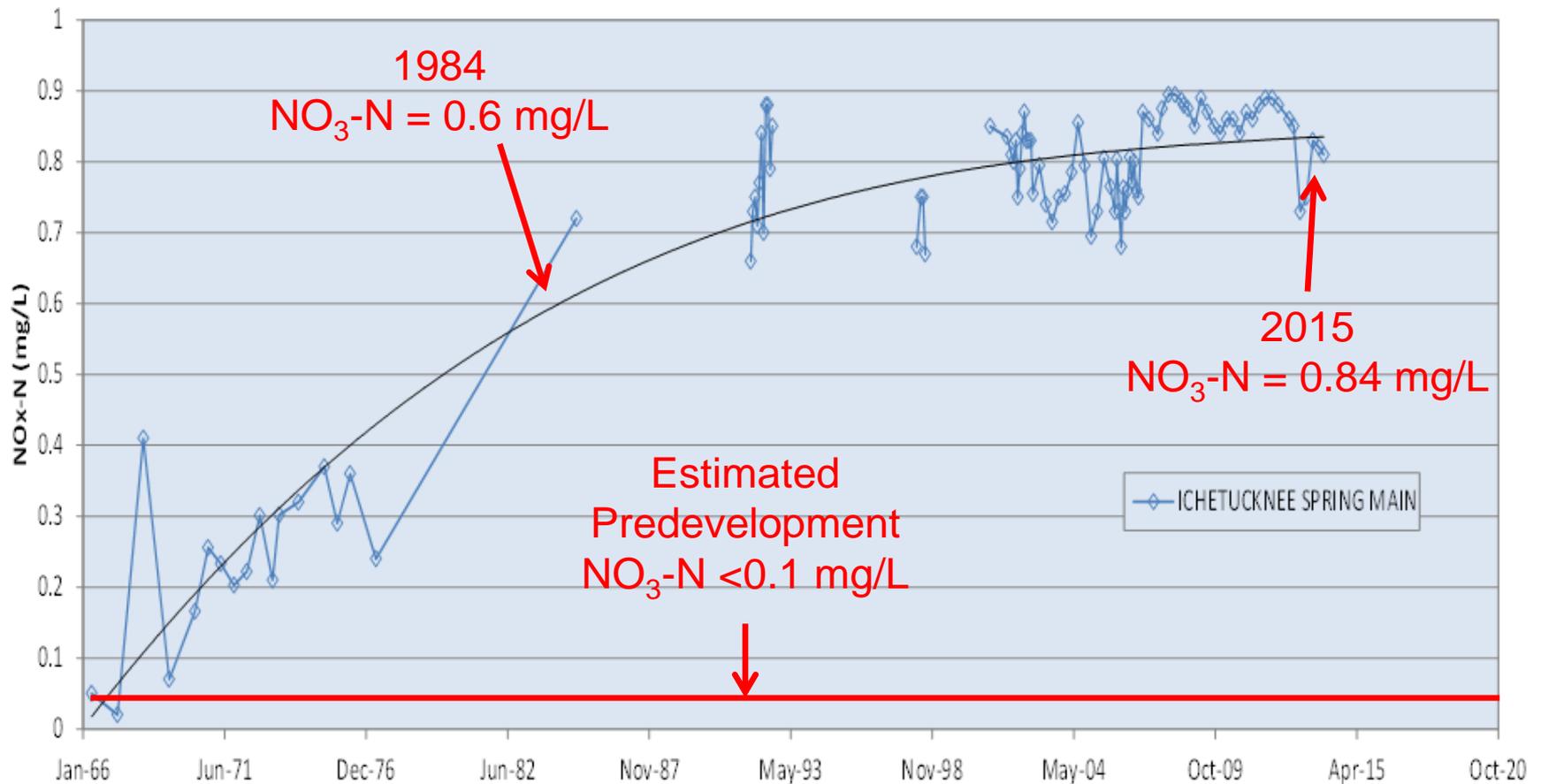


Human Land Uses Have Contaminated the Aquifer With Nitrate



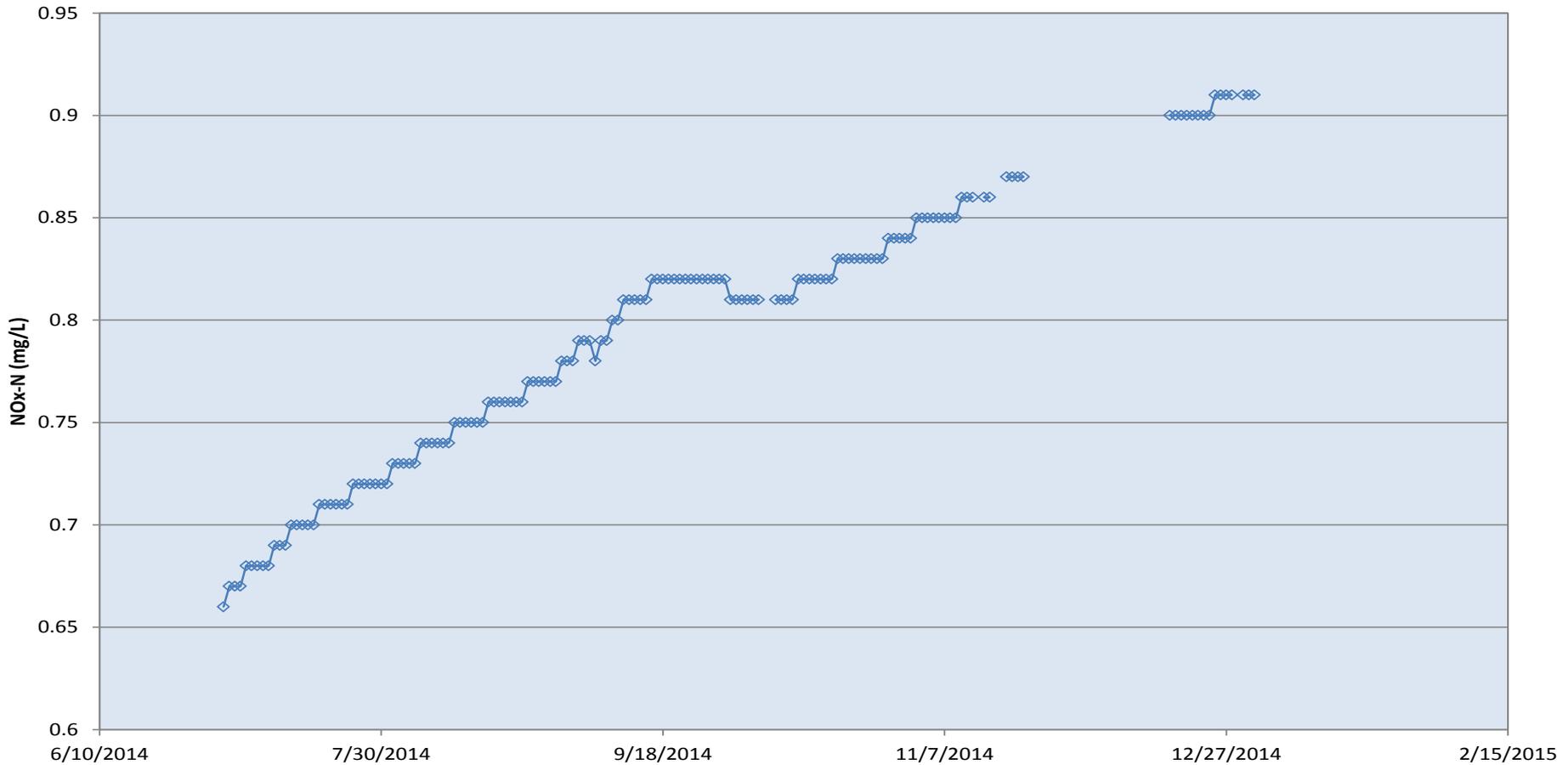
Ichetucknee Head Spring Nitrate Concentrations

Nitrate nitrogen concentrations in the Ichetucknee Springs have been rising throughout the period-of-record. The Ichetucknee River was designated as an Outstanding Florida Waterway in 1984. Since that time nitrate nitrogen concentrations have risen about 40%.



Nitrate-Nitrogen in Ichetucknee Blue Hole

Nitrate concentrations in Ichetucknee Blue Hole are 17 times higher than natural background and 2.4 times higher than the 0.35 mg/L standard.



Ichetucknee Springs is Impaired Due to Nitrate



*Ichetucknee
Mill Pond
Spring is
receiving
high nitrates*

Larry Kornak photo

Nitrate in Spring Water = Nitrate in Drinking Water

Elevated nitrate in drinking water may result in methemoglobinemia – blue-baby syndrome, a condition that can result in infant suffocation and possibly cancer.





Nitrate is the Key Pollutant in the Ichetucknee Springs

Key Findings:

- Groundwater feeding the Ichetucknee River springs is contaminated by nitrate nitrogen derived principally from fertilizers and human and animal waste disposal practices.*
- Nitrate concentrations in the Ichetucknee river and springs are above levels considered by the State of Florida to cause nutrient impairment.*
- Increased populations of filamentous algae provide visible evidence of this impairment.*

Healthy Springs are A Sign of Sustainability

Key Findings:

- The Ichetucknee River and its associated springs are important to the economy of at least seven counties in north central Florida;*
- Out-of-state tourists go to Disney World and the beaches for recreation while native Floridians and nature-based tourists rely on the springs;*
- The Ichetucknee River and its associated springs are a significant natural resource of importance for their ecosystem services and maintenance of habitat for fish and wildlife.*



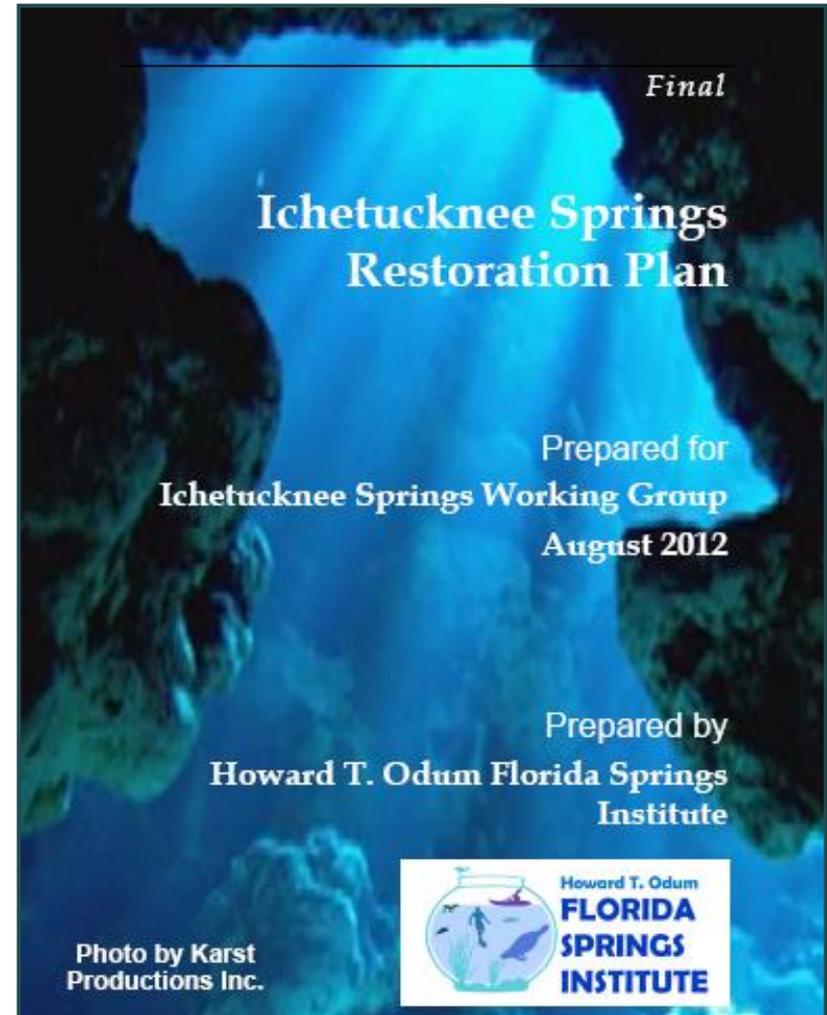
General Concerns/Recommendations

- *The Ichetucknee river and springs are “Outstanding Florida Waters” and are protected by law from any form of degradation, yet the SRWMD proposed MFL allows a permanent, flow reduction of 12 cfs (8 MGD) but estimates that there is already a 24 cfs (15 MGD) reduction*
- *The “precautionary principle” indicates that given uncertainty in the estimates of existing harm, the District should err on the side of caution and establish the most protective MFL defensible*



Ichetucknee Springs Restoration Plan

- **Restoration Plan Components**
 - *Guiding vision for Ichetucknee Springs*
 - *Description of environmental stresses*
 - *Proposed restoration activities*
 - *Resource needs for restoration*
 - *Implementation schedule*
 - *Monitor restoration success*



Ichetucknee Springs and River Recovery

Key Conclusions:

- The State of Florida made a commitment to restore and protect the Ichetucknee Springs and River in 1970 with establishment of the Ichetucknee Springs State Park.
- This commitment for restoration and protection has not been honored.
- There are two main issues still affecting the ecological health of Ichetucknee springs and river we wish to discuss:
 - Reduced flows
 - Elevated nitrate nitrogen
- Reduced flow and water quality have resulted in continuing impairment of the river's ecosystem.
- This environmental crisis has been caused by the failure of Florida to strictly enforce existing law.

Ichetucknee Springs and River Recovery (cont.)

Key Conclusions:

- The Ichetucknee Alliance consensus is that these impairments are unacceptable, and our only recourse is to pursue all means available to us to insure restoration of this precious resource.
- The draft MFLs and recovery plan are not protective of the Ichetucknee Springs and River:
 - The District needs to redefine the flow baseline as pre-1960 (rather than pre-1990) to set the most appropriate target for flow recovery.
 - In the meantime the District has the authority to implement an emergency water shortage order or reservation and to require permitted groundwater users to significantly cut back on their pumping.

Ichetucknee Springs and River Recovery (cont.)

Key Conclusions:

- The existing Santa Fe/Ichetucknee BMAP is not effective at halting the continuing nitrate pollution in the Ichetucknee or Santa Fe springs and rivers (see DEP BMAP update report April 2013):
 - New agricultural development should stop until N loads have been reduced to acceptable levels.
 - Advanced BMPs that achieve a groundwater nitrate-nitrogen concentration of 0.35 mg/L should be implemented ASAP.

Ichetucknee Springs and River Recovery (cont.)

Our Requests:

- The Ichetucknee Alliance respectfully requests that your agencies follow through on the following actions:
 - Make the Ichetucknee Springs and River a Restoration Focus and Demonstration Area with detailed N source assessment and dual-porosity groundwater modeling
 - Develop a truly comprehensive recovery plan for the Ichetucknee, including an accelerated timeline for meeting water quantity and quality objectives and the following recommended actions:
 - An emergency water shortage order to achieve Ichetucknee River average flow increases to at least 95% of historic (pre-1960) levels.
 - A moratorium on all new water use permits in the springshed.
 - A requirement that all existing agricultural and urban fertilizer loads in the springshed be reduced until load reductions are shown to meet the nitrate TMDL at Ichetucknee Springs.

Ichetucknee Springs and River Recovery (final)

Summary:

- The Ichetucknee Alliance is willing to enter into mediation with your agencies to accomplish these goals.
- We request a full response to these requests in a timely fashion.
- In summary, we request your agencies use every available tool to comply with state water quality and quantity standards at Ichetucknee Springs.