

Suwannee – Satilla Basins

Flood Control Issues, Opportunities and Assistance

Georgia Silver Jackets Meeting

Valdosta, GA

April 11, 2013

Presentation Outline

- ◆ Basin overview
- ◆ Recent floods:
 - ◆ 2009 – 100 year flood
 - ◆ 2012 – 50 year precipitation
 - ◆ 2013 – 50 year flood
- ◆ Potential factors contributing to floods
- ◆ Regional activities
 - ◆ Long term
 - ◆ Short term

Facts about the Suwannee Satilla Basins

- ◆ 9,500 sq-miles
- ◆ 530,000 residents

27 COUNTIES

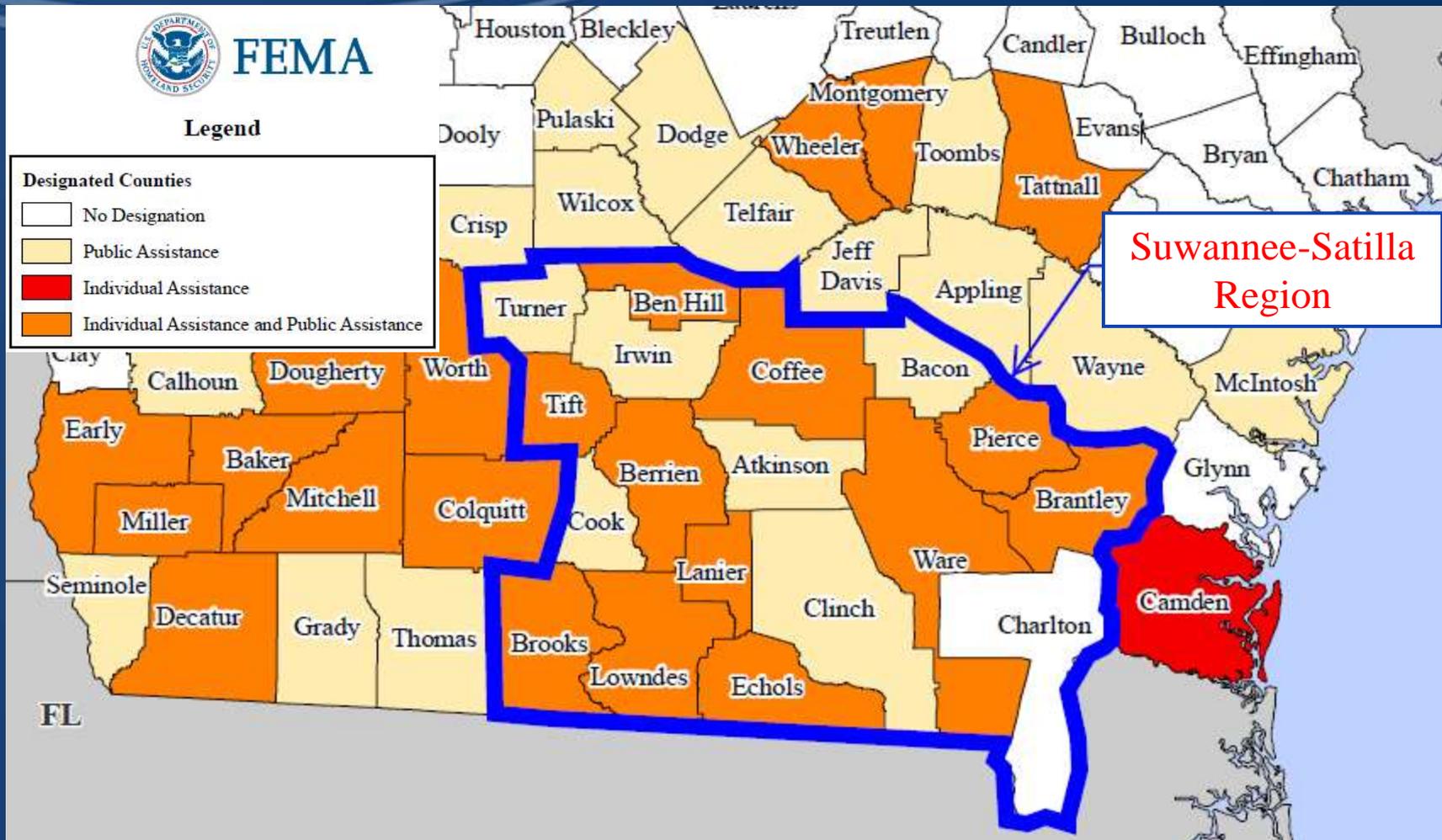
- Appling
- Atkinson
- Bacon
- Ben Hill
- Berrien
- Brantley
- Brooks
- Camden
- Charlton
- Clinch
- Coffee
- Colquitt
- Cook
- Echols
- Glynn
- Irwin
- Jeff Davis
- Lanier
- Lowndes
- Pierce
- Thomas
- Tift
- Turner
- Ware
- Wayne
- Wilcox
- Worth



2009

100 Year River Flood

In April 2009 President Obama declared 46 Georgia counties major disaster areas



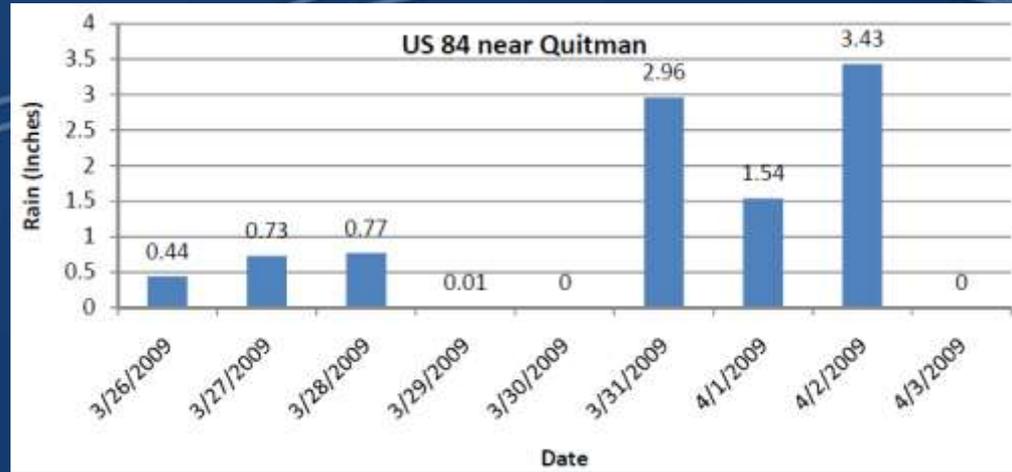
USGS Rainfall gauges recorded significant rainfall between March 27 – April 3, 2009

- **6.9 inches – Satilla River (Atkinson)**
- **7.2 inches – Satilla River (Waycross)**
- **13.3 inches – Alapaha River (Alapaha)**
- **14 inches – Little River (Adel)**
- **9.4 inches – Withlacoochee River (Quitman)**
- **8.7 inches – Withlacoochee River (Valdosta)**

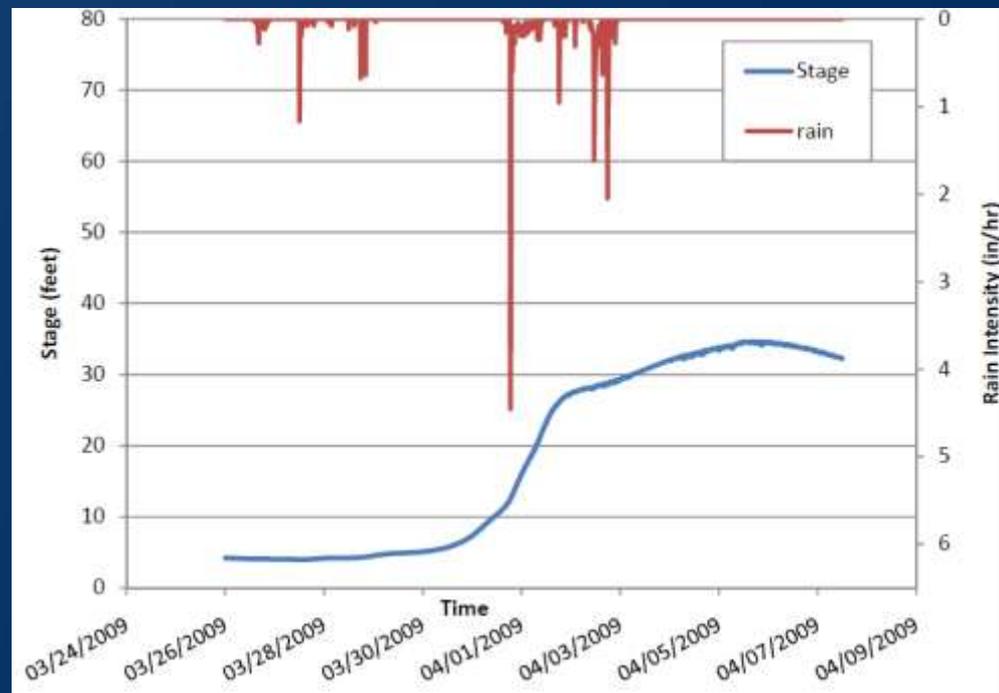
Using data from the Georgia Blue Book, CDM Smith estimated that for a 6 day duration storm, the 25 year recurrence is about 10 inches, 50 years is 11 inches, and 100 years is 12 inches.

The USGS gauges around Valdosta recorded a 30 foot river stage rise

A total of 8.0 inches of rainfall occurred in 3 days.

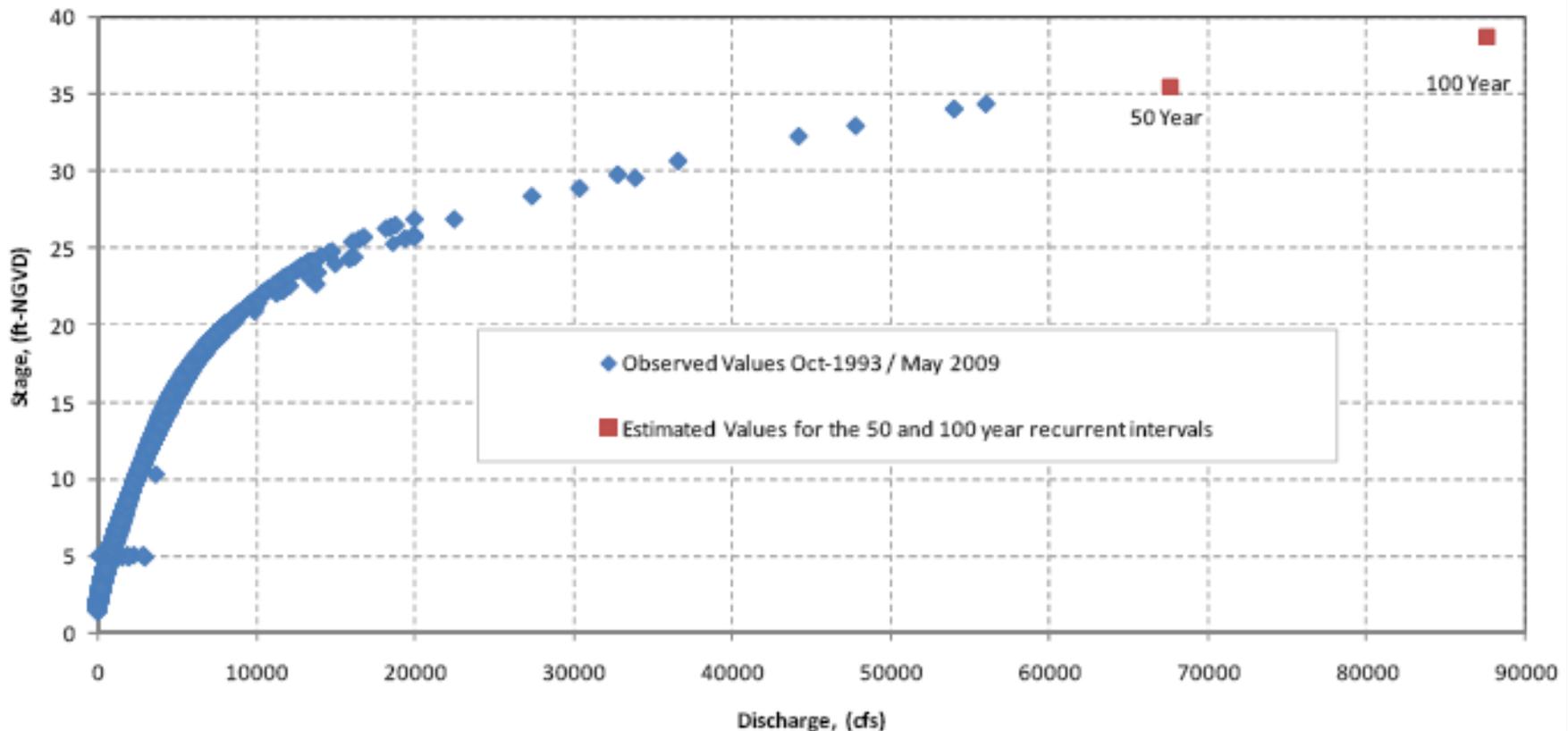


It took 5 days for the river stage to rise 30 feet, indicating that the source is located upstream



The Withlacoochee River stage in 2009 exceeded the 100 year recurrence, based on USGS records at US-84

US 84, Quitman, GA (USGS Gage 02318590)



The April 2009 flood resulted in damage throughout both basins

- As reported by the USGS in the 46 damaged counties:
 - 1,875 homes
 - 29 businesses
 - \$60 million in damage to public infrastructure (e.g. roads, culverts, bridges and wastewater treatment facility)



2009 Event



City of Douglas / Coffee County
Courtesy of FEMA

2009 Event



City of Douglas / Coffee County
Courtesy of FEMA

2009 Event



City of Tifton / Tift County
Courtesy of Tifton Gazette

2009 Event



Tift County
Courtesy of Tifton Gazette

2009 Event



US Highway 84 / Lowndes County
Courtesy of Valdosta Daily Times

2009 Event



Brooks County
Courtesy of Valdosta Daily Times

2009 Event



City of Waycross / Ware County
Courtesy of First Coast News / Richard Edgy

2009 Event



City of Hahira / Lowndes County
Courtesy of Valdosta Daily Times

2009 Event



City of Valdosta / Lowndes County
Courtesy of Valdosta Daily Times

2009 Event

The Withlacoochee Wastewater Treatment Plant was severely flooded and the City pursued FEMA funding to relocate the plant to avoid recurrent damage



Before



During

FEMA 100-Year Flood Plain

CDM estimated 100-Year Flood Plain

The current FEMA flood maps are based on an outdated analysis: Flood levels exceeded the 100 year FEMA estimates.

The 2009 catastrophic event exceeded the 100 year recurrence interval

- ❑ Rainfall exceeded the 100 year recurrence in the northern part of the watershed
- ❑ Rainfall exceeded the 50 year recurrence interval in most locations
- ❑ The USGS gauges recorded 30 feet of river stage increase, exceeding the 100 year flood recurrence

2012

- ❑ **8-11 inches in 24 hours in Tifton and Tift County**
- ❑ **Corresponds to a 50 year recurrence interval precipitation**

2012 Event



City of Tifton / Tift County
Courtesy of tiftontalks.com

2012 Event



City of Tifton / Tift County
Courtesy of tiftontalks.com

2012 Event



City of Tifton / Tift County
Courtesy of WALB10

2012 Event



City of Tifton / Tift County
Courtesy of WALB10



2013

50 Year River Flood

2013 Event

The Withlacoochee River flooded significantly again

- ◆ Withlacoochee waste water treatment plant had to be shut down
- ◆ Numerous locations throughout Lowndes county were flooded
- ◆ 13 bridges closed in Lowndes County, including US-84



2013 Event



Reed Bingham State Park / Cook County

Courtesy of WALB News 10

2013 Event



City of Valdosta / Lowndes County
Courtesy of City of Valdosta

2013 Event



Valdosta waste water treatment plant / Lowndes County
Courtesy of City of Valdosta and Valdosta Daily Times

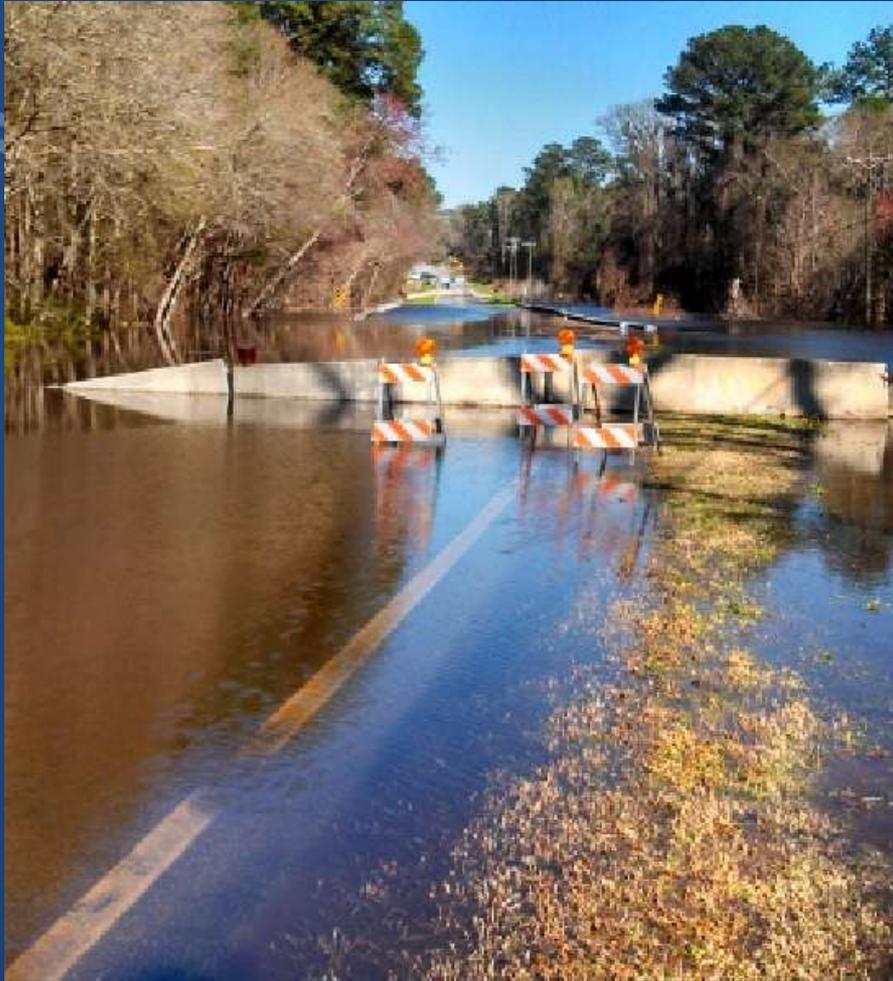
2013 Event



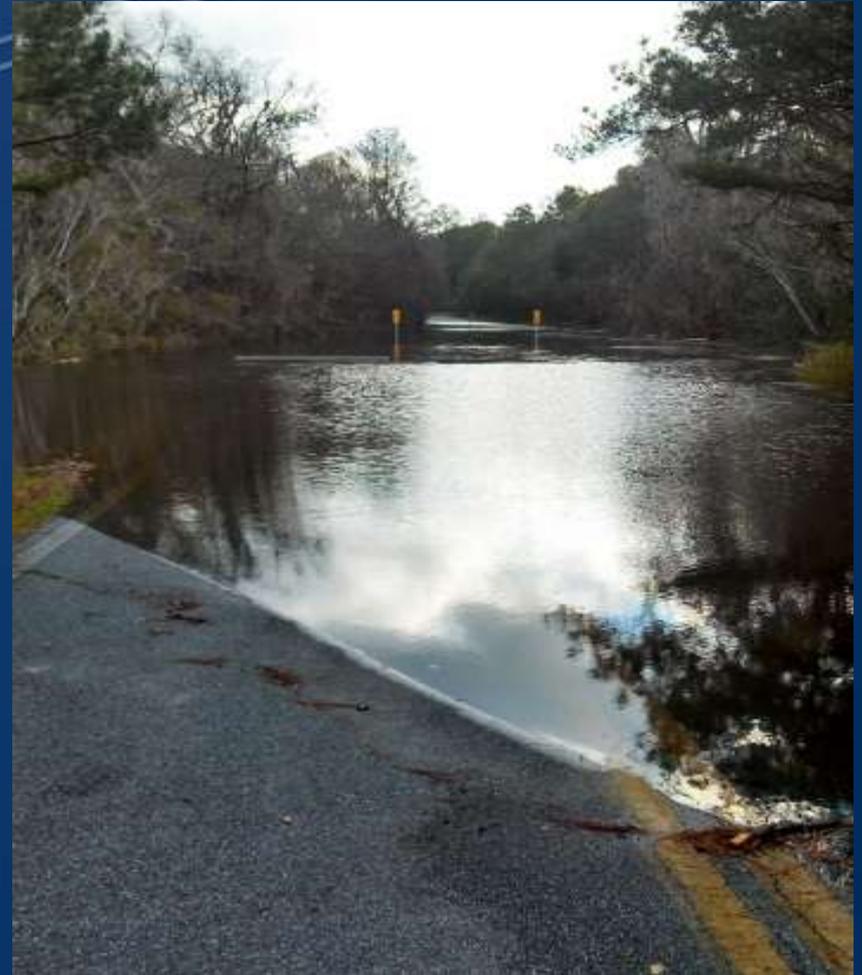
Withlacoochee River at GA-122 / Lowndes County

Courtesy of WWALS

2013 Event



Franks Creek Bridge



Jumping Gulley Road

Courtesy of Lowndes County

2013 Event



Rocky Ford Road

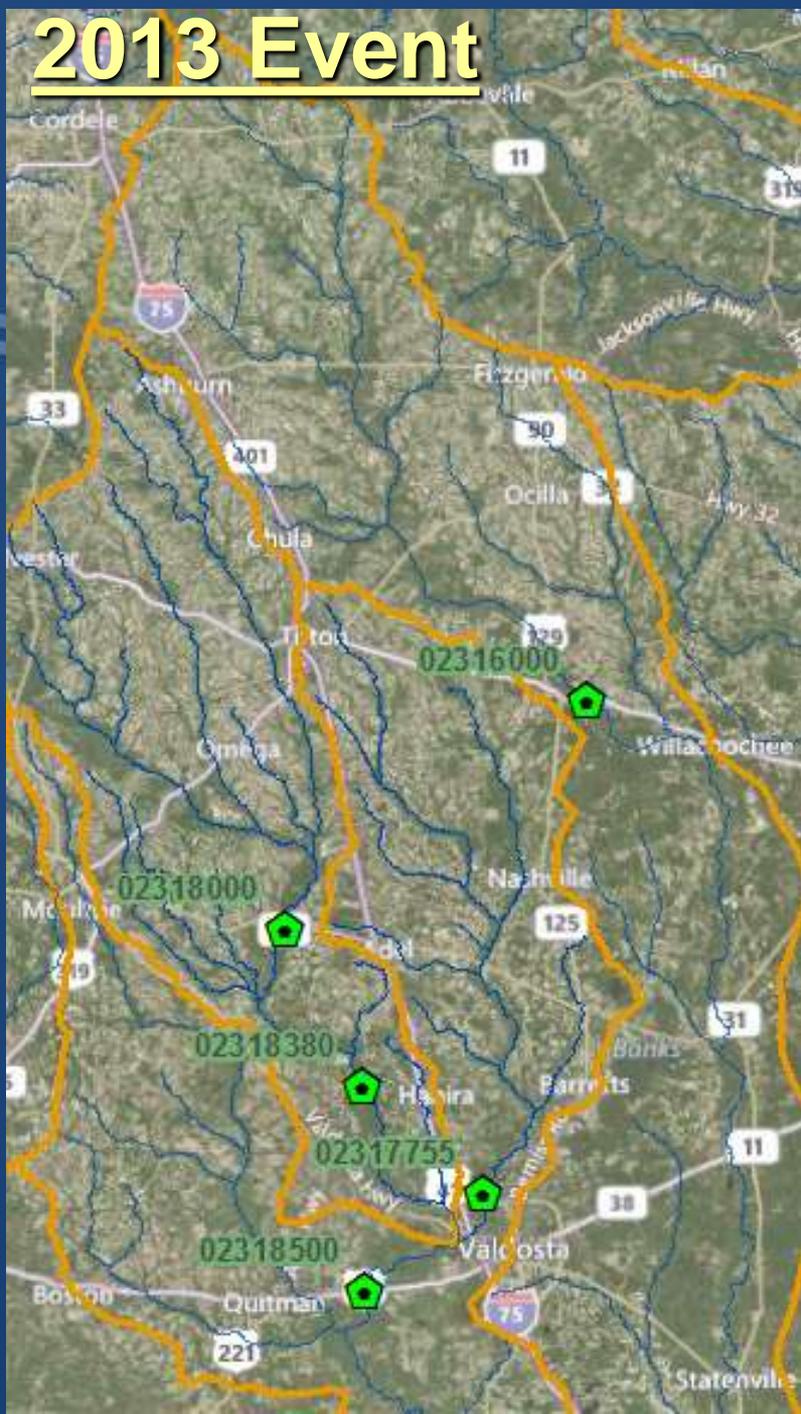


S.R. 31

Courtesy of Lowndes County

2013 Event

Rainfall records from February 21 to 27 show a recurrence interval ranging from 3 to 50 years



Satilla River (Atkinson)	6.0 in
Satilla River (Waycross)	5.9 in
Alapaha River (Alapaha)	7.8 in
Little River (Adel)	11.1 in
Withlacoochee River (Quitman)	8.8 in
Withlacoochee River (Valdosta)	7.1 in

2013 Event

USGS Recorded Data Flow at Multiple Locations

Station Name	Drainage Area (mi ²)	Date of Peak	Peak GH (ft)	Peak Q (cfs)
ALTAMAHA RIVER AT DOCTORTOWN, GA	13600	3/2/2013	13.56	66,900
SATILLA RIVER NEAR WAYCROSS, GA	1200	3/1/2013	19.37	19,400
LITTLE SATILLA RIVER NEAR OFFERMAN, GA	646	2/27/2013	11.20	6,080
SATILLA RIVER AT ATKINSON, GA	2790	3/4/2013	18.23	27,000
ALAPAHA RIVER NEAR ALAPAHA, GA	663	2/28/2013	16.97	9,650
ALAPAHA RIVER AT STATENVILLE, GA	1400	3/4/2013	29.41	18,400
WITHLACOOCHEE RIVER AT MCMILLAN RD, NEAR BEMISS, GA	502	2/28/2013	21.79	17,400
LITTLE RIVER NEAR ADEL, GA	577	2/26/2013	21.03	24,500
WITHLACOOCHEE RIVER AT US 84, NEAR QUITMAN, GA*	1480	3/1/2013	31.48	41,000
OKAPILCO CREEK AT GA 33, NEAR QUITMAN, GA	269	2/27/2013	16.30	10,100
OCHLOCKONEE RIVER AT GA 188, NEAR COOLIDGE, GA	260	2/26/2013	17.27	11,200
OCHLOCKONEE RIVER NEAR THOMASVILLE, GA*	550	2/27/2013	22.13	29,100
SPRING CREEK NEAR IRON CITY, GA	527	2/27/2013	19.33	12,400

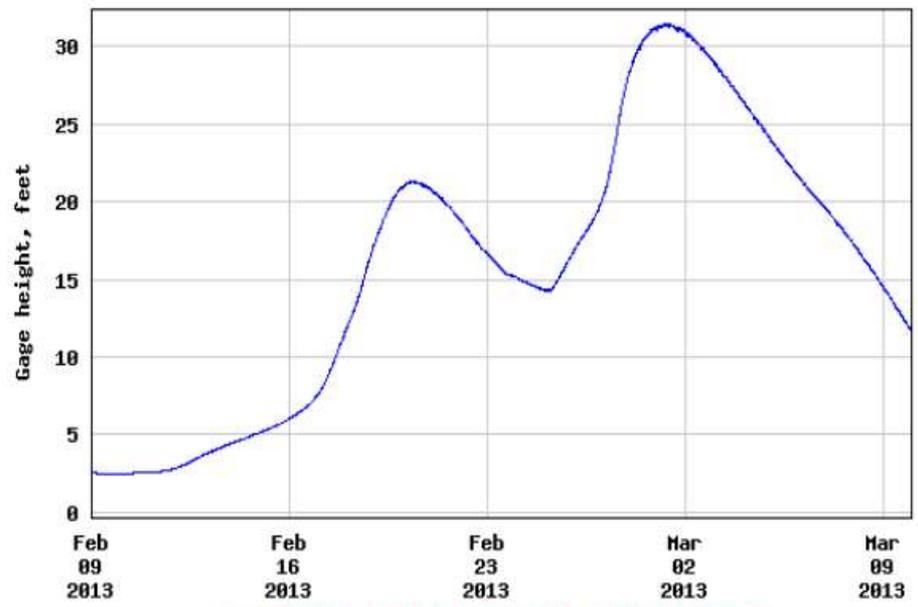
Source: USGS

2013 Event

The flood was a result of more than two weeks of rainfall with two flood peaks

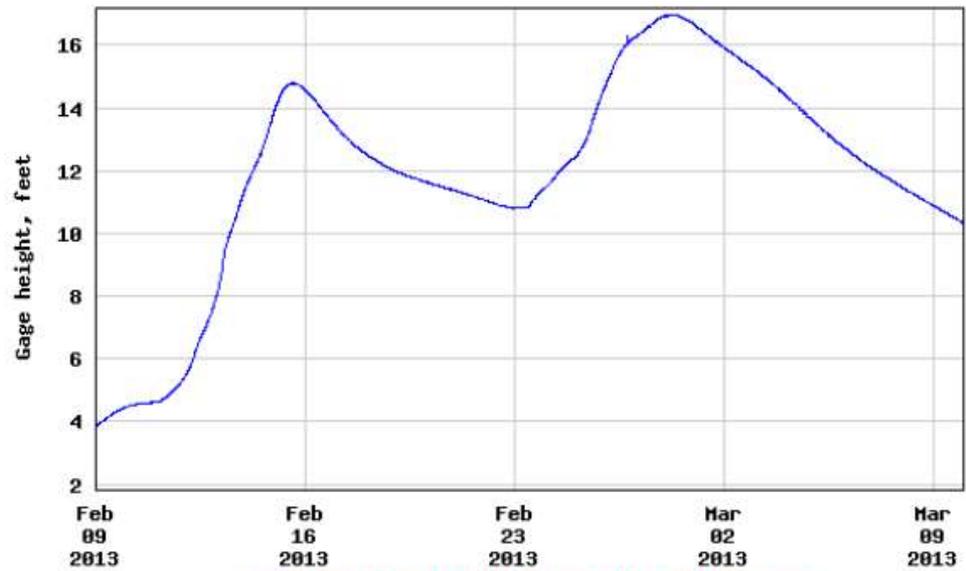


USGS 02318500 WITHLACOCHEE RIVER AT US 84, NEAR QUITMAN, GA



----- Provisional Data Subject to Revision -----

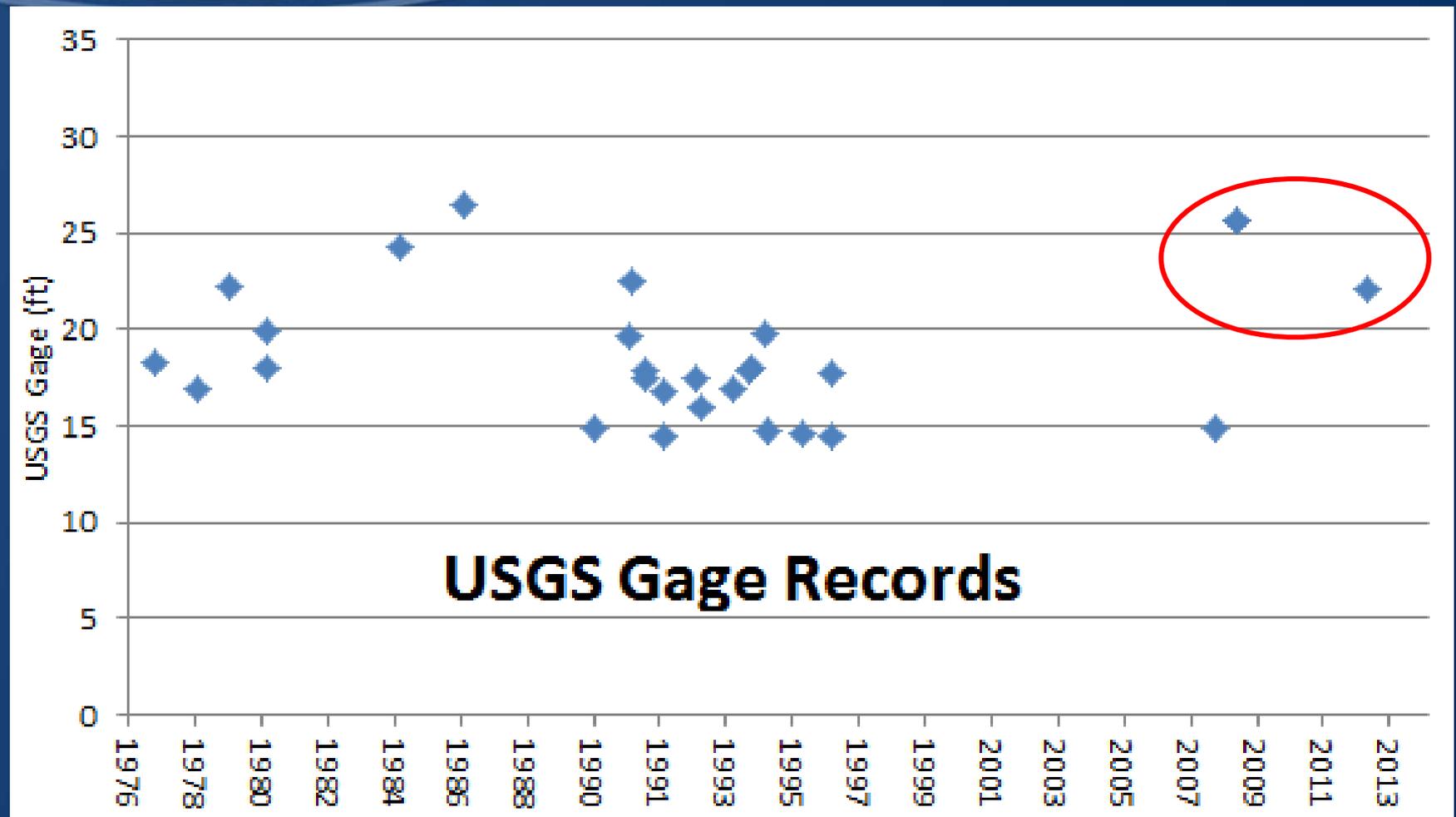
USGS 02316000 ALAPAHA RIVER NEAR ALAPAHA, GA



----- Provisional Data Subject to Revision -----

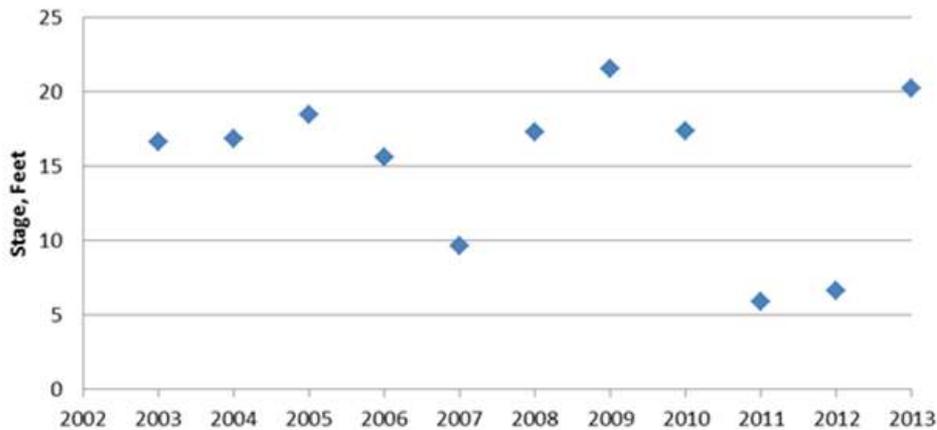
Graph courtesy of the U.S. Geological Survey

2009 and 2013 had a significant impact and were only 4 years apart

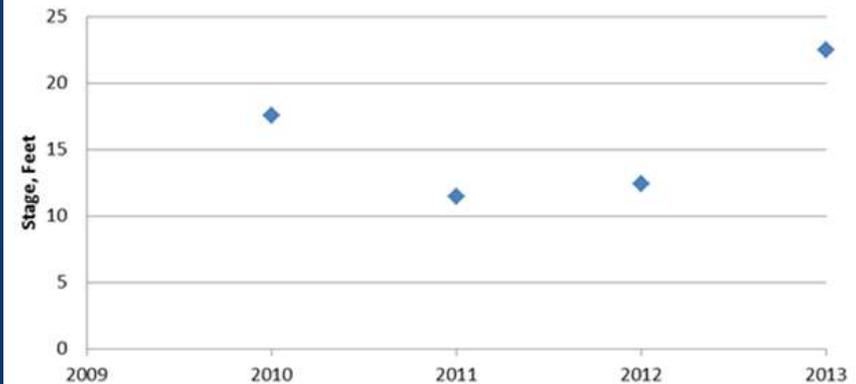


With the exception of Valdosta and Quitman, other USGS gauges in the watershed do not have a long period of record

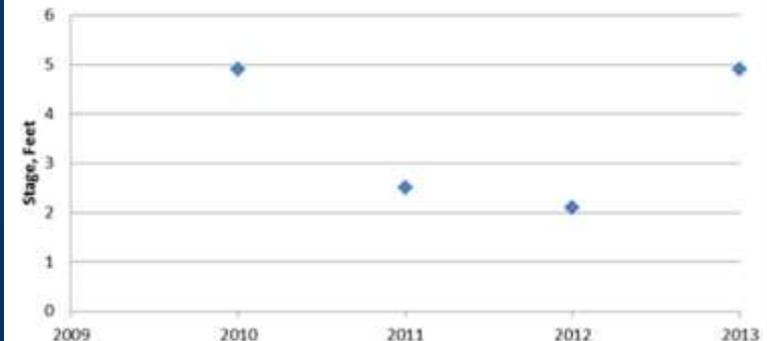
USGS 02318000
LITTLE RIVER NEAR ADEL, GA



USGS 02318380
LITTLE RIVER NEAR HAHIRA, GA



USGS 02317797
LITTLE RIVER NEAR TIFTON, GA



Since the 2009 floods there have been regional initiatives

◆ 2009

- ◆ FEMA provided assistance to disaster communities
- ◆ Presentation at State Legislative Delegation Luncheon

◆ 2010

- ◆ Valdosta reached out to FEMA to update FEMA maps (LOMR)
- ◆ Letter to Community Leaders inviting them to the Suwannee – Satilla Regional Water Planning Council Meeting
- ◆ Presentation at the Suwannee – Satilla Regional Water Planning Council Meeting in Douglas

◆ 2011

- ◆ Submitted public comments to EPD in response to the Suwannee – Satilla Recommended Regional Water Plan
- ◆ Presentation to Governor Nathan Deal and staff
- ◆ Presentation at the Suwannee – Satilla Regional Watershed Meeting in Tifton

In 2011 the following recommendations were presented to the Suwannee – Satilla Water Planning Council

- 1. Identify storage areas to control storm water flows, while providing a much needed water supply reservoir network (e.g. agricultural needs and low flow conditions).**
- 2. Seek State and Federal funding to implement the solutions that are beyond the legal, financial and institutional capacity of any jurisdiction in the watershed (e.g. The Water Supply Act).**
- 3. Utilize recharge areas, combined with stream buffers, to reduce the stream flow and recharge the aquifers.**
- 4. Stream restoration should be considered in selected areas that are degrading and releasing significant sediment and debris loads.**

Potential factors contributing to floods

1. Outdated flood map information does not provide a valid planning tool.
2. Increase in impervious areas over the years throughout the region.
3. Different runoff control measures implemented, without regional coordination.
4. Some of the existing dams and levees can release significant volumes of water and require coordination and advance notice to downstream communities.
5. Increased frequency rainfall amounts

Long term items for discussion today

1. **Coordination with FEMA/GEMA to update flood maps as part of the Risk Map program**
2. **Watershed study**
 - ◆ **Data Collection (LiDAR, land use)**
 - ◆ **Engineering evaluation**
 - ◆ **Geomorphologic evaluation (fallen trees, dredging)**
3. **Development of cost estimate for regional alternatives**
4. **Seek funding**

Short term items for discussion today

- 1. Conduct a discovery process with communities and agencies to gather available data and studies.**
- 2. Development of interim criteria to determine flood elevations for planning purposes.**
- 3. Coordination with GEMA to mobilize and alert residents of upcoming floods.**
- 4. Acquisition/Relocation of repetitive loss properties. Potential cost share from hazard mitigation grants.**
- 5. Enroll communities in the FEMA CRS program to reduce flood insurance policies, and improve coordination with FEMA and the community.**

Summary

- ◆ Basin overview
- ◆ Recent floods:
 - ◆ 2009 – 100 year flood
 - ◆ 2012 – 50 year precipitation
 - ◆ 2013 – 50 year flood
- ◆ Potential factors contributing to floods
- ◆ Regional activities
 - ◆ Long term
 - ◆ Short term

QUESTIONS?