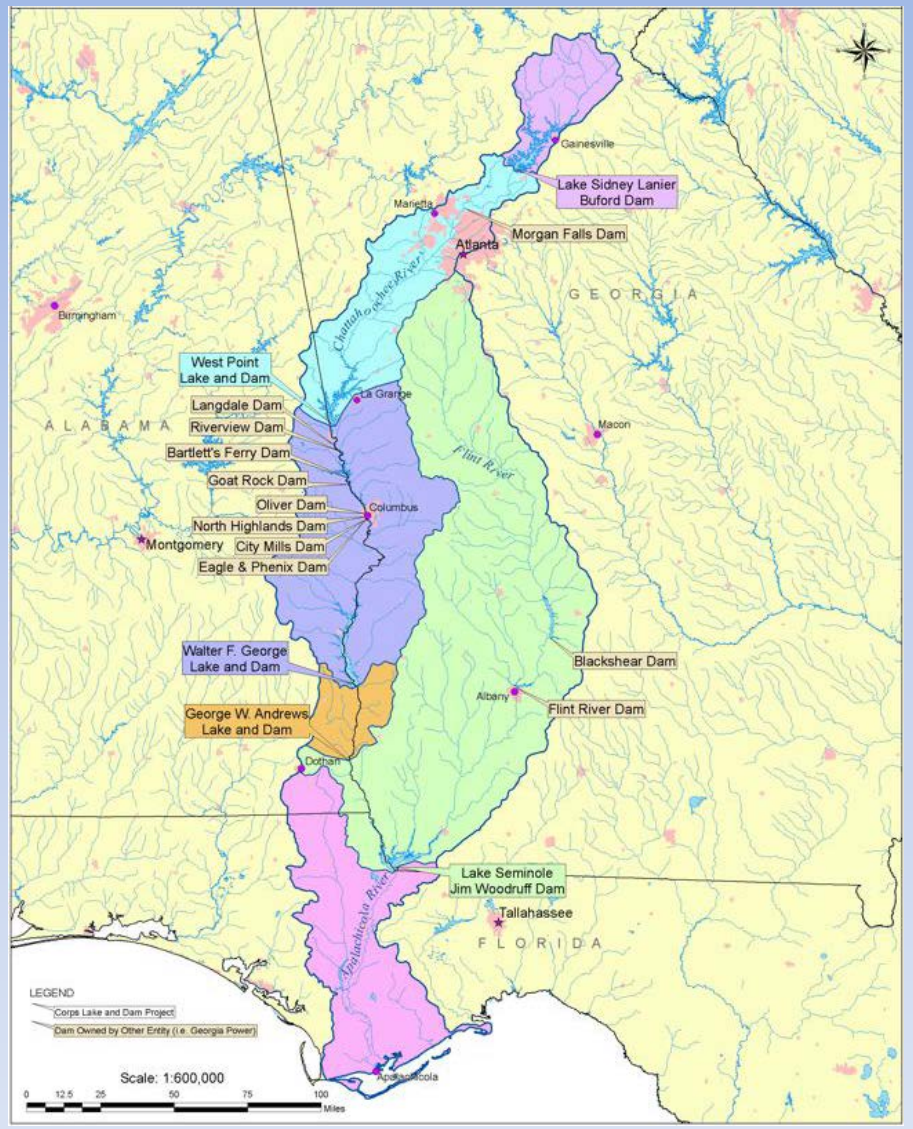
National Integrated Drought Information System

Drought Early Warning for the Apalachicola-Chattahoochee-Flint River Basin

18 August 2015

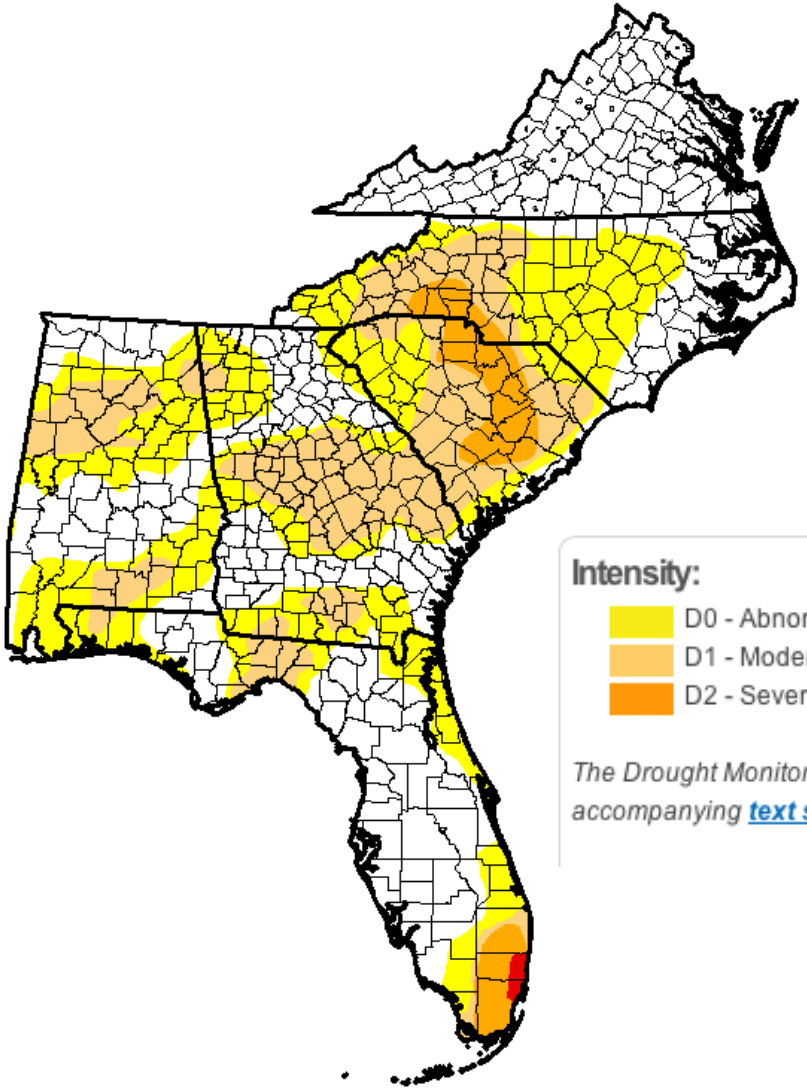


Outline

Welcome – Eric Reutebuch, AU Water Resources Center

- Current drought status, seasonal forecasts and outlooks – David Zierden, Florida Climate Center, FSU
- Streamflows and groundwater – Tony Gotvald, USGS
- Streamflow forecasts – Todd Hamill, SERFC
- ACF reservoir conditions – Bailey Crane, United States Army Corps of Engineers
- Alabama drought status – Tom Littlepage, AL OWR
- Summary and Discussion

Current drought status



Intensity:

- D0 - Abnormally Dry
- D1 - Moderate Drought
- D2 - Severe Drought
- D3 - Extreme Drought
- D4 - Exceptional Drought

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying **text summary** for forecast statements.*

Increasing Ag. Water Demand

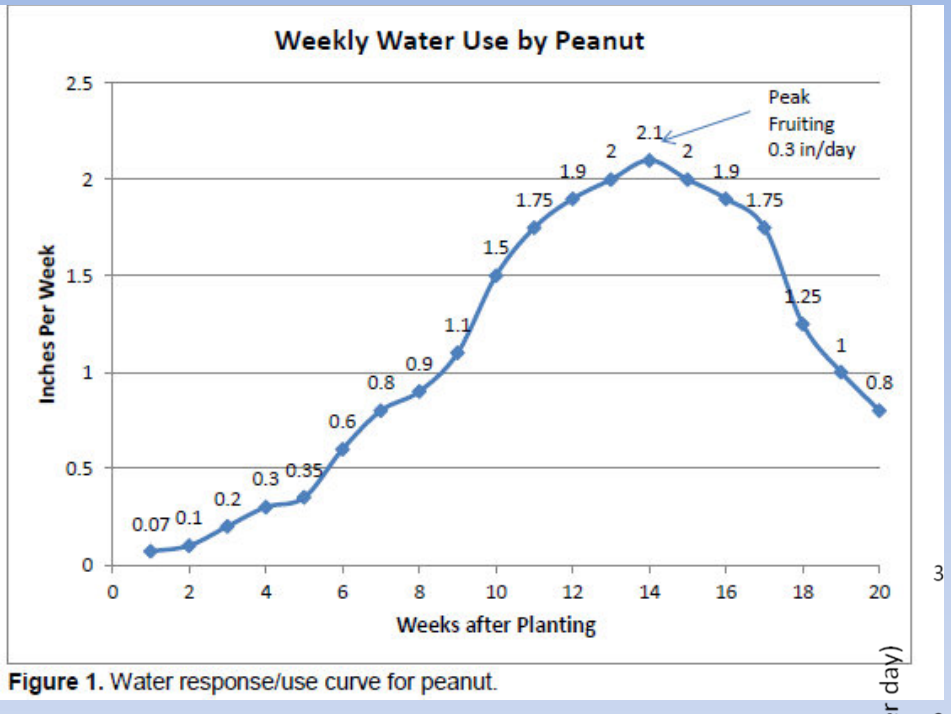


Figure 1. Water response/use curve for peanut.

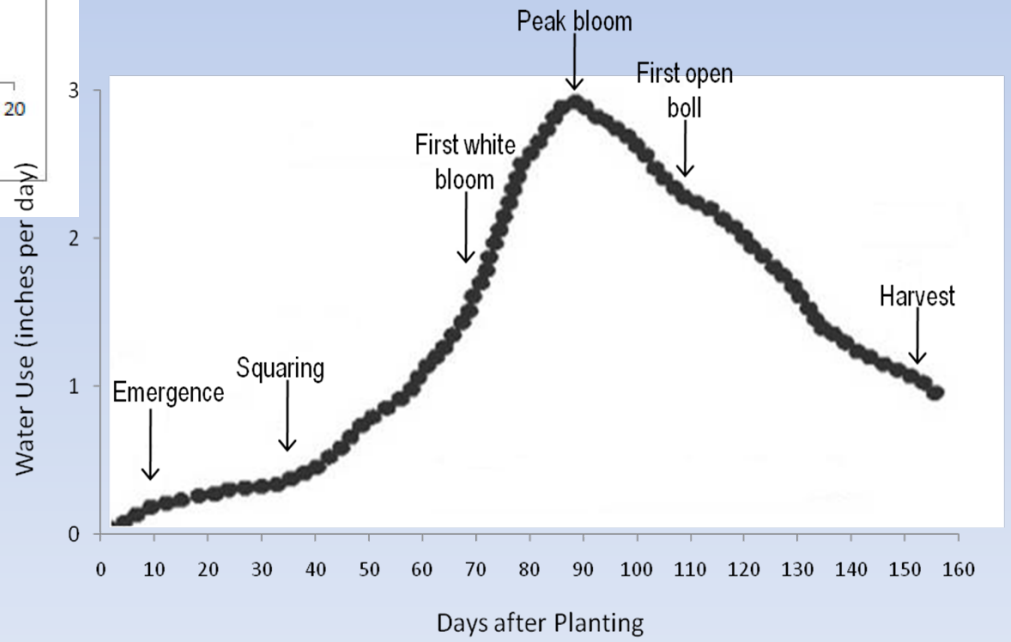
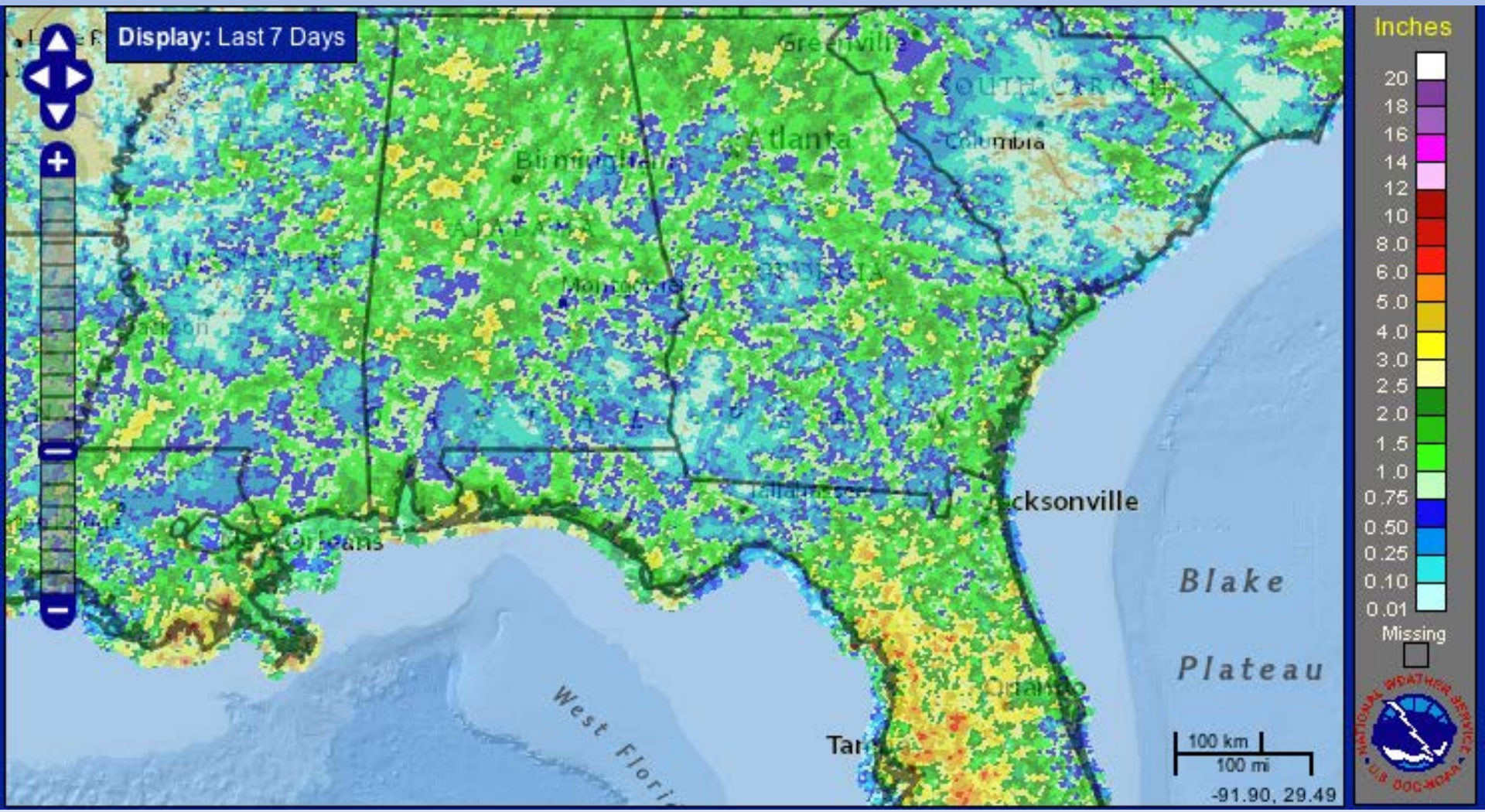


Figure 2. Seasonal water demand curve for cotton *(Source: Sansone, C. et.al. Texas Cotton Production Emphasizing Integrated Pest Management. Texas AgriLife Extension Service).*

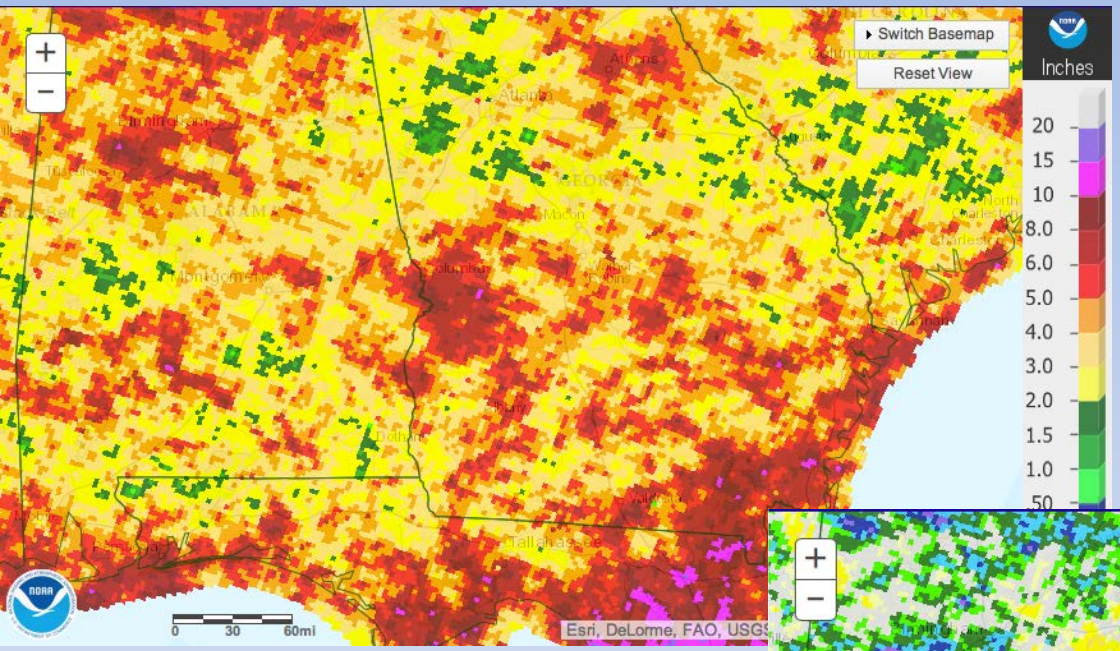
Rainfall – Last 7 Days



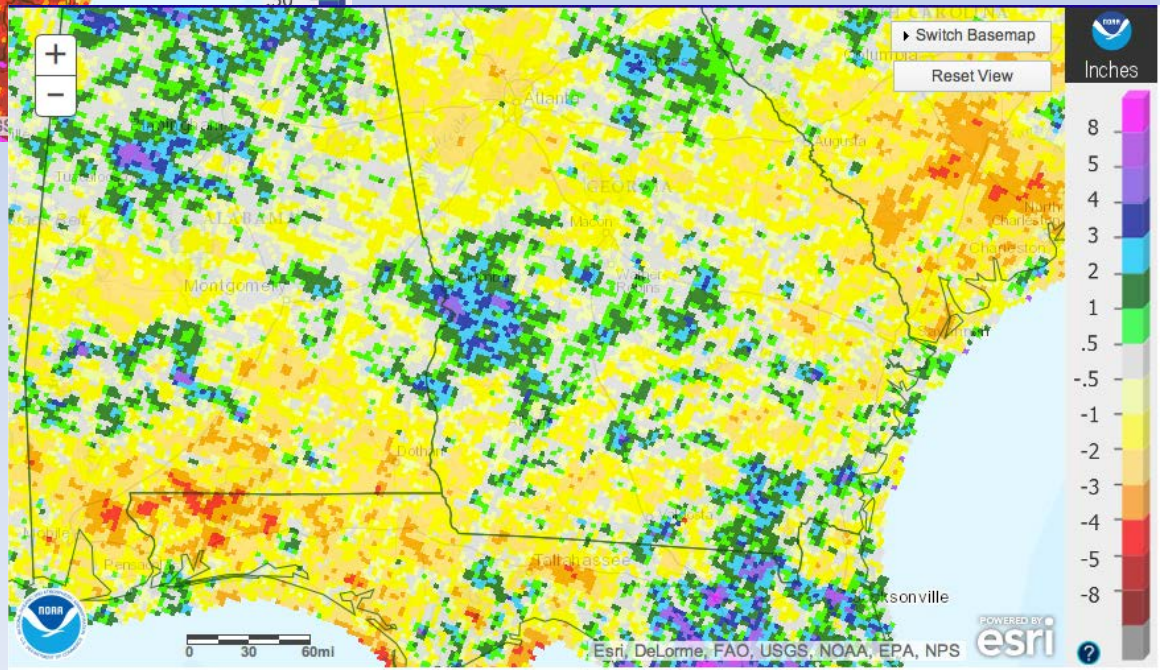
Dothan, AL – 1.22 inches thus far in August

30-Day Rainfall

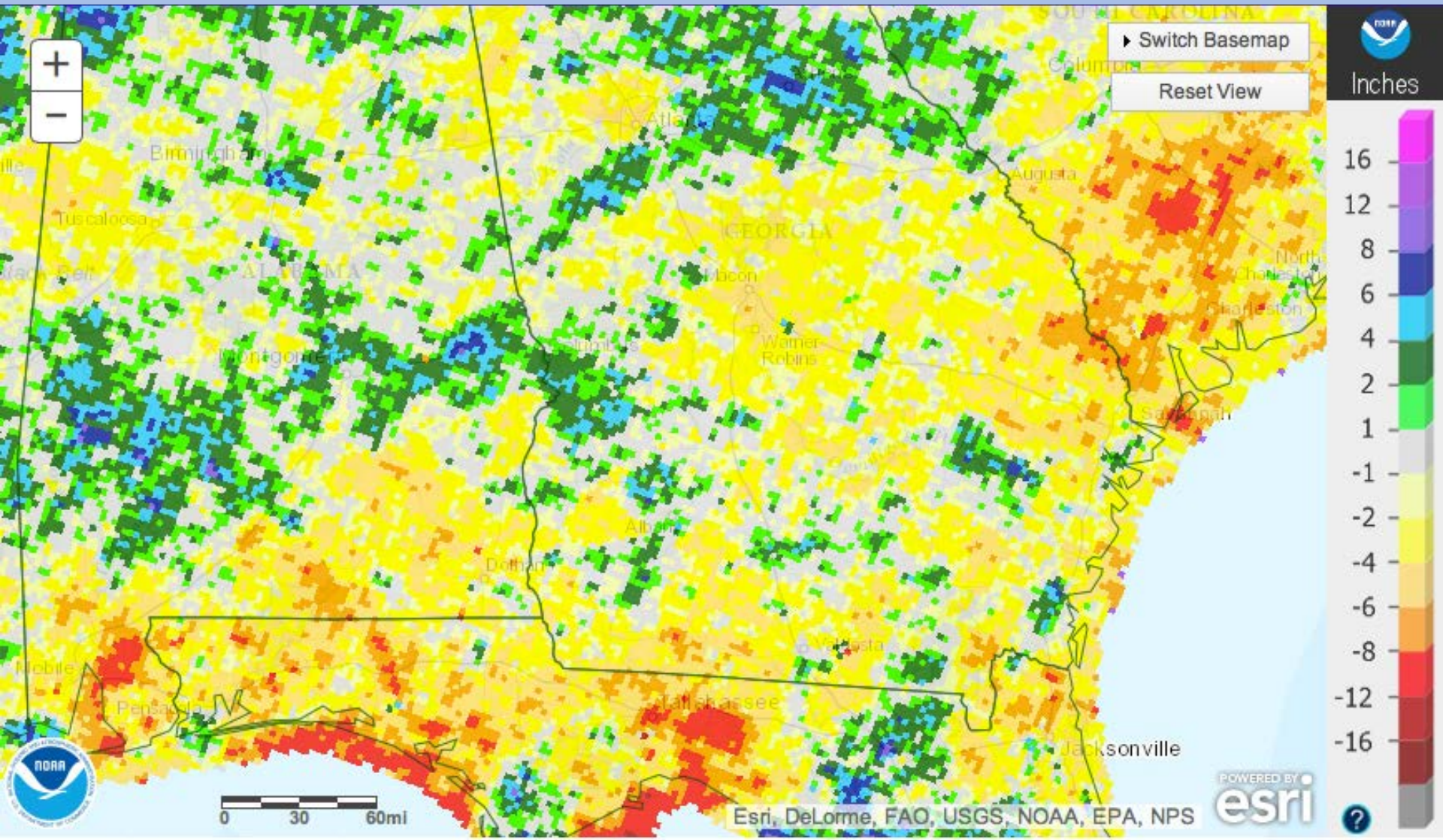
Totals



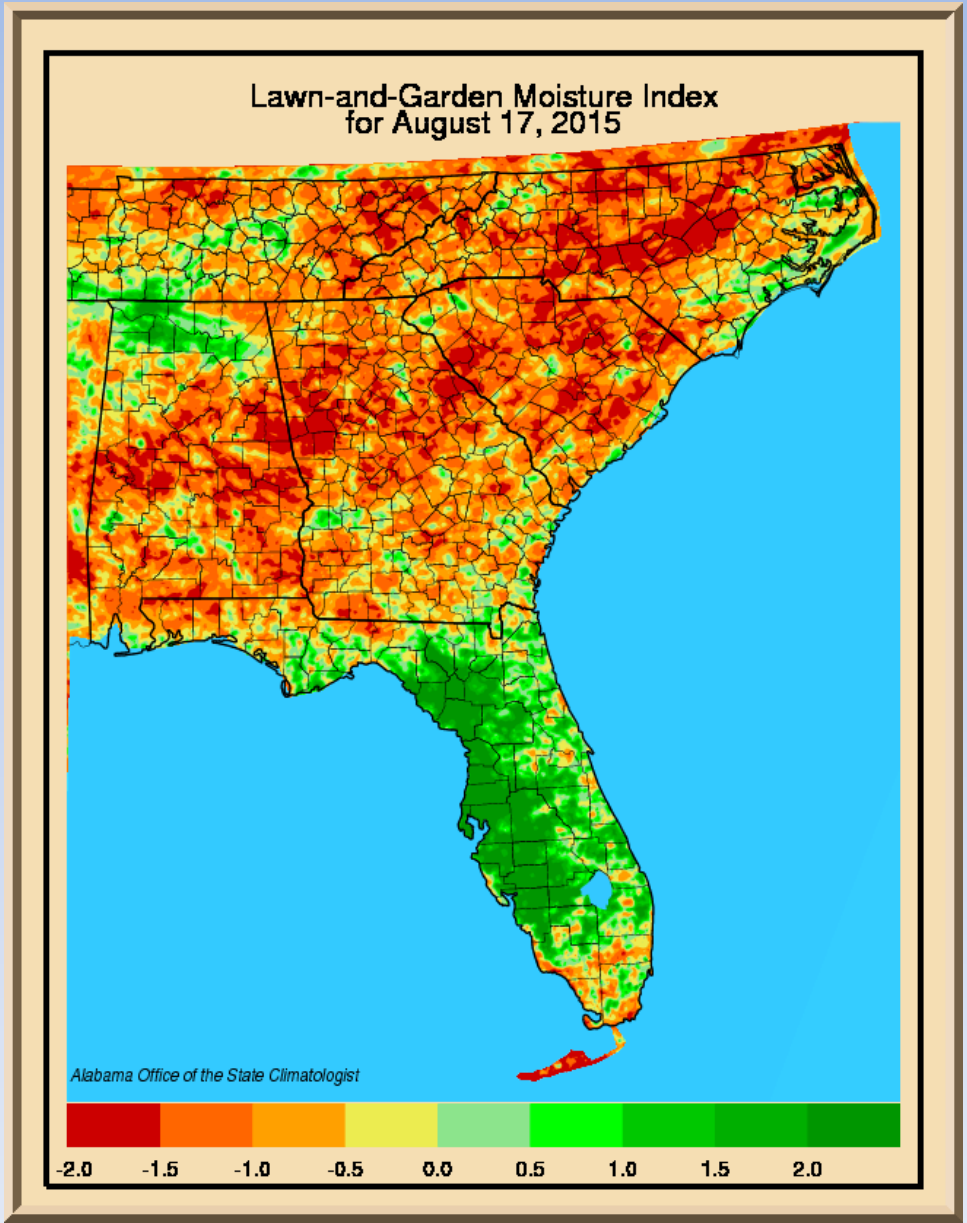
Departure from Normal



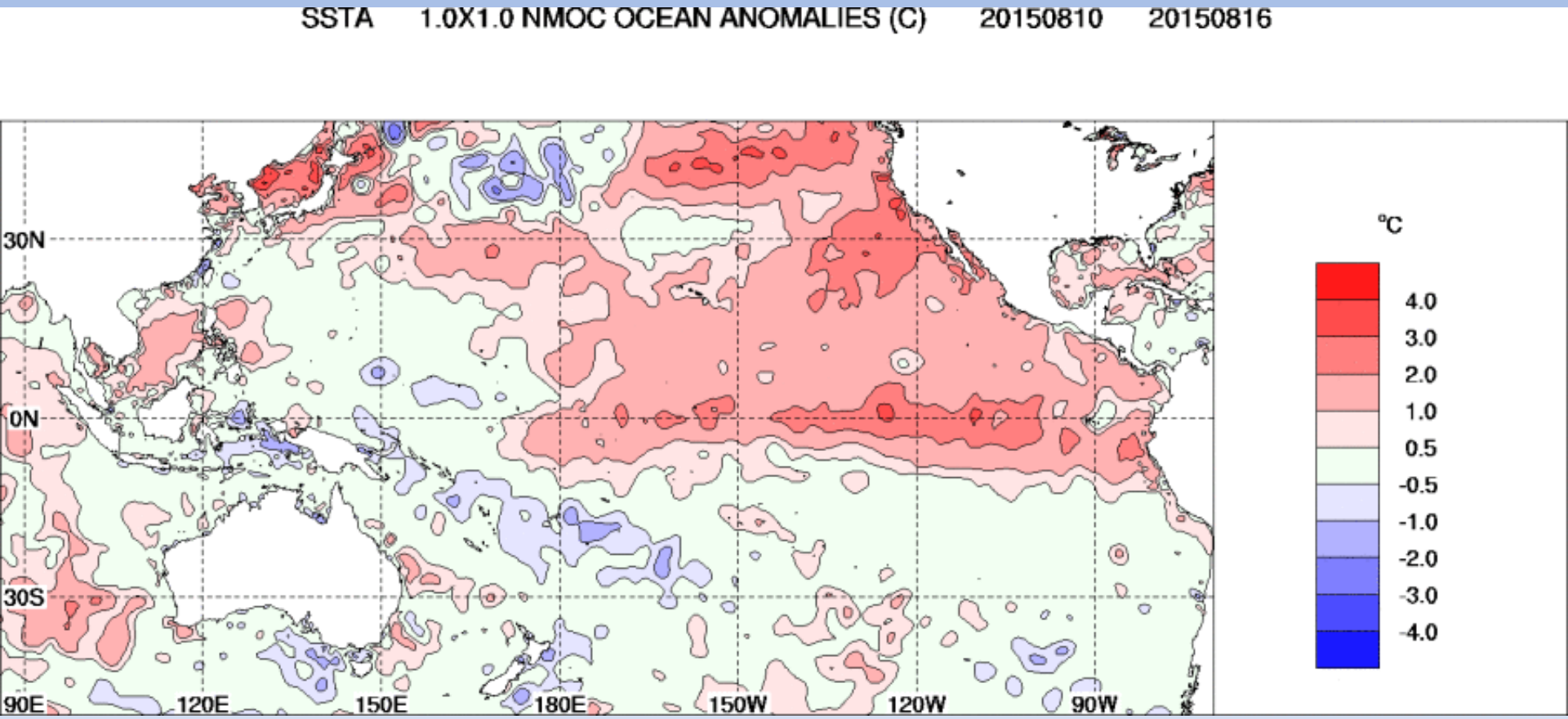
90-day Rainfall Departures



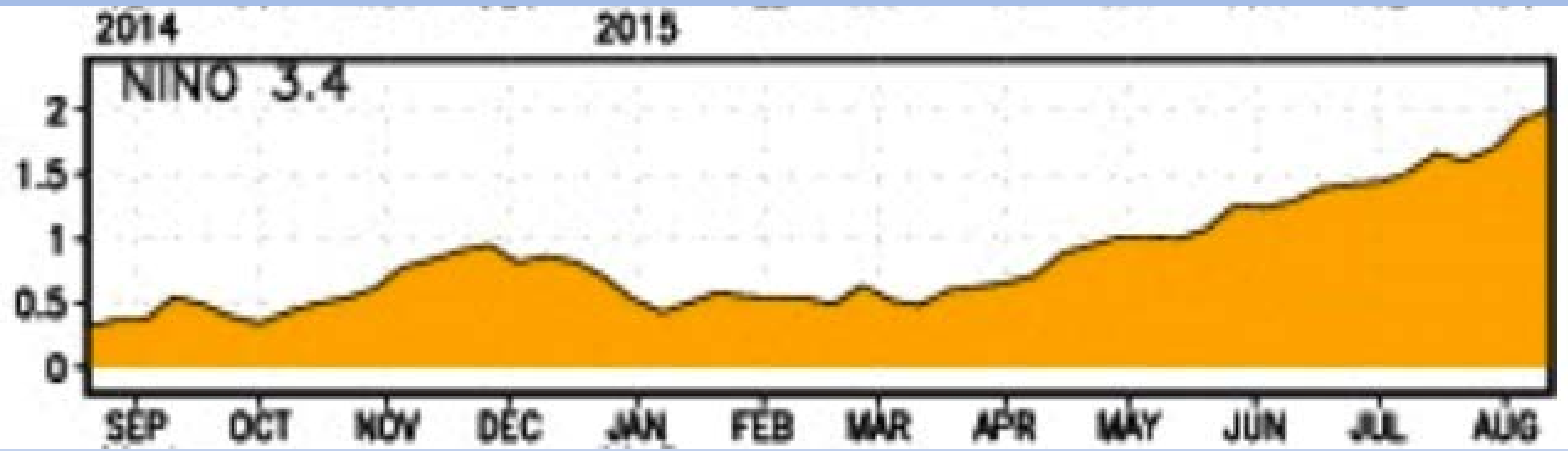
Lawn and Garden Moisture Index



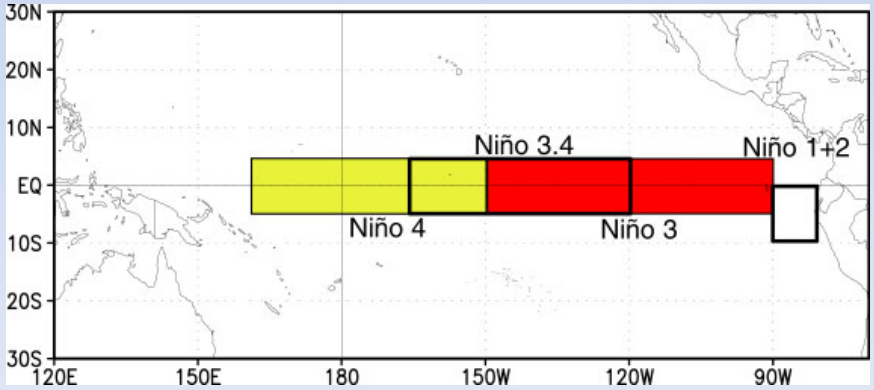
Current SST Anomalies



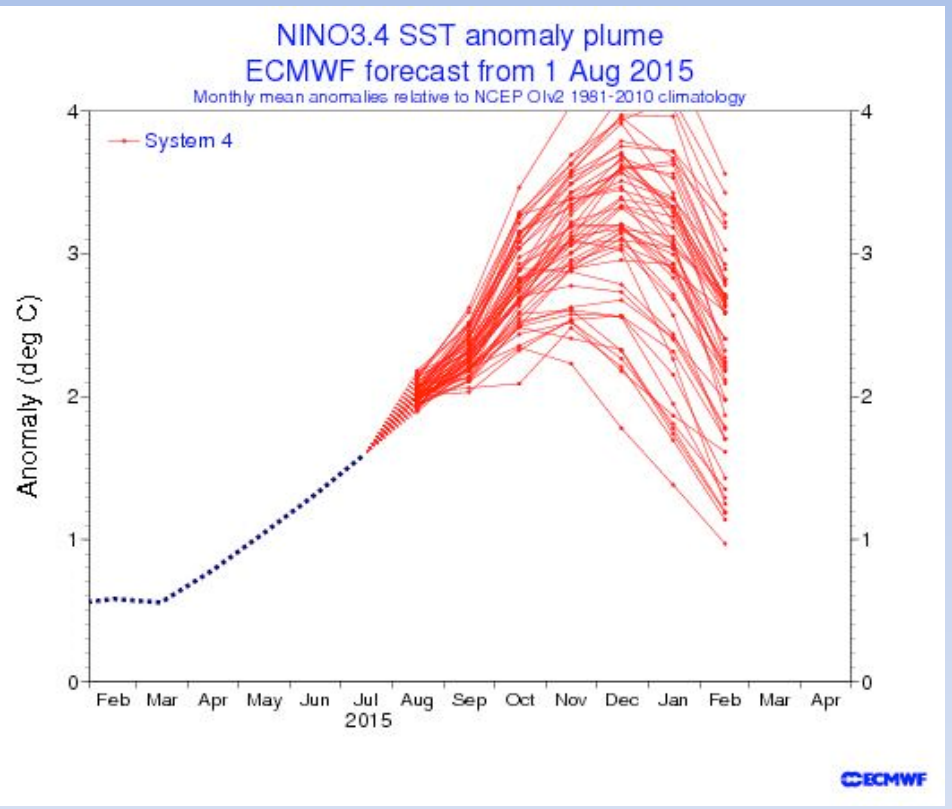
Nino 3.4 Index

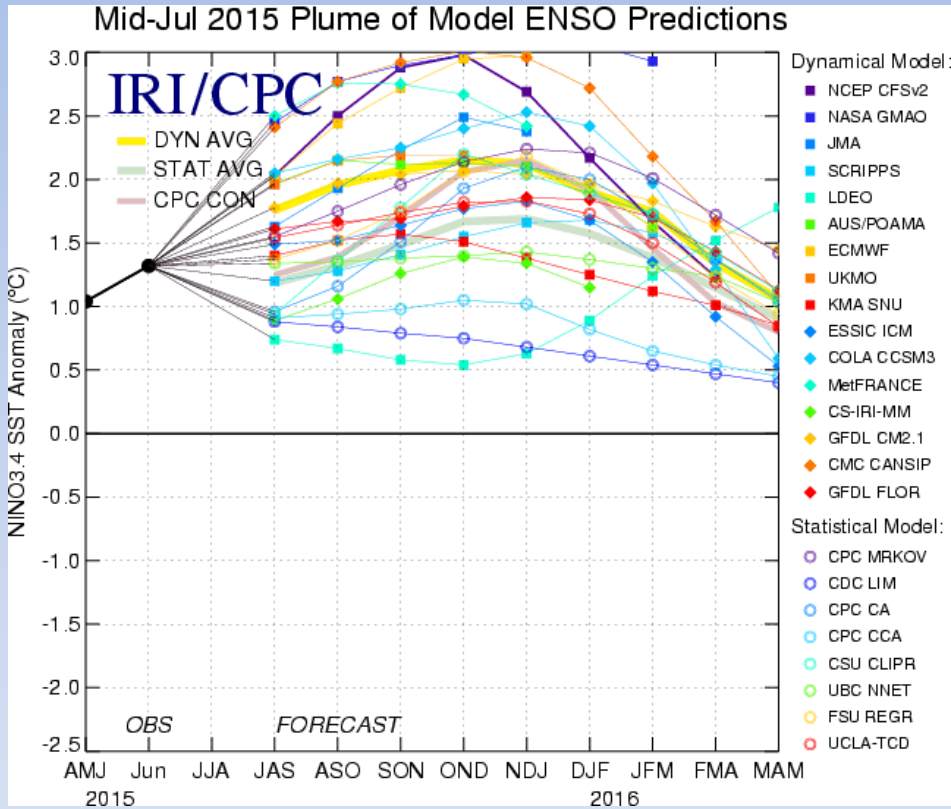


- Current weekly value at +2.0, into the “very strong” range
- Reached weekly peak value of 2.8 in Nov. 1997



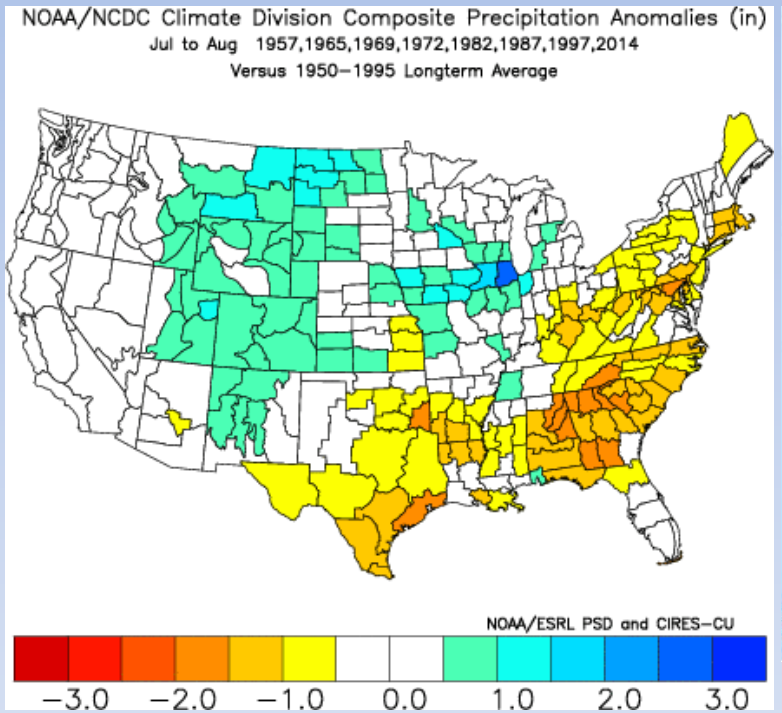
Nino 3.4 Forecasts



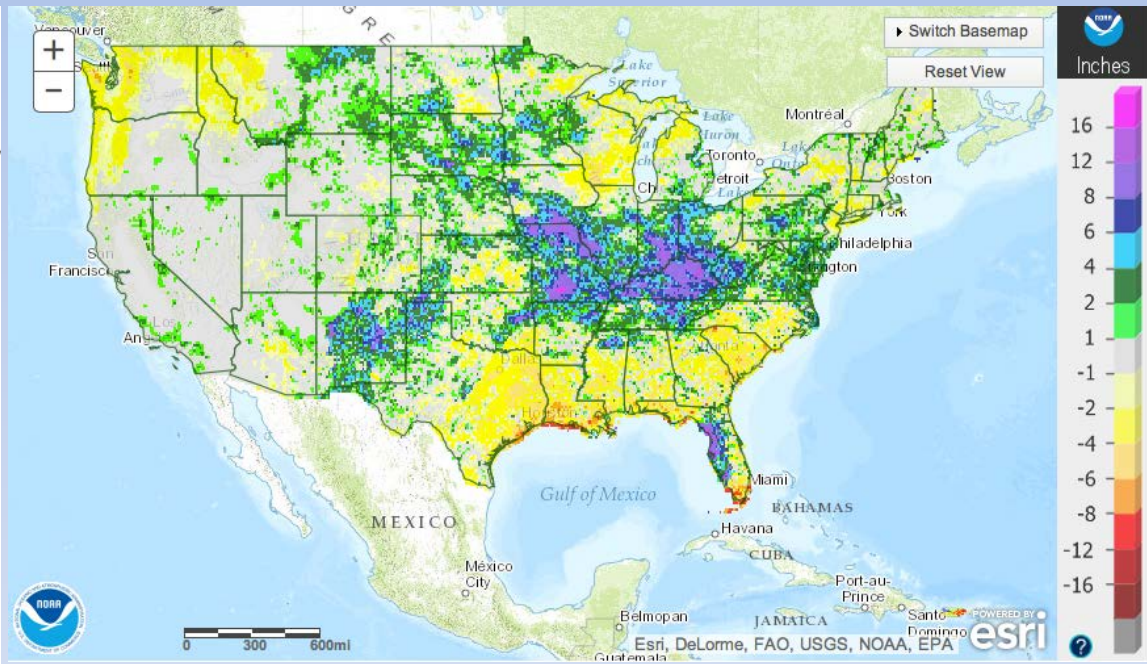


El Nino Composites vs. Reality

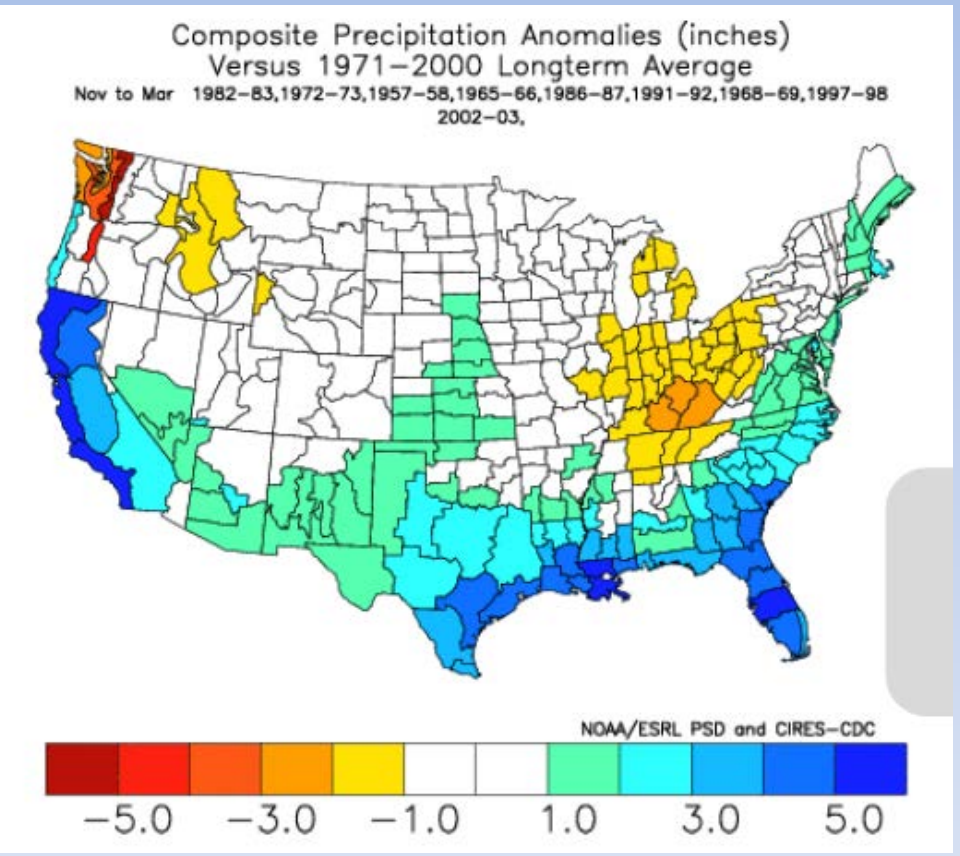
July-Aug. El Nino Rainfall



Last 30 days

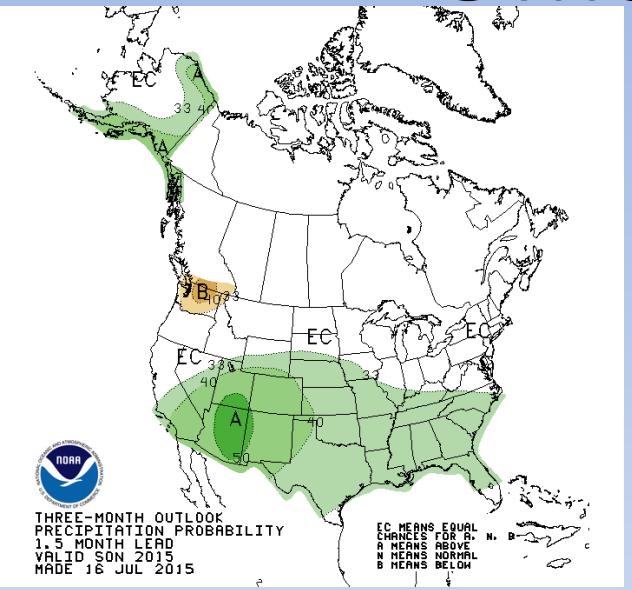


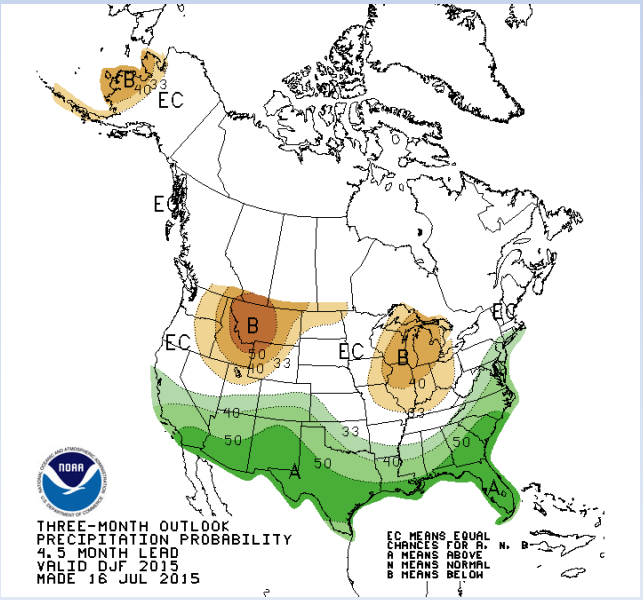
El Nino and Winter Rainfall



- El Nino typically brings enhanced winter rainfall to California and the southern U.S., including Texas and Florida.
- California Rainfall more hit or miss than other Southern States
- Strong El Nino does not necessarily mean even more rainfall, just more confidence in following the pattern.

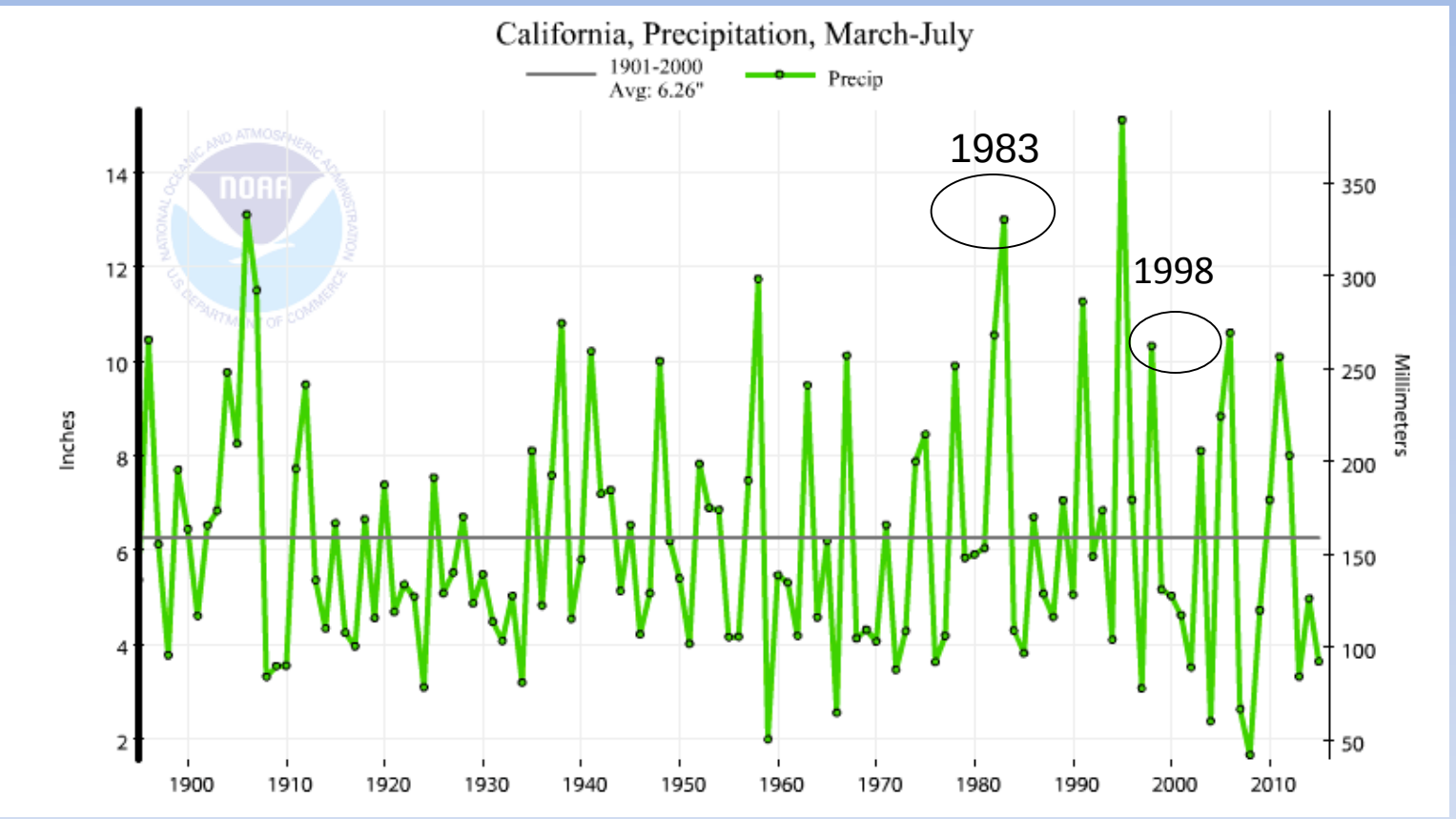
Official NOAA Outlook





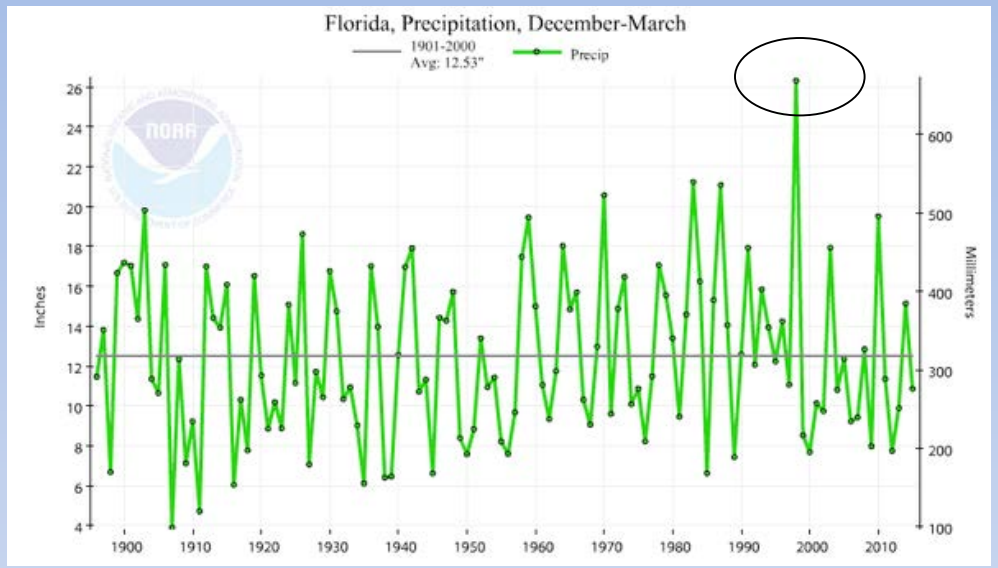
- NOAA's fall (Sept. – Nov.) and winter (Dec. – Feb.) outlooks
- Enhanced fall rainfall favored over entire southern U.S. consistent with El Nino
- Strong forecast for winter rainfall along Southern U.S., dry in Pacific NW.

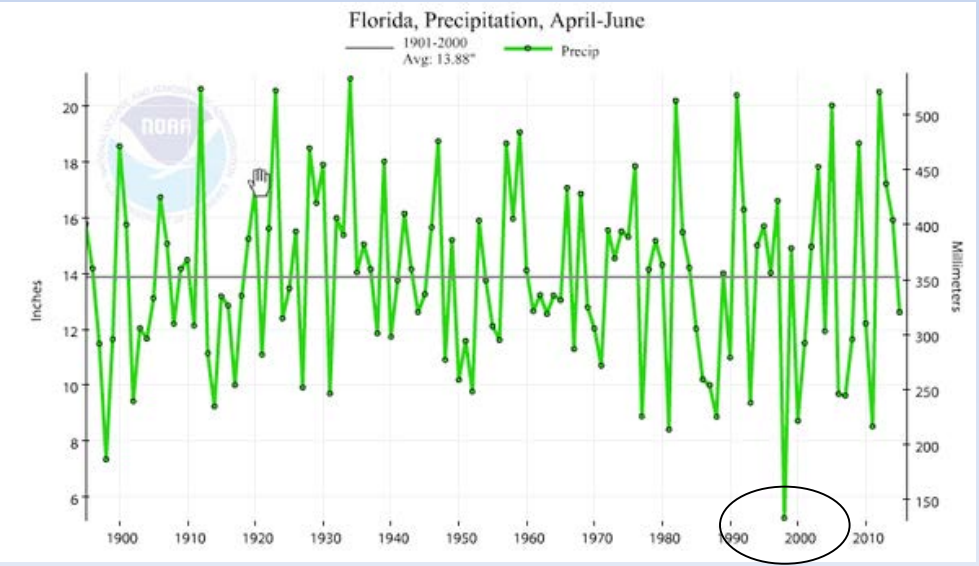
Will El Nino End California Drought?



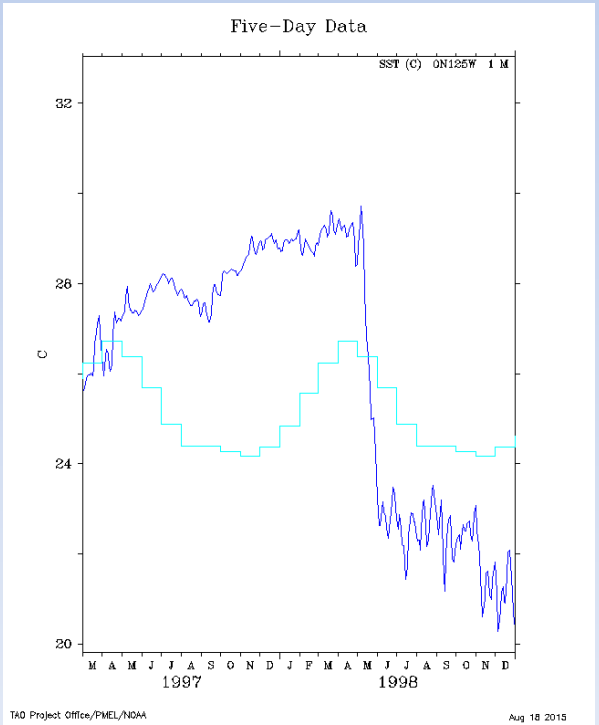
- "Super El Nino's" of 1982/83 and 1997/98 brought heavy rain totals, others not so much….
- Sufficient snowpack is also needed in the winter
- One good winter unlikely to make up 4 years of historic drought

Will 2016 in Florida Repeat 1998?





- Super El Nino of 1998 brought record winter rainfall to Florida
- April-June brought record dryness
- Over half million acres burned in worst wildfire season in memory



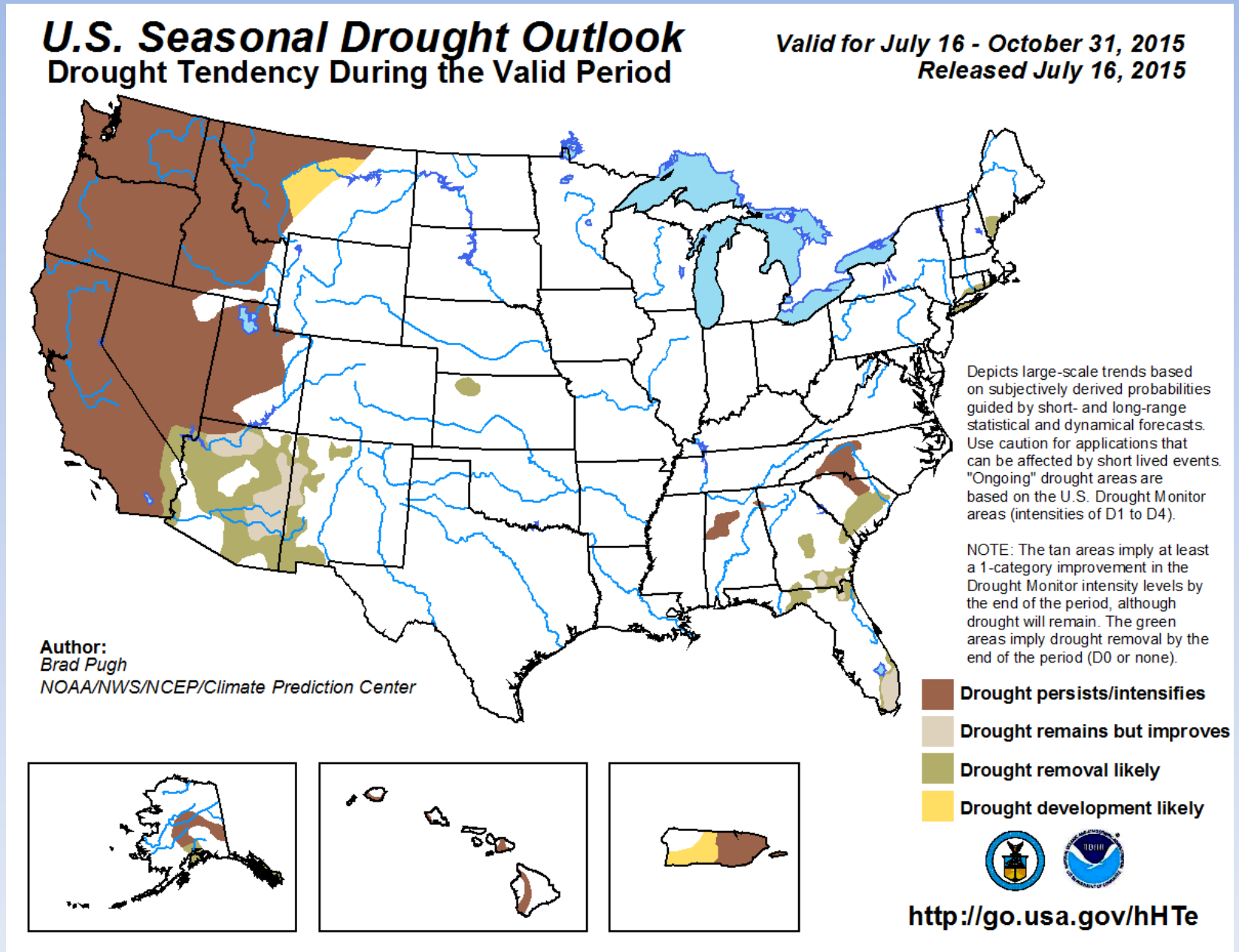
Atlantic Hurricane Outlook

NOAA Seasonal Outlook

70% chance of:

- 6-11 named storms
- 3-6 hurricanes
- 0-3 major hurricanes

U.S. Drought Outlook

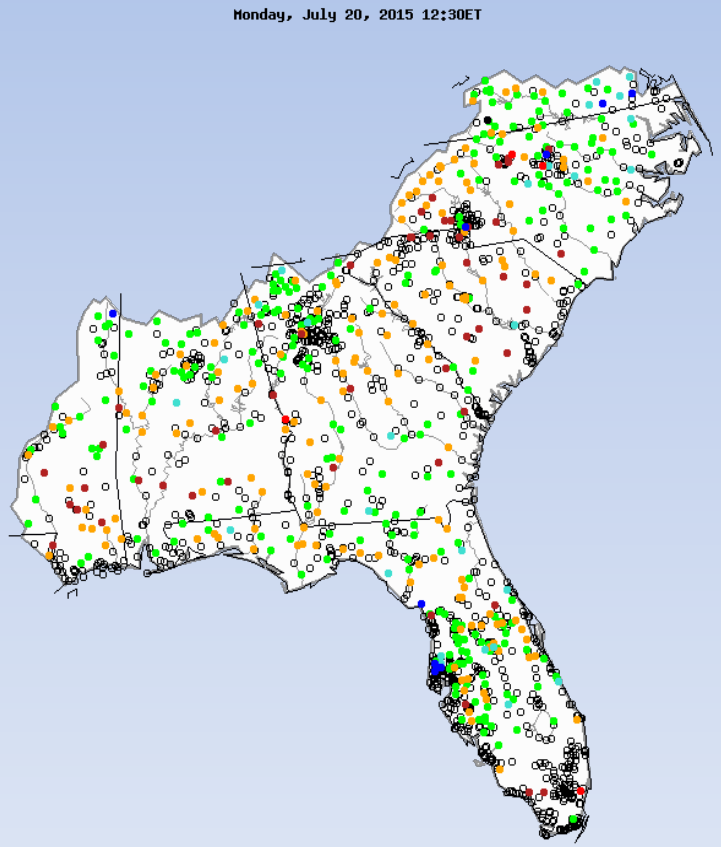


Streamflows and Groundwater

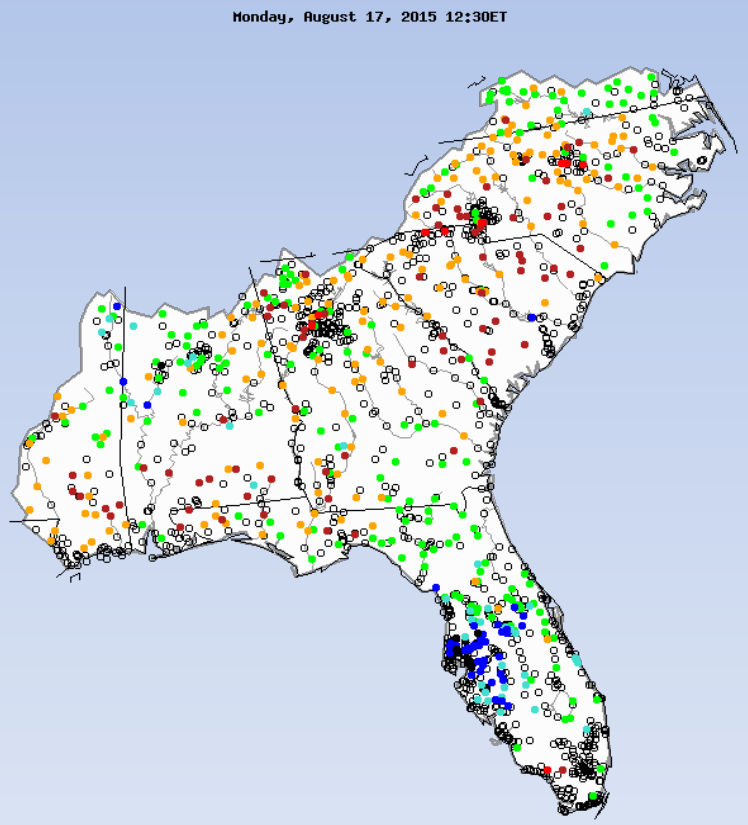
Tony Gotvald

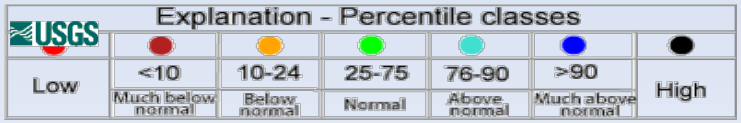
Realtime stream flow compared with historical monthly averages

Previous Brief:



Current:



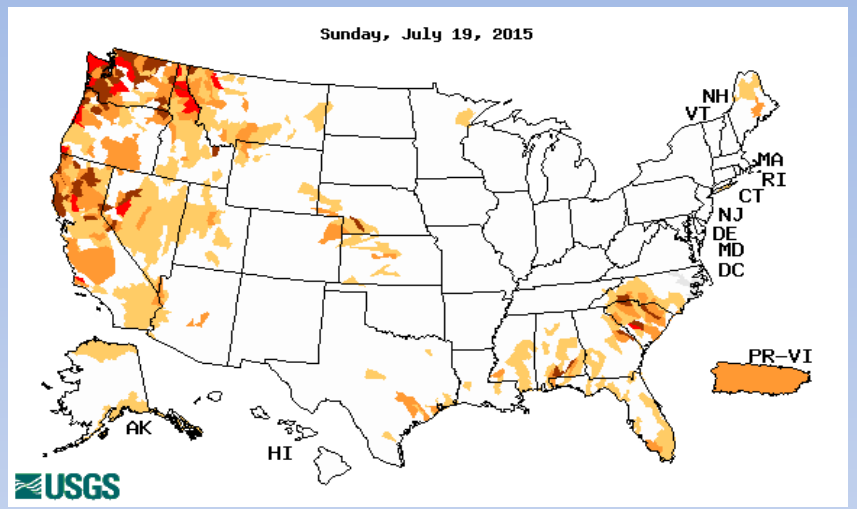


USGS

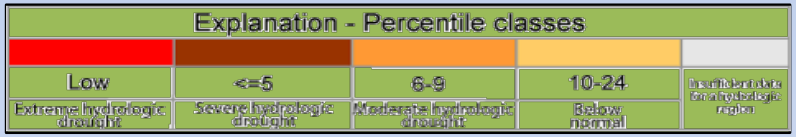
http://waterwatch.usgs.gov

Below Normal 7-day Average Streamflows

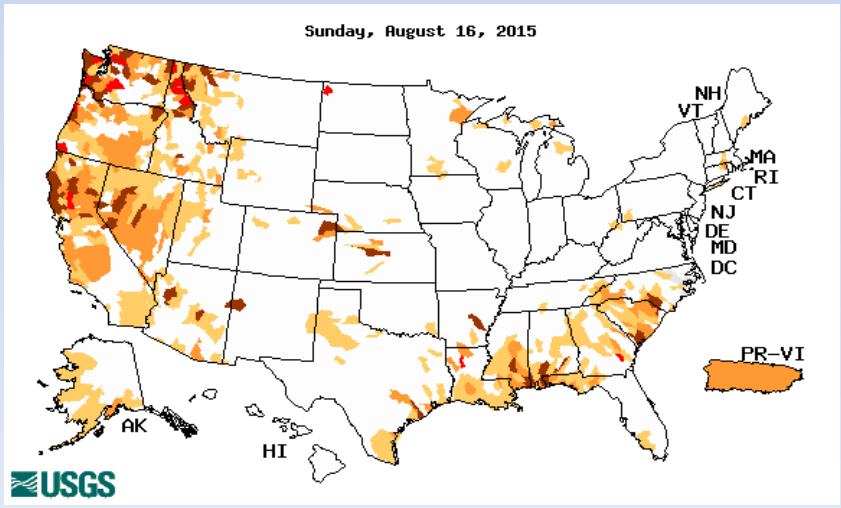
Previous brief:



Below normal 7-day average streamflow as compared with historical streamflow for day shown



Current:



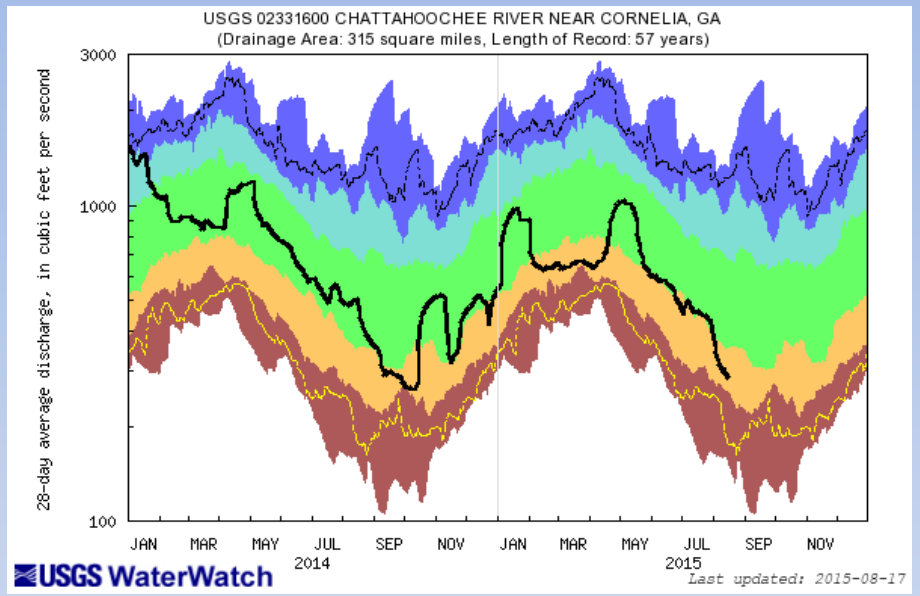
http://waterwatch.usgs.gov

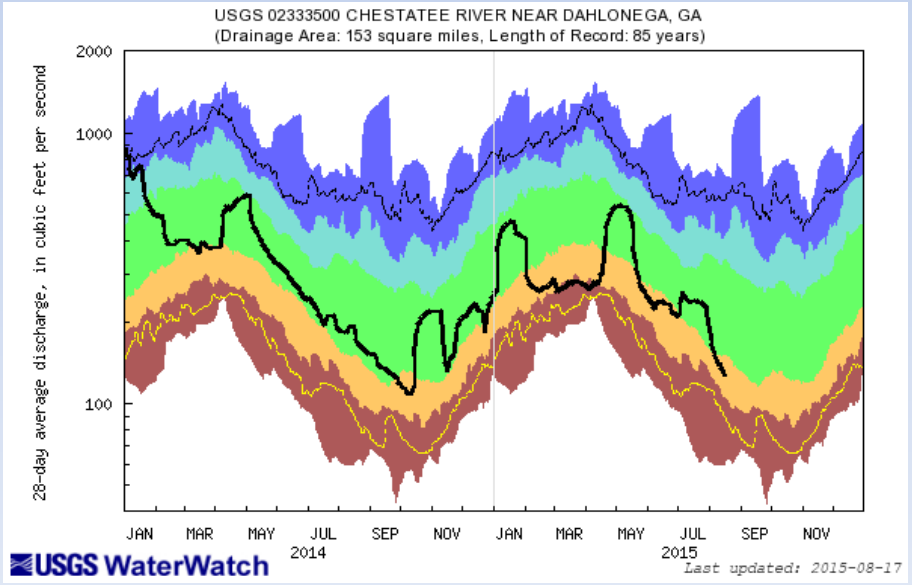
Lake Lanier Inflows

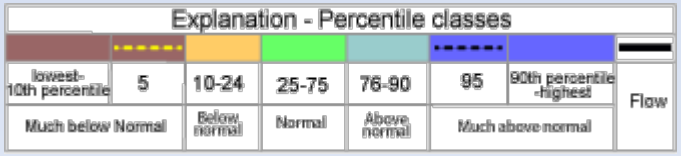
Chattahoochee near Cornelia (02331600)

http://waterwatch.usgs.gov

Chestatee near Dahlonega (02333500)





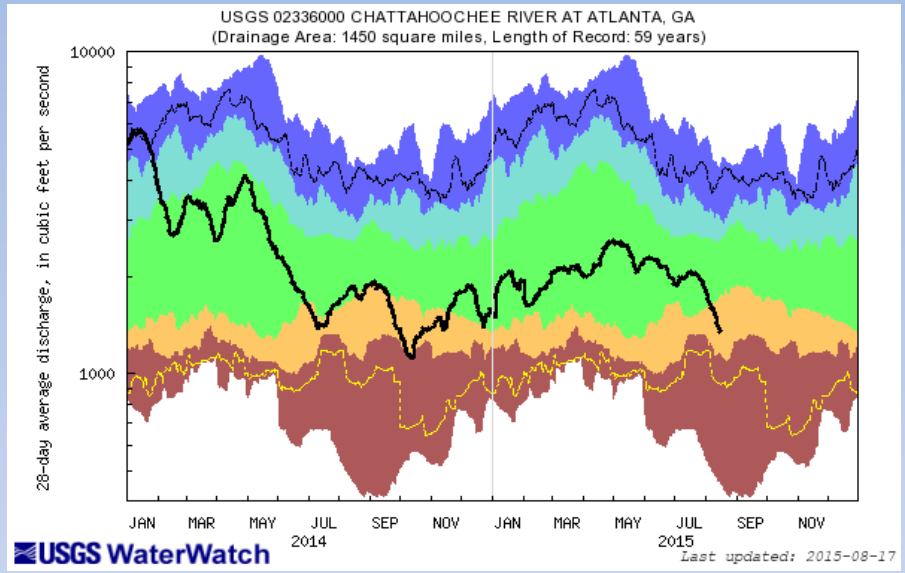


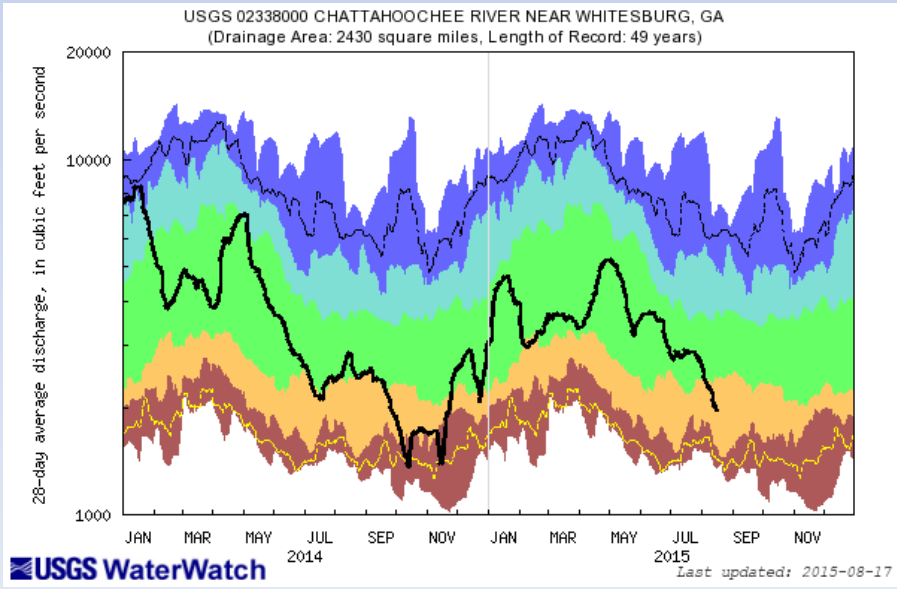
Current Streamflows

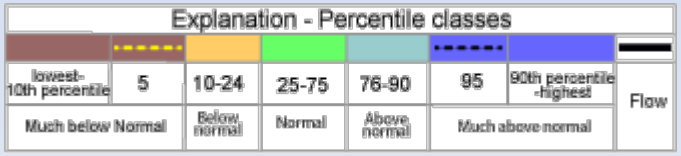
Chattahoochee at Atlanta (02336000)

http://waterwatch.usgs.gov

Chattahoochee near Whitesburg (02338000)





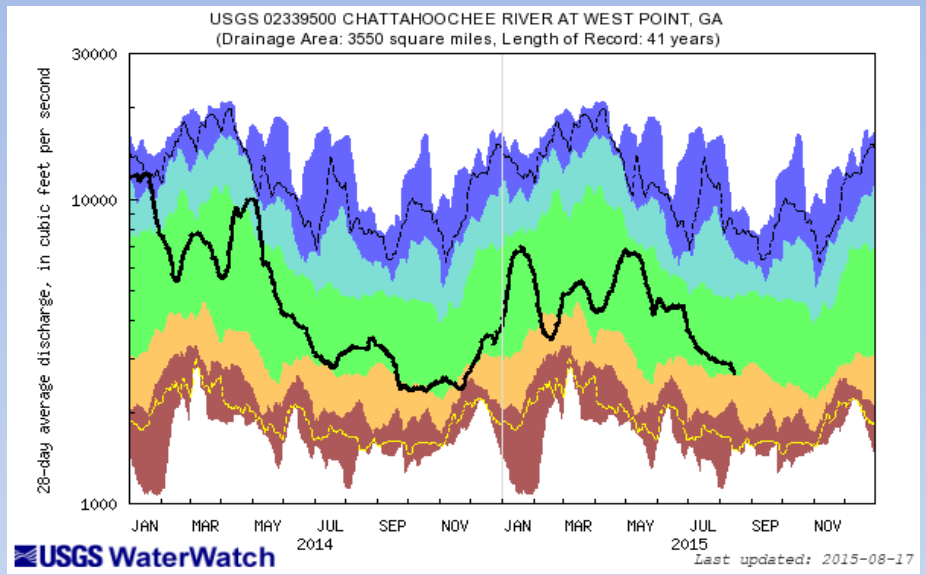


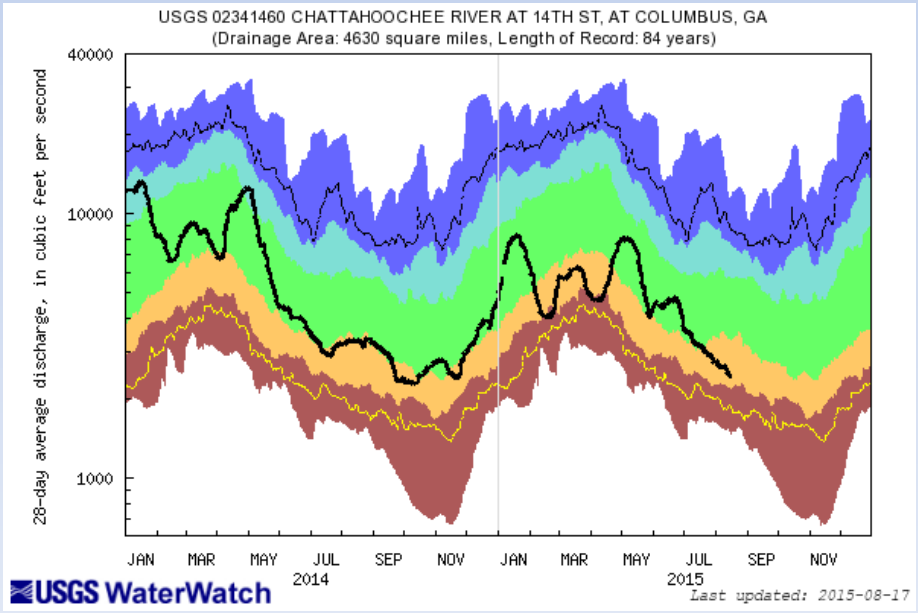
Current Streamflows

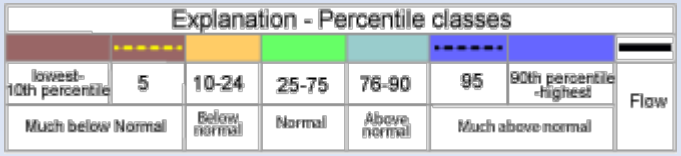
Chattahoochee at West Point (02339500)

http://waterwatch.usgs.gov

Chattahoochee at Columbus(02341460)





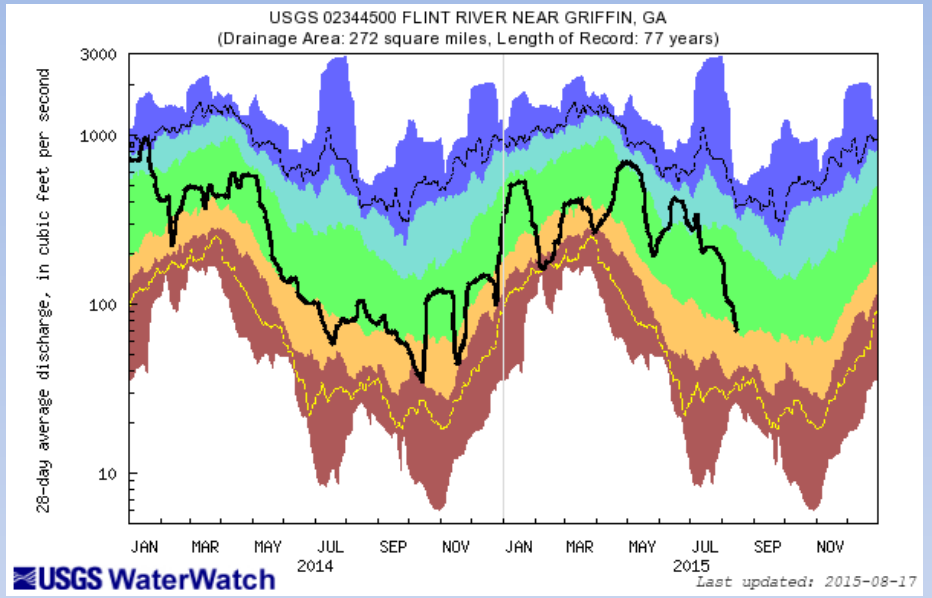


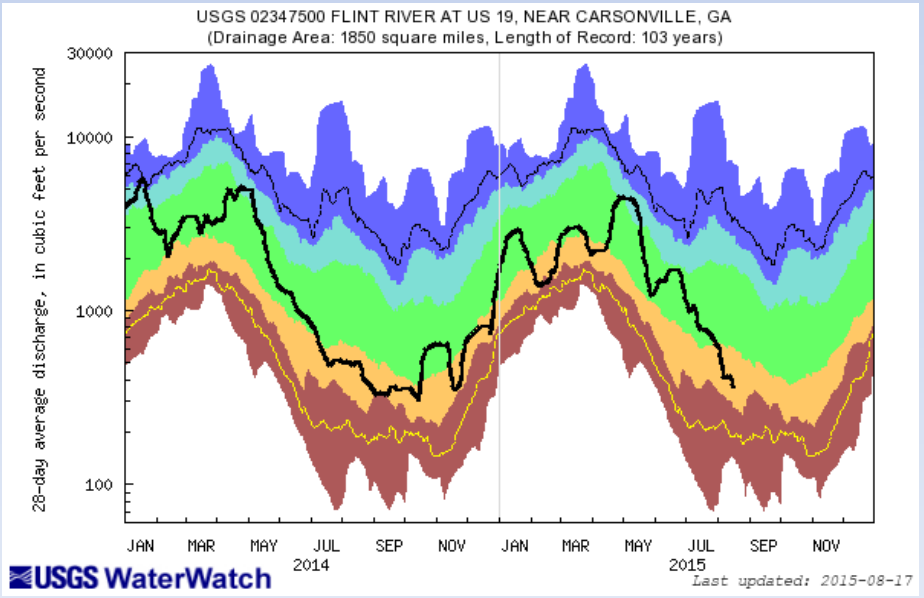
Current Streamflows

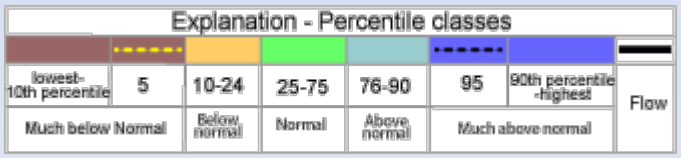
Flint River near Griffin (02344500)

http://waterwatch.usgs.gov

Flint River near Carsonville (02347500)





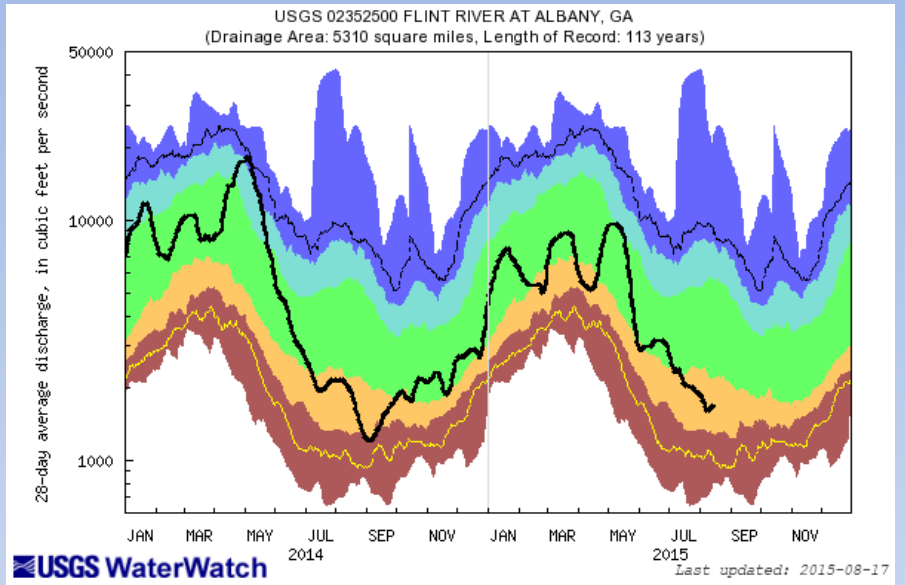


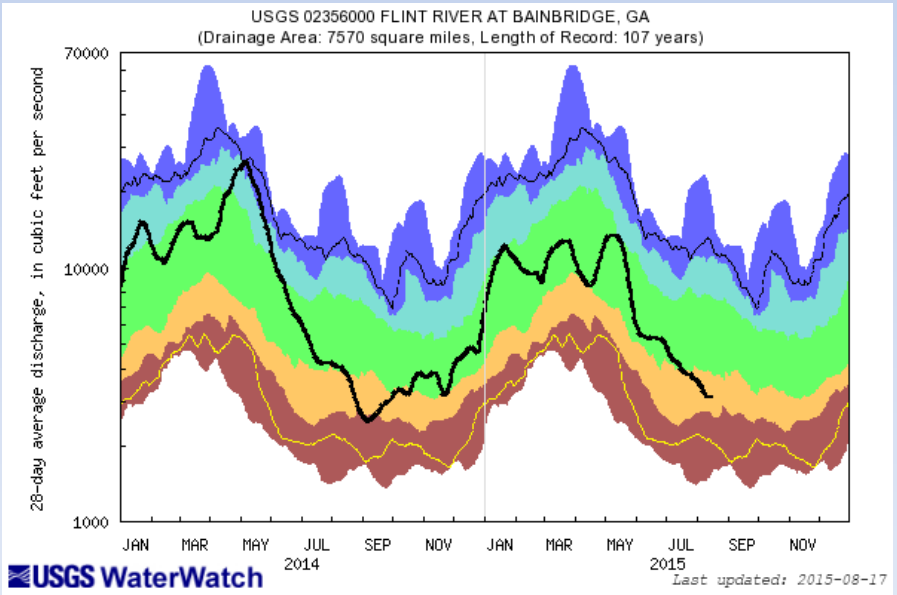
Current Streamflows

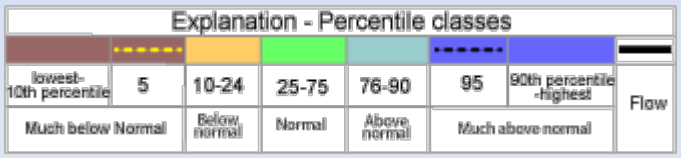
Flint River at Albany (02352500)

http://waterwatch.usgs.gov

Flint at Bainbridge (02356000)

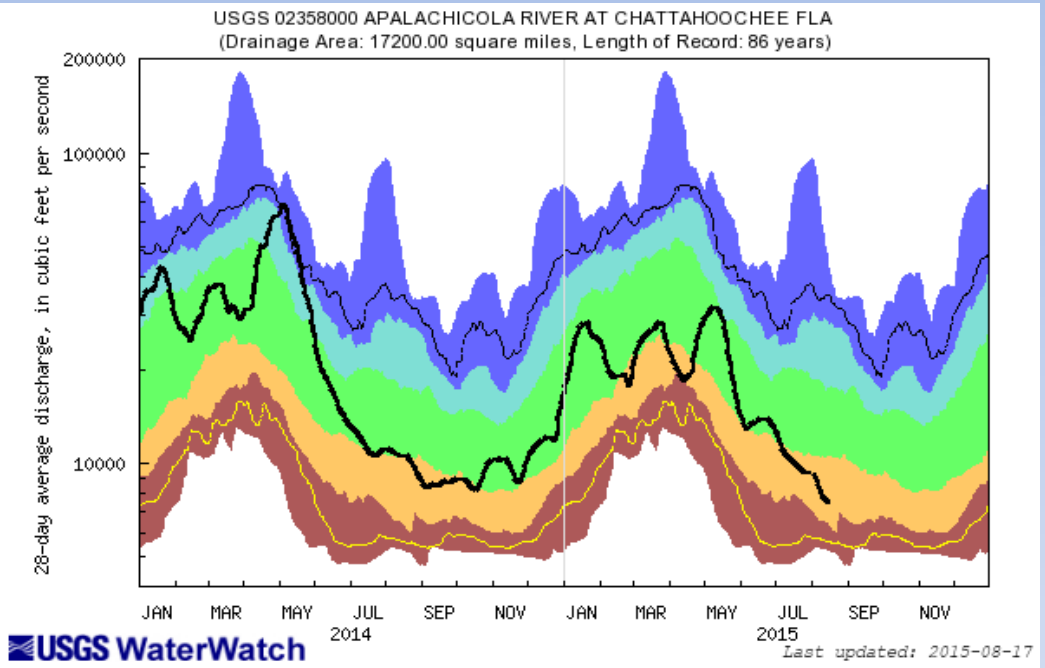


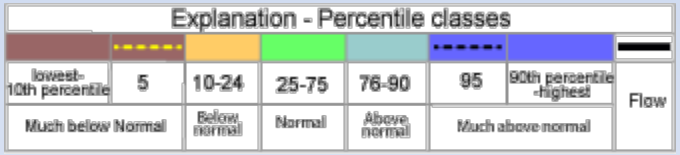




Streamflows

Apalachicola at Chattahoochee (02358000)





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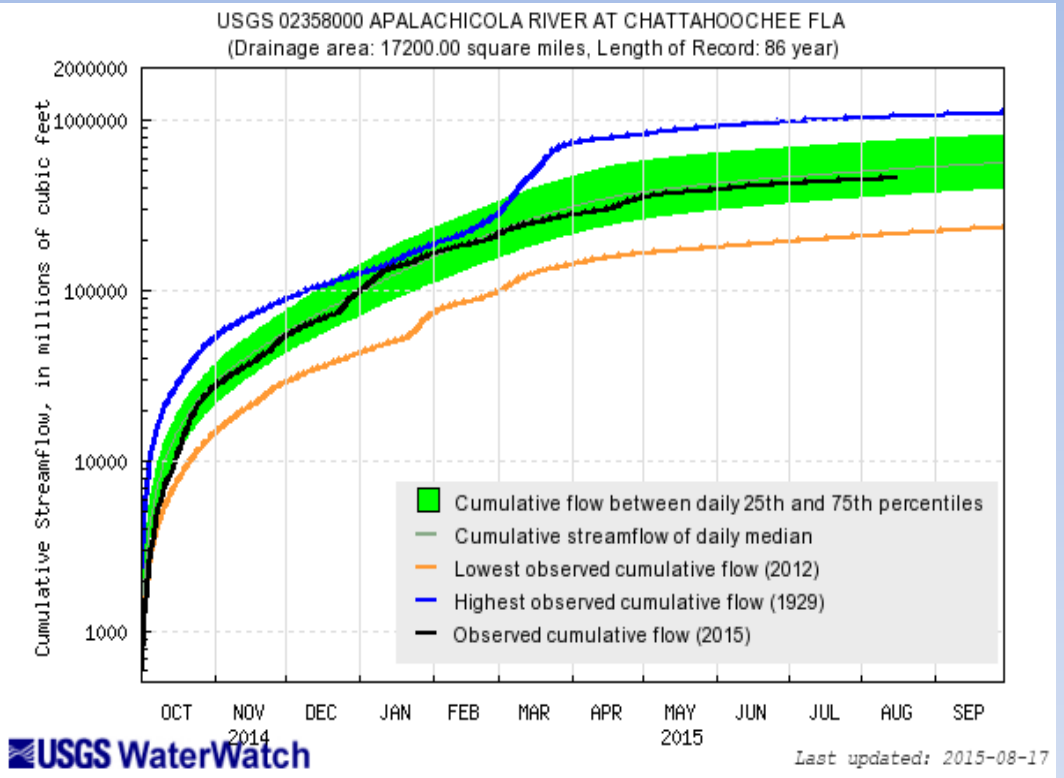
Streamflows

Apalachicola at Chattahoochee (02358000)



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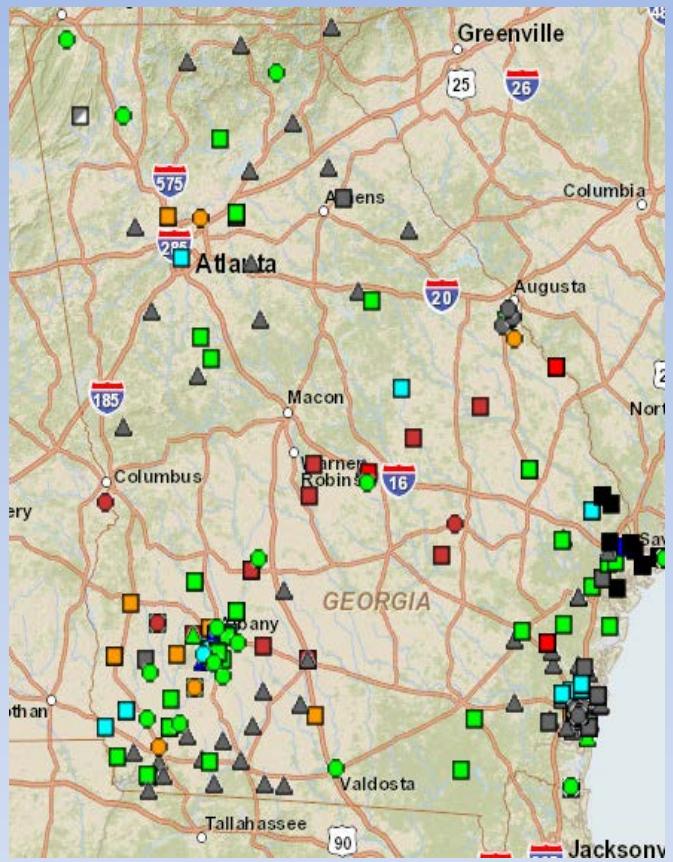
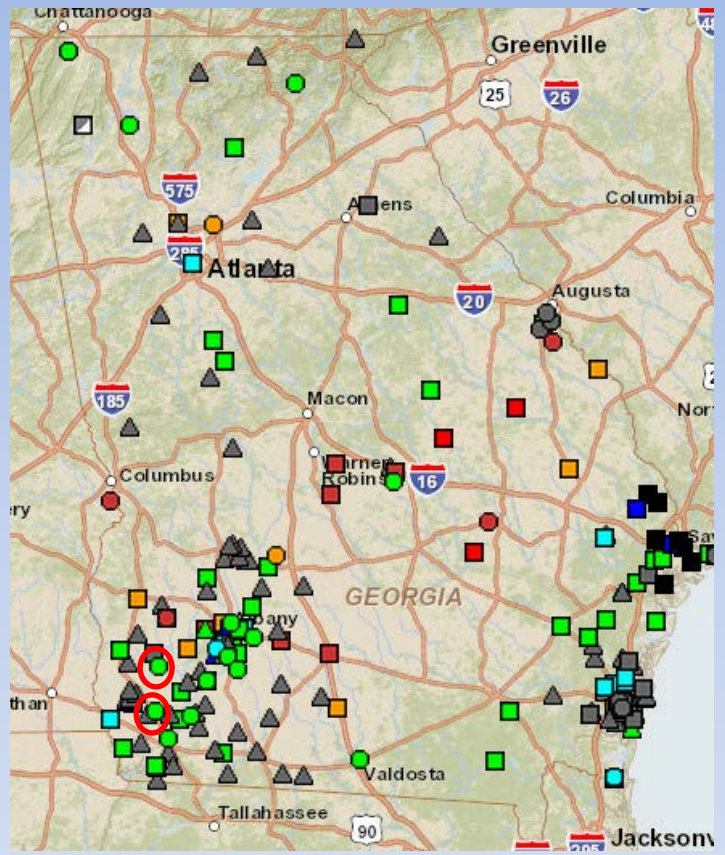
Groundwater Conditions



Previous brief



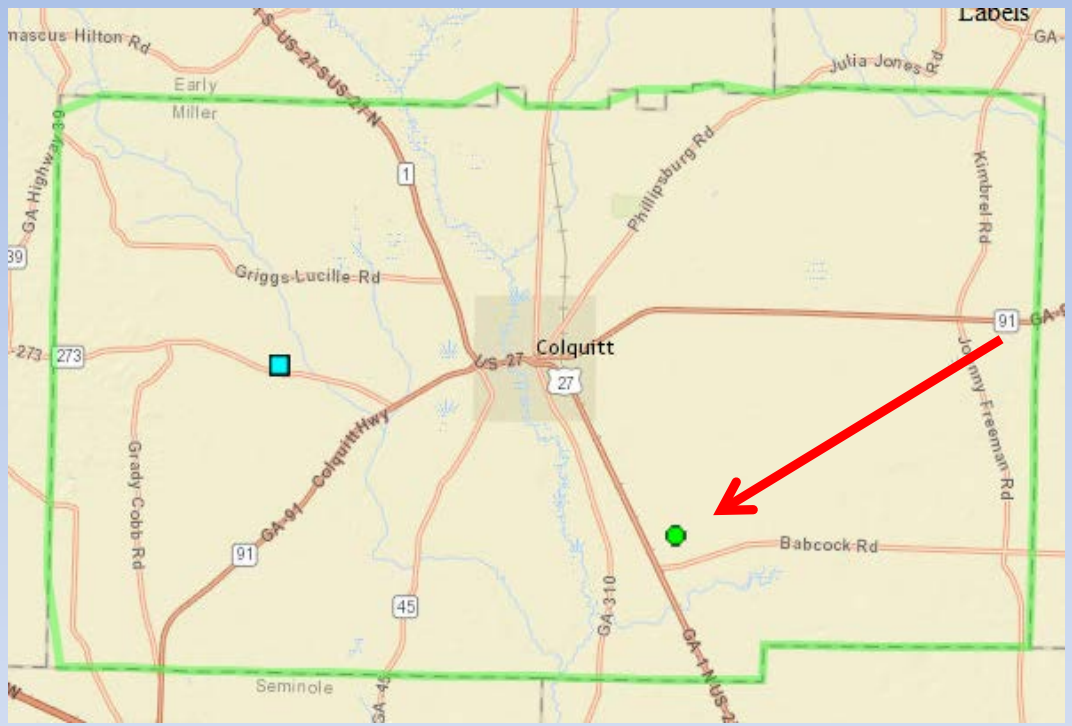
Current brief

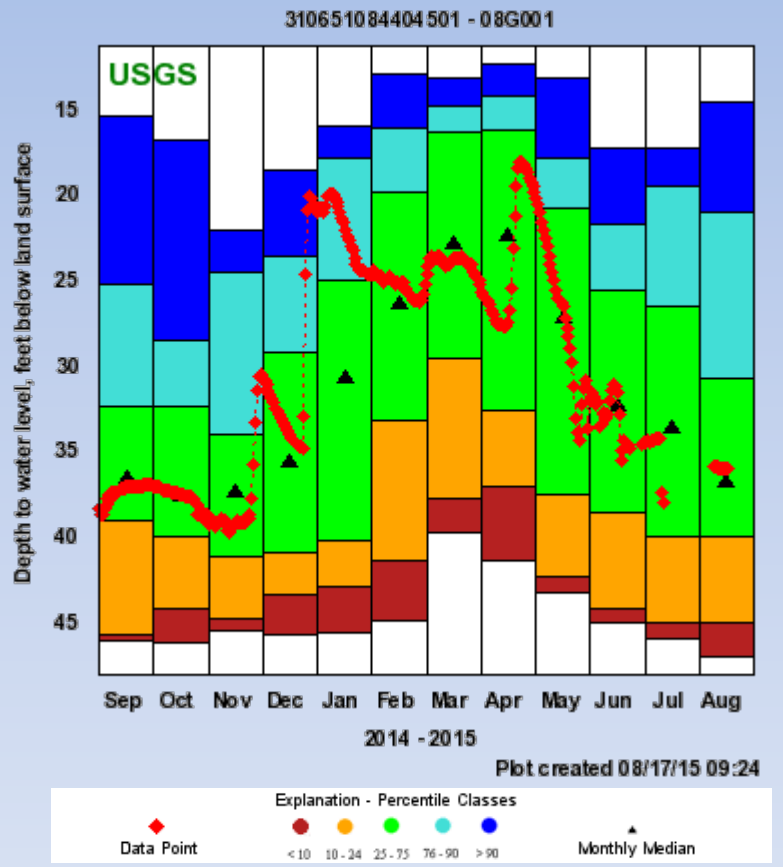
Explanation - Percentile classes (symbol color based on most recent measurement)							
Low	<10 Much Below Normal	10-24 Below Normal	25-75 Normal	76-90 Above Normal	>90 Much Above Normal	High	Not Ranked

Wells Springs
Real-Time
Continuous
Periodic Measurements

http://groundwaterwatch.usgs.gov

Groundwater Status – Miller County 08G001





Explanation - Percentile classes (symbol color based on most recent measurement)							
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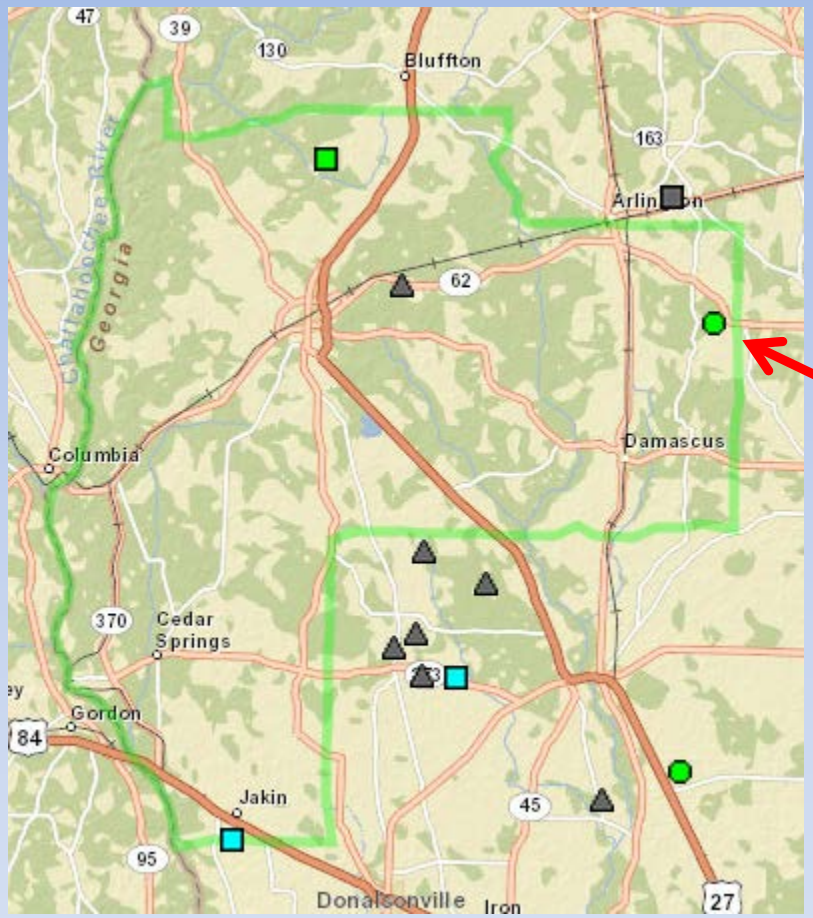
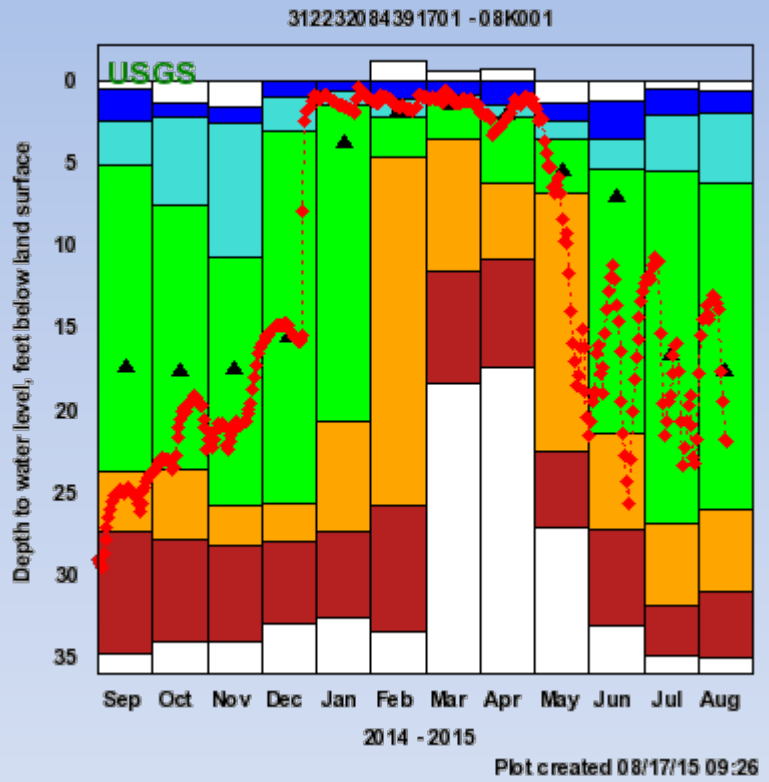
Wells	Springs
Real-Time	
Continuous	
Periodic Measurements	

(Upper Floridan Aquifer)

Groundwater Status – Early County 08K001





Explanation - Percentile classes (symbol color based on most recent measurement)							
Low	<10 Much Below Normal	10-24 Below Normal	25-75 Normal	76-90 Above Normal	>90 Much Above Normal	High	Not Ranked

Wells	Springs
Real-Time	
Continuous	
Periodic Measurements	

(Upper Floridan Aquifer)

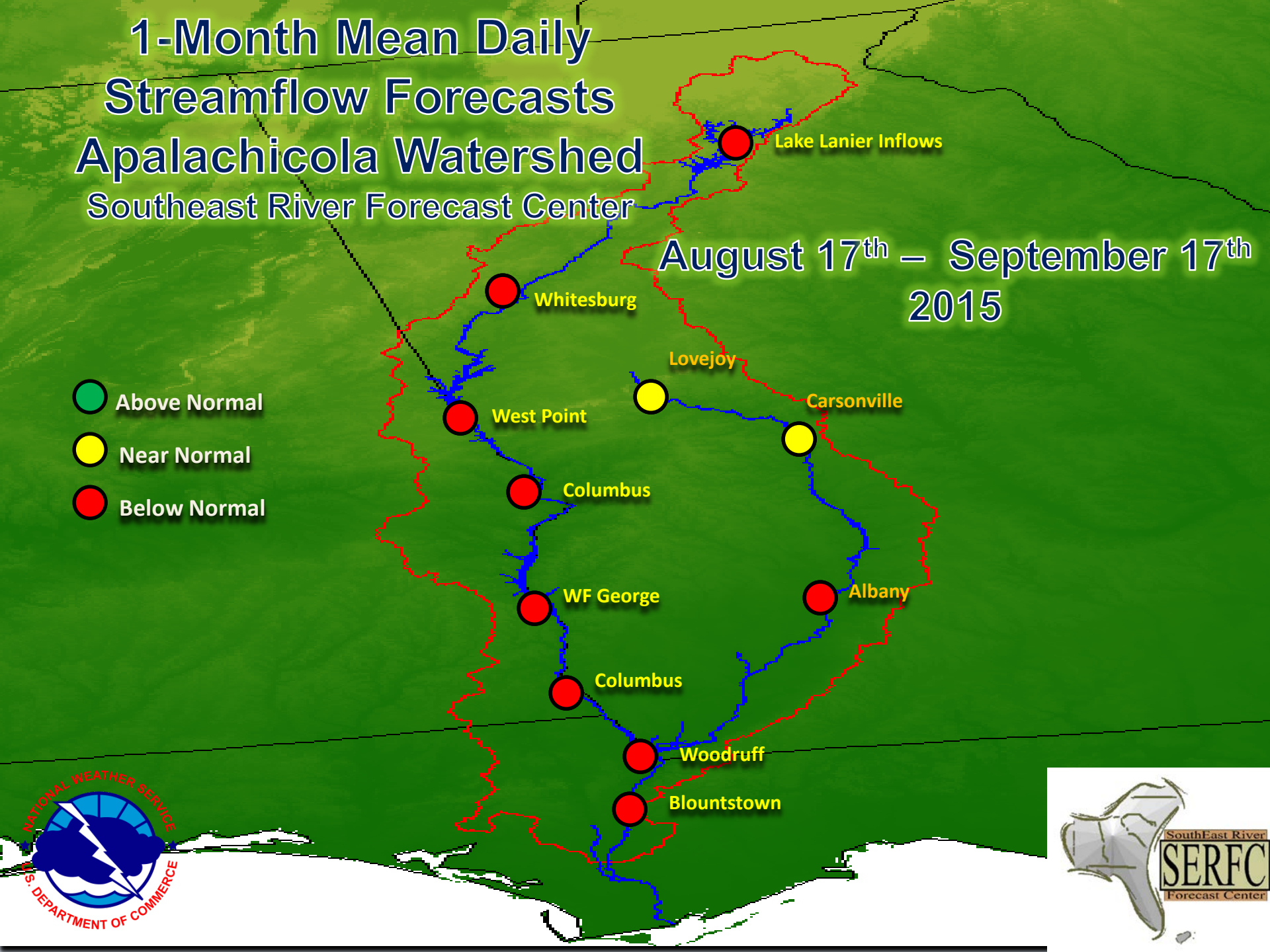
Streamflow Forecasts

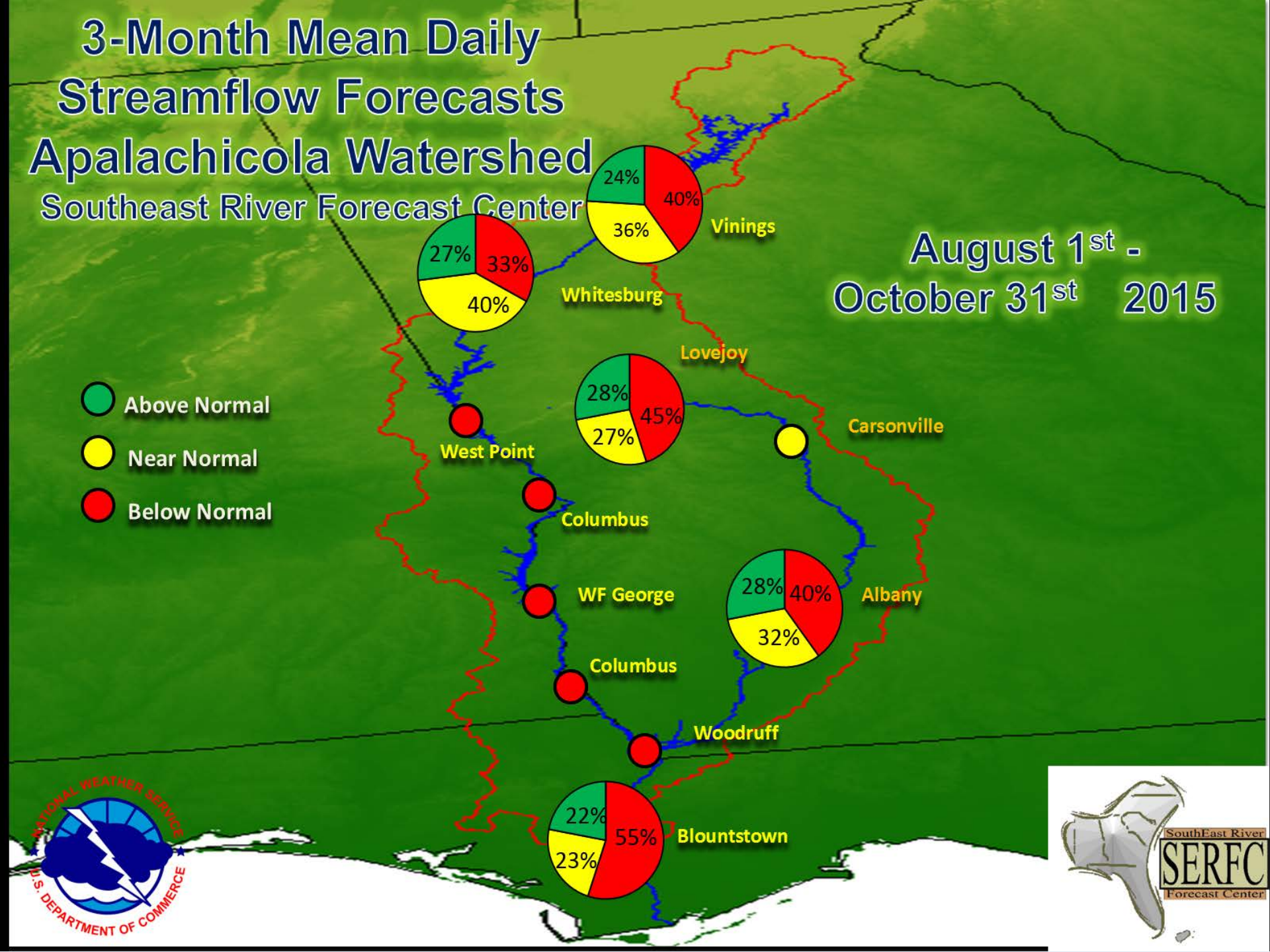
Todd Hamill

1-Month Mean Daily Streamflow Forecasts Apalachicola Watershed

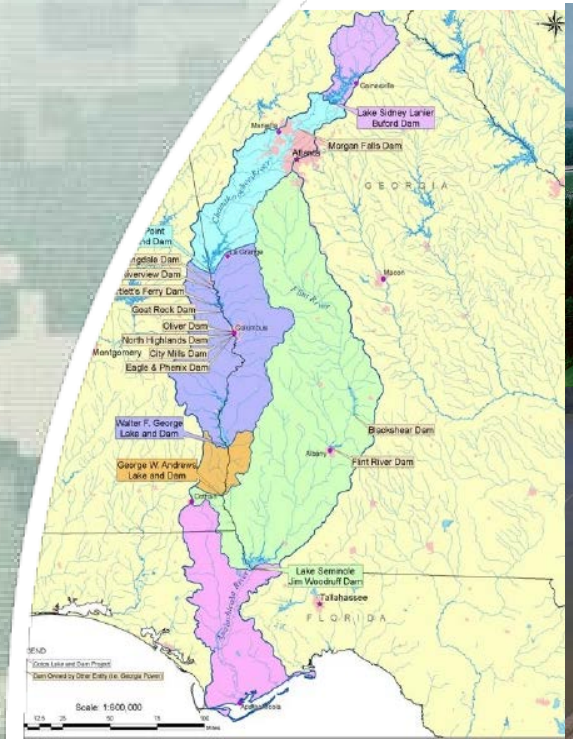
Southeast River Forecast Center

August 17th – September 17th 2015

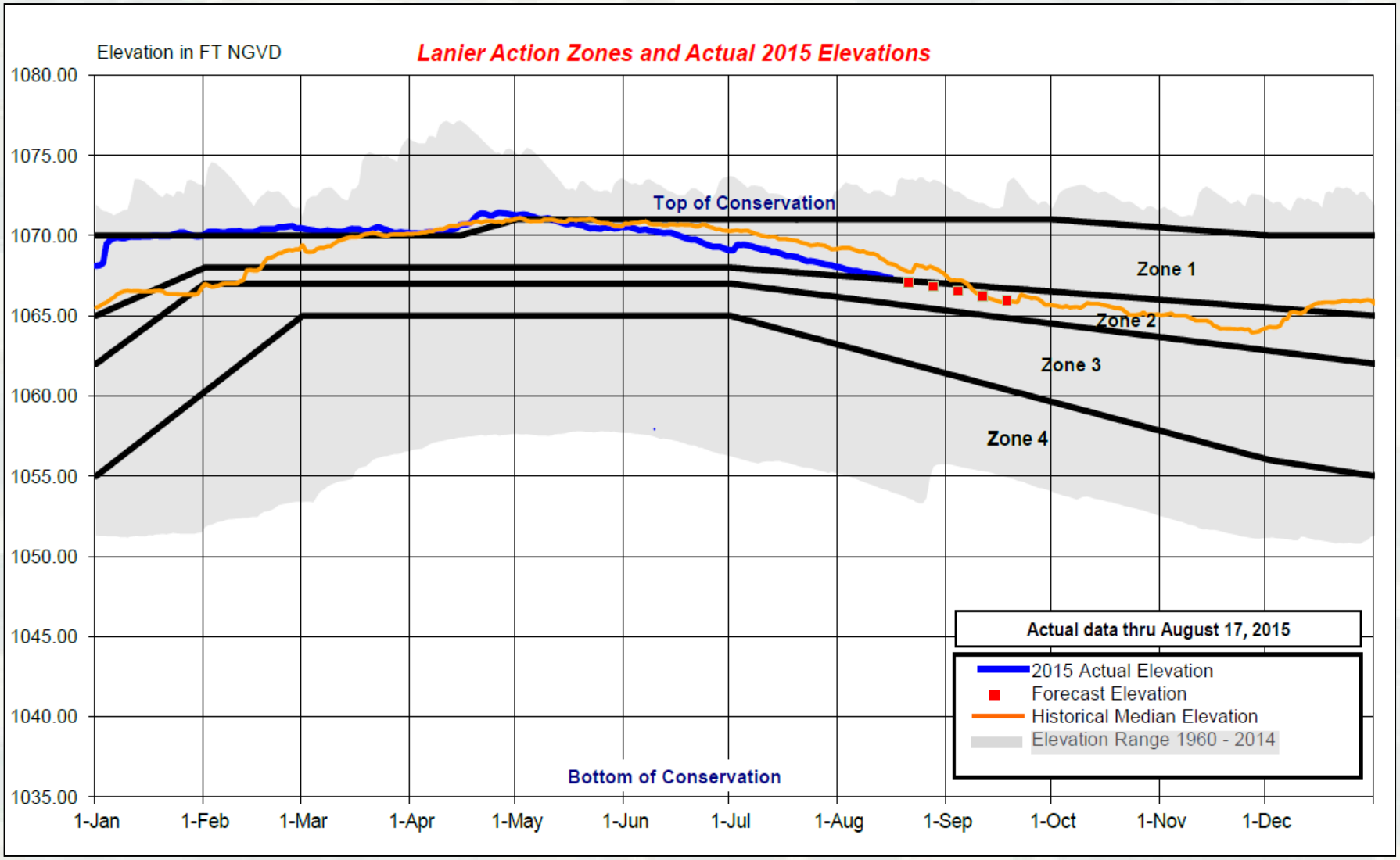


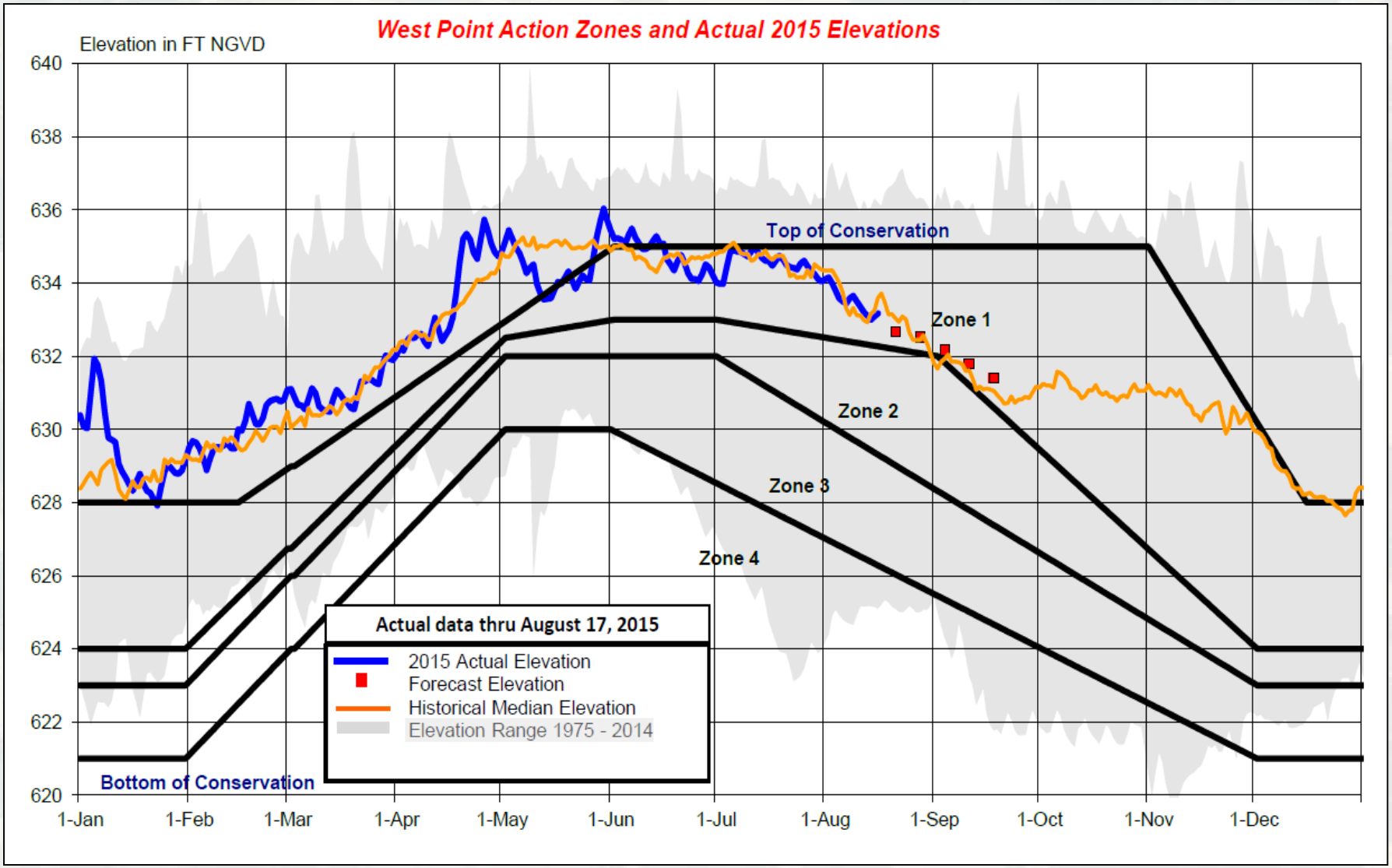

3-Month Mean Daily
Streamflow Forecasts
Apalachicola Watershed
Southeast River Forecast Center
August 1st -
October 31st 2015
Above Normal
Near Normal
Below Normal
24%
40%
36%
Vinings
27%
33%
40%
Whitesburg
Lovejoy
28%
45%
27%
West Point
Carsonville
Columbus
WF George
28%
40%
32%
Albany
Columbus
Woodruff
22%
55%
23%
Blountstown
NATIONAL WEATHER SERVICE
U.S. DEPARTMENT OF COMMERCE
SouthEast River
SERFC
Forecast Center

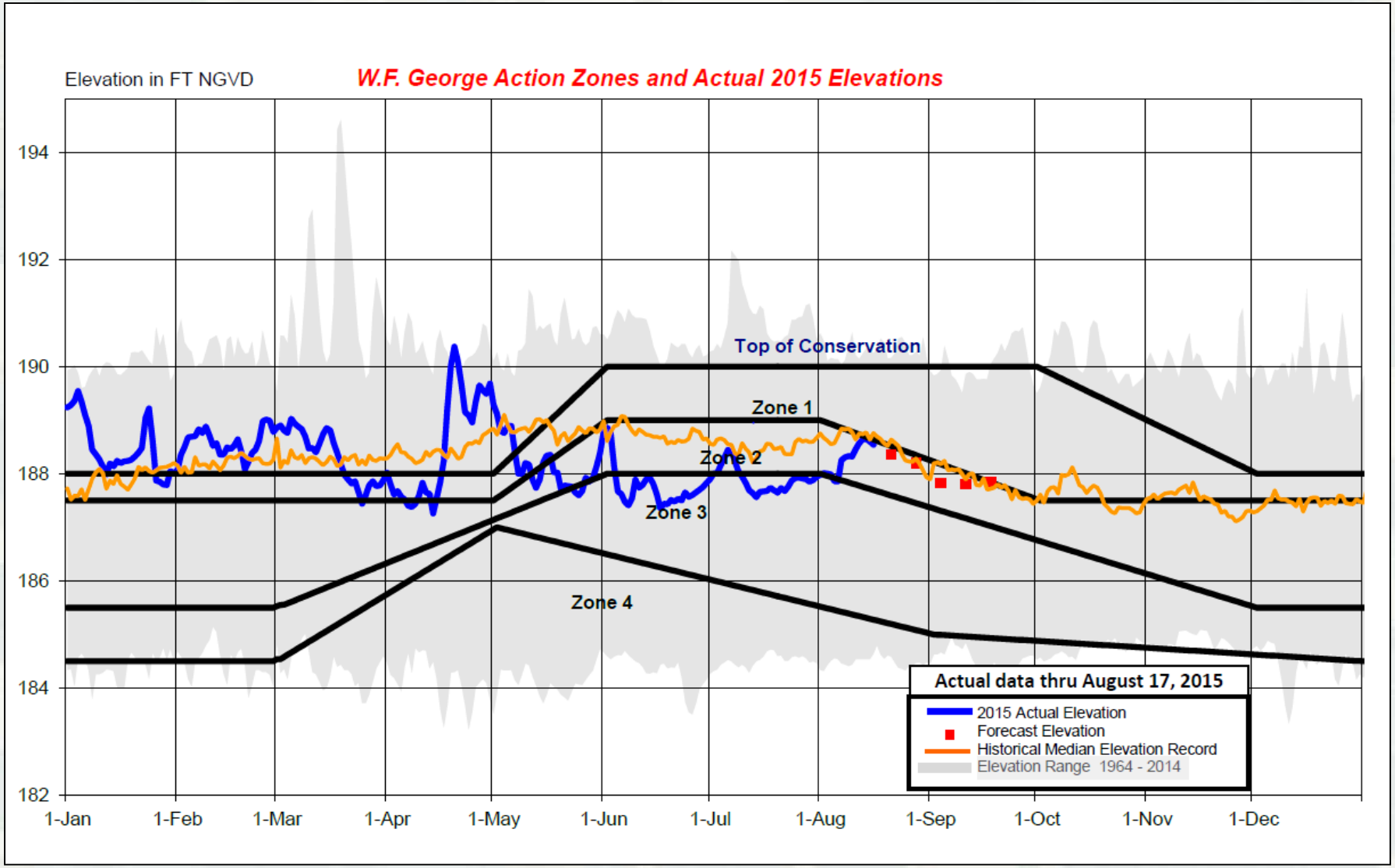
USACE – ACF Reservoir Conditions August 18th 2015

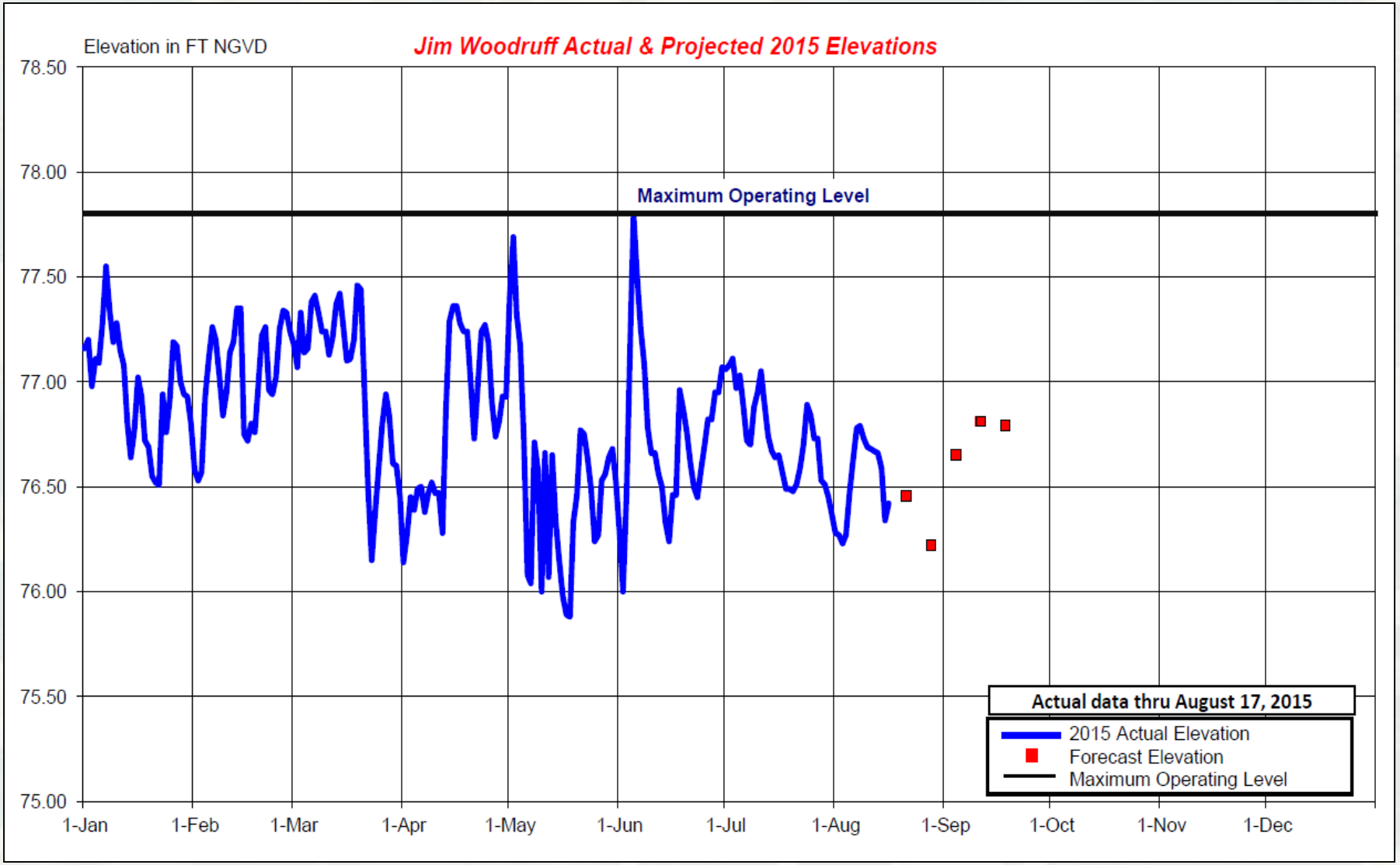


Bailey Crane

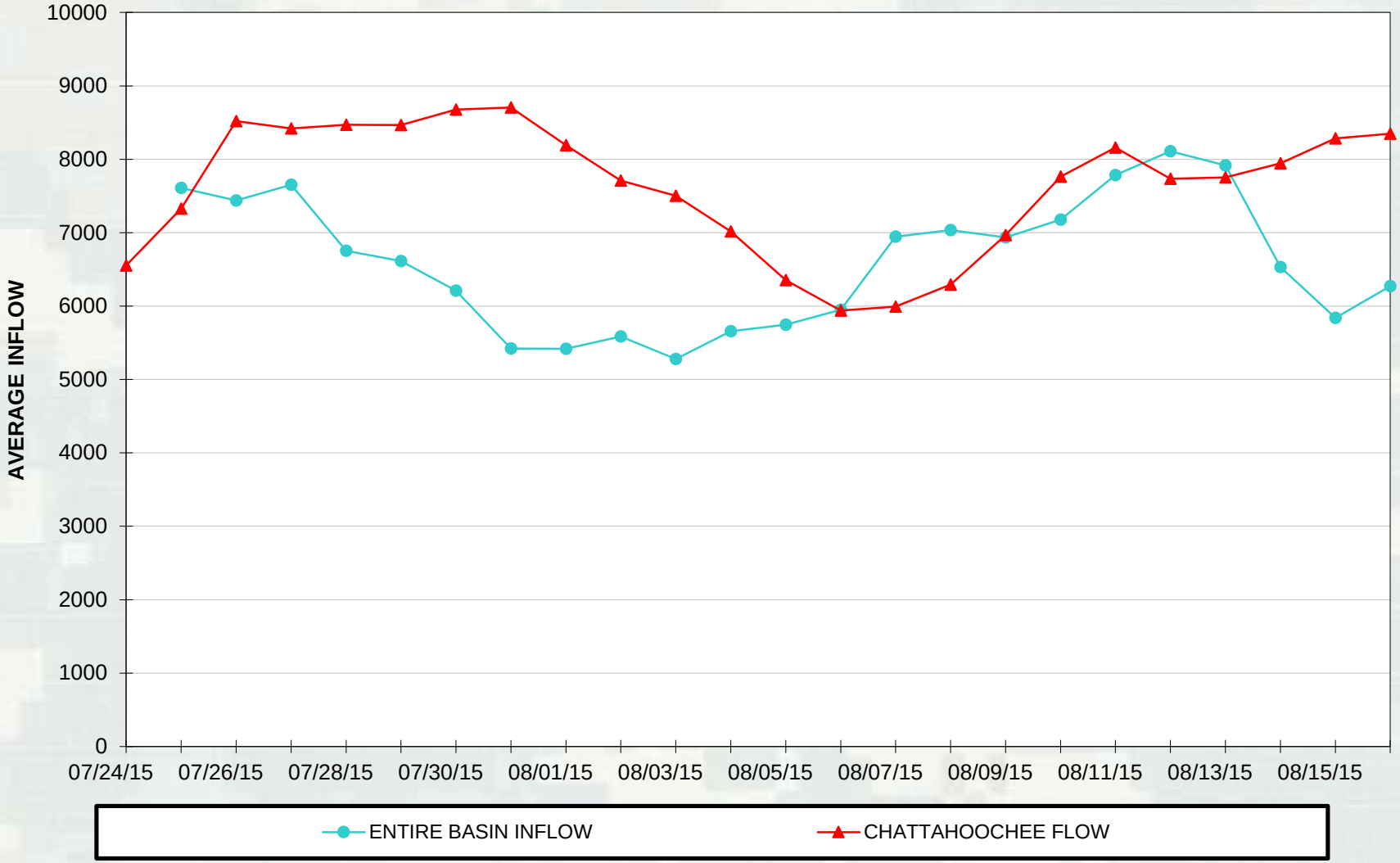

Elevation in FT NGVD
Lanier Action Zones and Actual 2015 Elevations
1080.00
1075.00
1070.00
1065.00
1060.00
1055.00
1050.00
1045.00
1040.00
1035.00
Top of Conservation
Zone 1
Zone 2
Zone 3
Zone 4
Bottom of Conservation
Actual data thru August 17, 2015
2015 Actual Elevation
Forecast Elevation
Historical Median Elevation
Elevation Range 1960 - 2014
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec

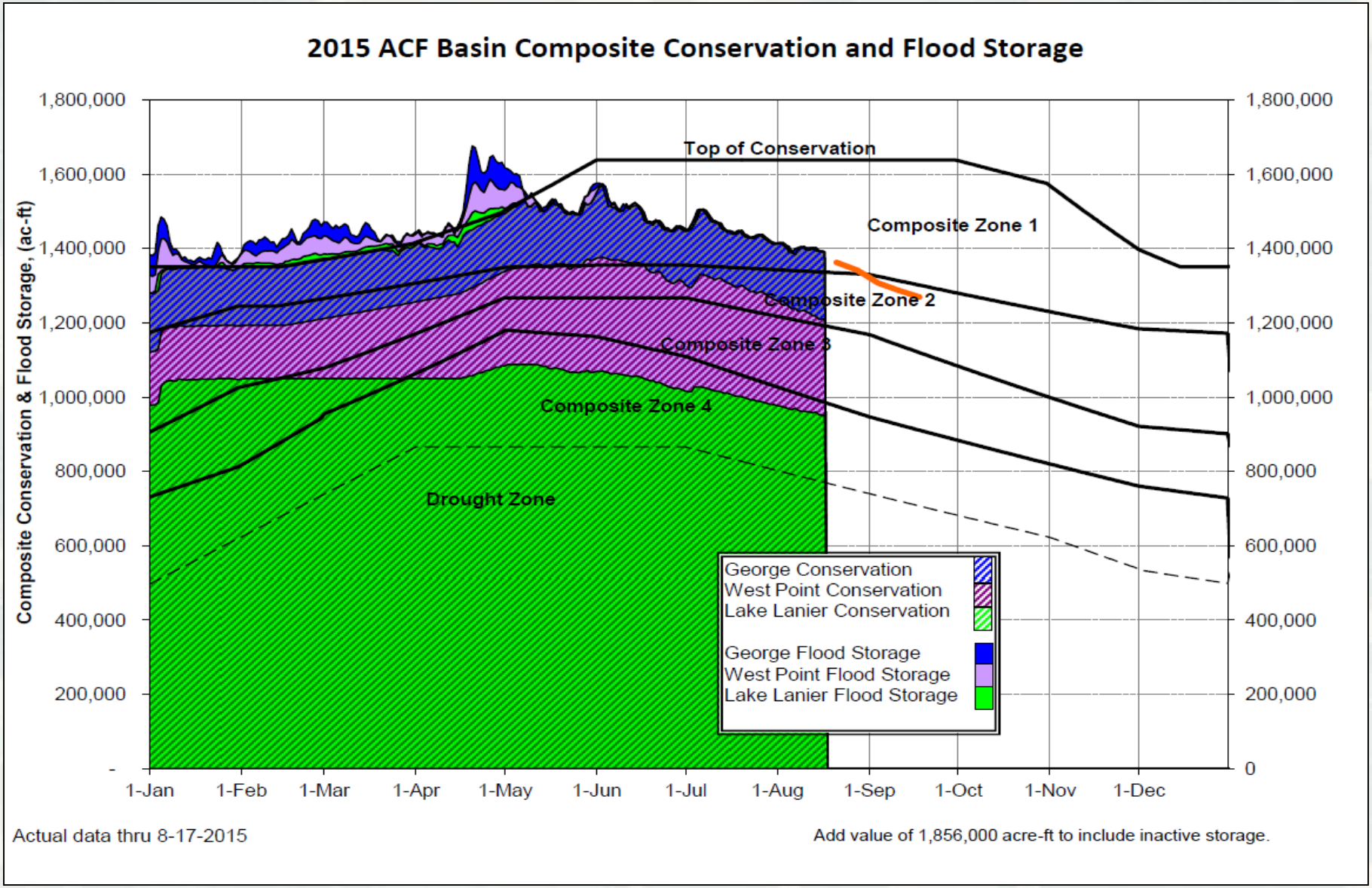

West Point Action Zones and Actual 2015 Elevations
Elevation in FT NGVD
640
638
636
634
632
630
628
626
624
622
620
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec
Top of Conservation
Zone 1
Zone 2
Zone 3
Zone 4
Bottom of Conservation
Actual data thru August 17, 2015
2015 Actual Elevation
Forecast Elevation
Historical Median Elevation
Elevation Range 1975 - 2014


Elevation in FT NGVD
W.F. George Action Zones and Actual 2015 Elevations
194
192
190
188
186
184
182
Top of Conservation
Zone 1
Zone 2
Zone 3
Zone 4
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec
Actual data thru August 17, 2015
2015 Actual Elevation
Forecast Elevation
Historical Median Elevation Record
Elevation Range 1964 - 2014


Elevation in FT NGVD
Jim Woodruff Actual & Projected 2015 Elevations
78.50
78.00
77.50
77.00
76.50
76.00
75.50
75.00
Maximum Operating Level
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec
Actual data thru August 17, 2015
2015 Actual Elevation
Forecast Elevation
Maximum Operating Level

7-DAY MOVING AVERAGE INFLOW VERSUS 1-DAY CHATTAHOOCHEE FLOW




2015 ACF Basin Composite Conservation and Flood Storage
Composite Conservation & Flood Storage, (ac-ft)
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
-
Top of Conservation
Composite Zone 1
Composite Zone 2
Composite Zone 3
Composite Zone 4
Drought Zone
George Conservation
West Point Conservation
Lake Lanier Conservation
George Flood Storage
West Point Flood Storage
Lake Lanier Flood Storage
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec
Actual data thru 8-17-2015
Add value of 1,856,000 acre-ft to include inactive storage.

Alabama Drought Conditions

Tom Littlepage

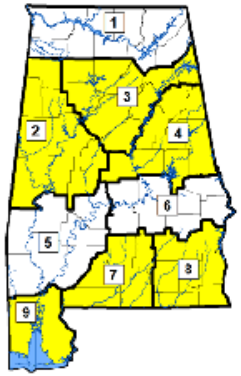
Current Alabama Drought Declaration

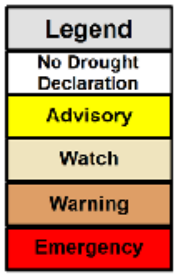
Release Date: August 5, 2015

For Public Dissemination
Alabama Drought Declarations

In accordance with the Alabama Drought Planning and Response Act (Code of Ala. 1975, §9-10C-1, et seq.) and the Alabama Drought Management Plan, the ADECA Office of Water Resources (OWR), based on a review of current and anticipated conditions, has declared the following portions of Alabama to be under the specified drought declaration levels.

Declaration	Region(s) Impacted
Emergency	None
Warning	None
Watch	None
Advisory	Regions 2, 3, 4, 7, 8, and 9 in the Alabama Drought Management Plan which includes the counties of: Baldwin, Barbour, Bibb, Blount, Butler, Calhoun, Chambers, Cherokee, Chilton, Clay, Cleburne, Coffee, Conecuh, Coosa, Covington, Crenshaw, Cullman, Dale, Escambia, Etowah, Fayette, Geneva, Greene, Hale, Henry, Houston, Jefferson, Lamar, Marion, Mobile, Perry, Pickens, Pike, Randolph, Shelby, St. Clair, Sumter, Talladega, Tallapoosa, Tuscaloosa, Walker, and Winston.
None	Regions 1, 5, and 6 in the Alabama Drought Management Plan which includes the counties of: Autauga, Bullock, Choctaw, Clarke, Colbert, Dallas, DeKalb, Elmore, Franklin, Jackson, Lauderdale, Lawrence, Lee, Limestone, Lowndes, Macon, Madison, Marengo, Marshall, Monroe, Montgomery, Morgan, Russell, Washington, and Wilcox.





The higher temperatures and limited rainfall for this time of year continue to cause dry conditions. Reservoir levels are beginning to dip due to decreasing inflows. As a result of these conditions, Drought Region 4 was added to the Advisory level. Public water system managers and other non-public and private water users should carefully monitor water conditions. The OWR will regularly assess conditions and modify this drought declaration as needed.

- Next Alabama Monitoring and Impact Group (MIG) meeting – August 25, 2015 at 1 PM (CST)
- POC:

  Tom Littlepage

  Email: Tom.Littlepage@adeca.alabama.gov

  Phone: (334) 242-5697

Summary - David Zierden

- Entering the period of peak water demand for most row crops.
- Mostly normal rainfall the past 30-90 days for upper and middle ACF, below normal in the lower basin.
- Parts of the middle and lower ACF designated as Abnormally Dry and moderate drought by the *US Drought Monitor.*
- El Nino continues to strengthen, reaching “very strong” level.
- NOAA and European Center models forecast near-record El Nino.
- CPC fall and winter outlooks favor pattern of above normal rainfall for all the Southern U.S., strongly favors above normal in the winter.
- Strong El Nino, could bring some relief to California, unlikely to end the drought.
- Repeat of 1998 drought in Florida is not likely, but should be monitored closely.

Summary-Tony Gotvald

- Realtime streamflows are in the below normal range for most of the ACF basin.
- 28-day average streamflows into Lake Lanier are in the below normal range.
- 28-day average streamflows are in the below normal range for most of the Flint River basin.
- Groundwater levels are in the normal range in Southwest Georgia.

Summary- Todd Hamill

- 1 Month Streamflow forecast - Near to Below Normal.
- 3 Month Streamflow forecast – Dryness has set probabilities to near to below normal range.
- Pie Charts do not consider any future forecast such as ENSO, CPC or other. Based on soil conditions relative to normal in concert with historical precipitation.

Summary – Bailey Crane

- Things have dried up but reservoir levels are near normal for this time of year.
- All reservoirs are expected to remain near normal into September.
- System conservation storage has crossed into zone 2. Very few changes occur in zone 2.
- Its very unlikely that any USACE drought trigger will be reached this year.

Questions, Comments, Discussion

References

Speakers

David Zierden, FSU

Tony Gotvald, USGS

Todd Hamill, SERFC

Bailey Crane, US Army Corps of Engineers

Tom Littlepage, AL OWR

Moderator

Eric Reutebuch, AU WRC

Additional information

- General drought information

  http://drought.gov
  http://www.drought.unl.edu

- General climate and El Niño information

  http://agroclimate.org/climate/

- Streamflow monitoring & forecasting

  http://waterwatch.usgs.gov
  http://www.srh.noaa.gov/serfc/

- Groundwater monitoring

  http://groundwaterwatch.usgs.gov

Thank you!

Next briefing

September 22, 2015, 1:00 pm EDT

Moderator: Eric Reutebuch

Slides from this briefing will be posted at

http://drought.gov/drought/content/regional-programs/regional-drought-webinars

Please send comments and suggestions to:

reuteem@auburn.edu