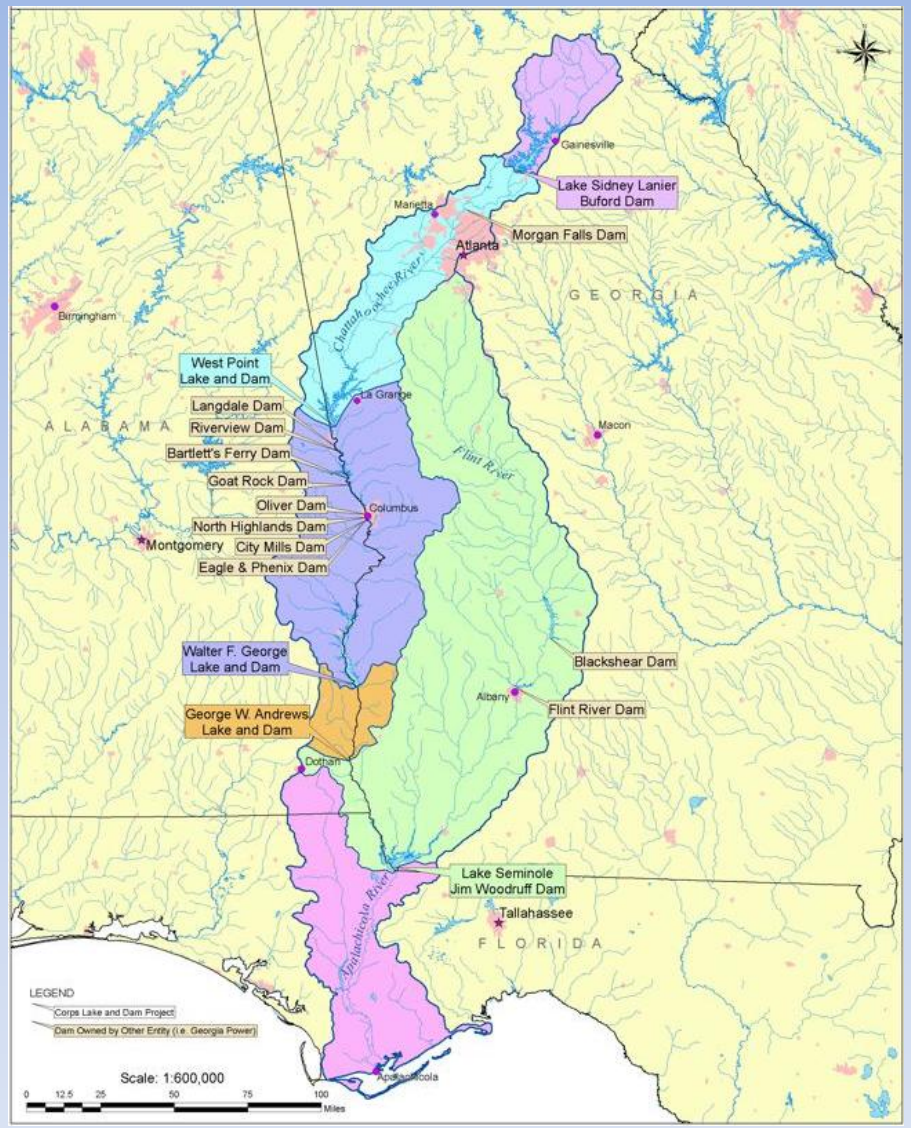
National Integrated Drought Information System

Southeast US Pilot for Apalachicola-Flint-Chattahoochee River Basin

24 April 2012



Agenda

- Drought monitoring and current drought status
  David Zierden, Florida Climate Center
- Streamflow and groundwater monitoring
  Brian McCallum, US Geologic Survey
- Reservoirs in the ACF
  Bailey Crane, US Army Corps of Engineers
- Salinity monitoring in Apalachicola Bay
  Danielle Jones, Florida Department of Environmental Protection & Apalachicola National Estuarine Research Reserve
- Precipitation and drought forecasts
  David Zierden, Florida Climate Center
- Streamflow forecasts for the ACF
  Jeff Dobur, SE River Forecast Center, NOAA

Moderator: Keith Ingram, Southeast Climate Consortium

Current drought status from Drought Monitor

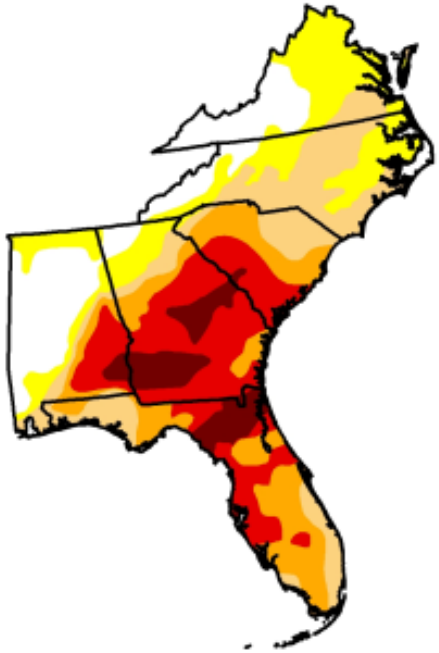
U.S. Drought Monitor

April 17, 2012
Valid 7 a.m. EST

Southeast

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	17.04	82.96	63.56	43.54	27.65	7.14
Last Week (04/10/2012 map)	17.84	82.16	63.41	39.97	25.35	5.29
3 Months Ago (01/17/2012 map)	28.63	71.37	52.85	33.73	23.65	1.50
Start of Calendar Year (12/27/2011 map)	40.38	59.62	43.05	28.62	18.71	0.00
Start of Water Year (09/27/2011 map)	42.24	57.76	41.82	31.77	23.48	0.00
One Year Ago (04/12/2011 map)	30.65	69.35	48.75	15.15	4.60	0.00



Intensity:

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

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

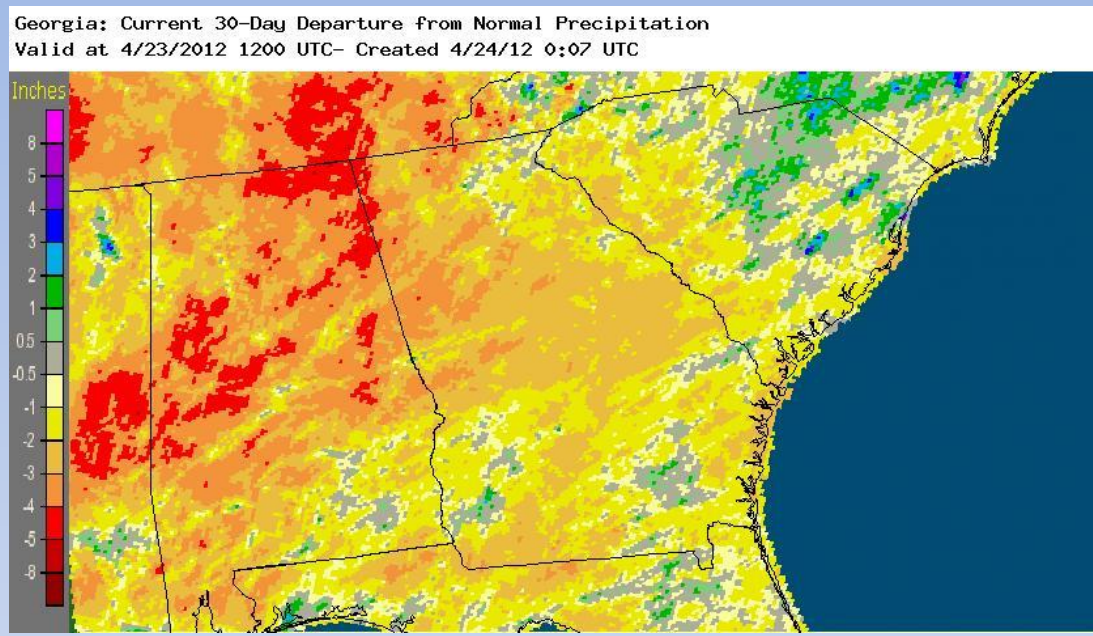
http://droughtmonitor.unl.edu

Released Thursday, April 19, 2012
Anthony Artusa, Climate Prediction Center/NCEP/NWS/NOAA

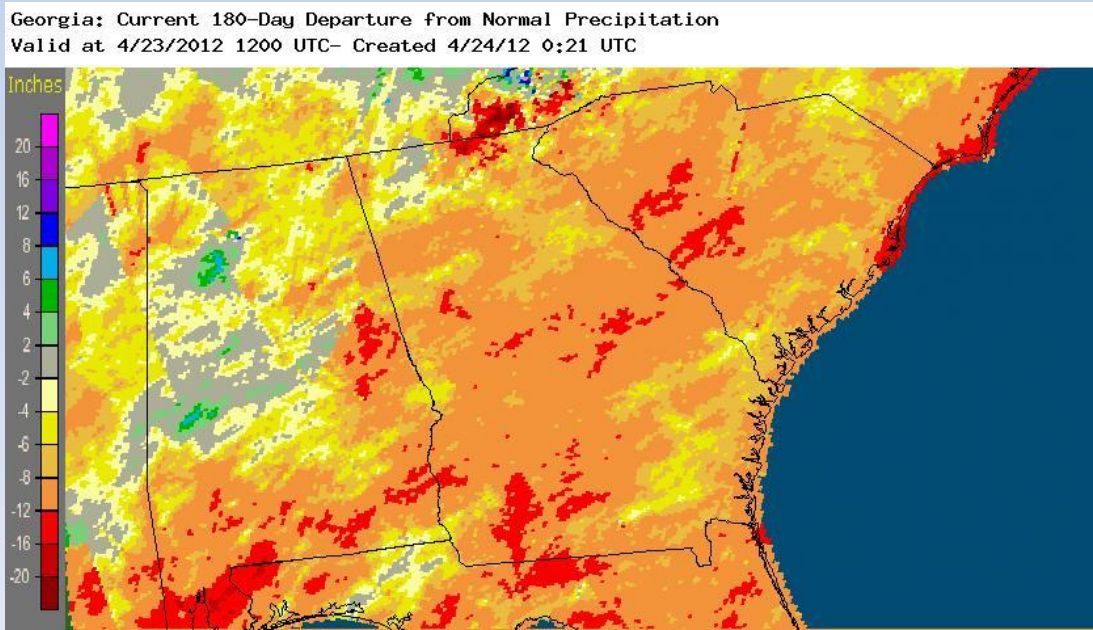
http://www.drought.unl.edu/dm/monitor.html

Cumulative Rainfall Deficits

Past 30 days

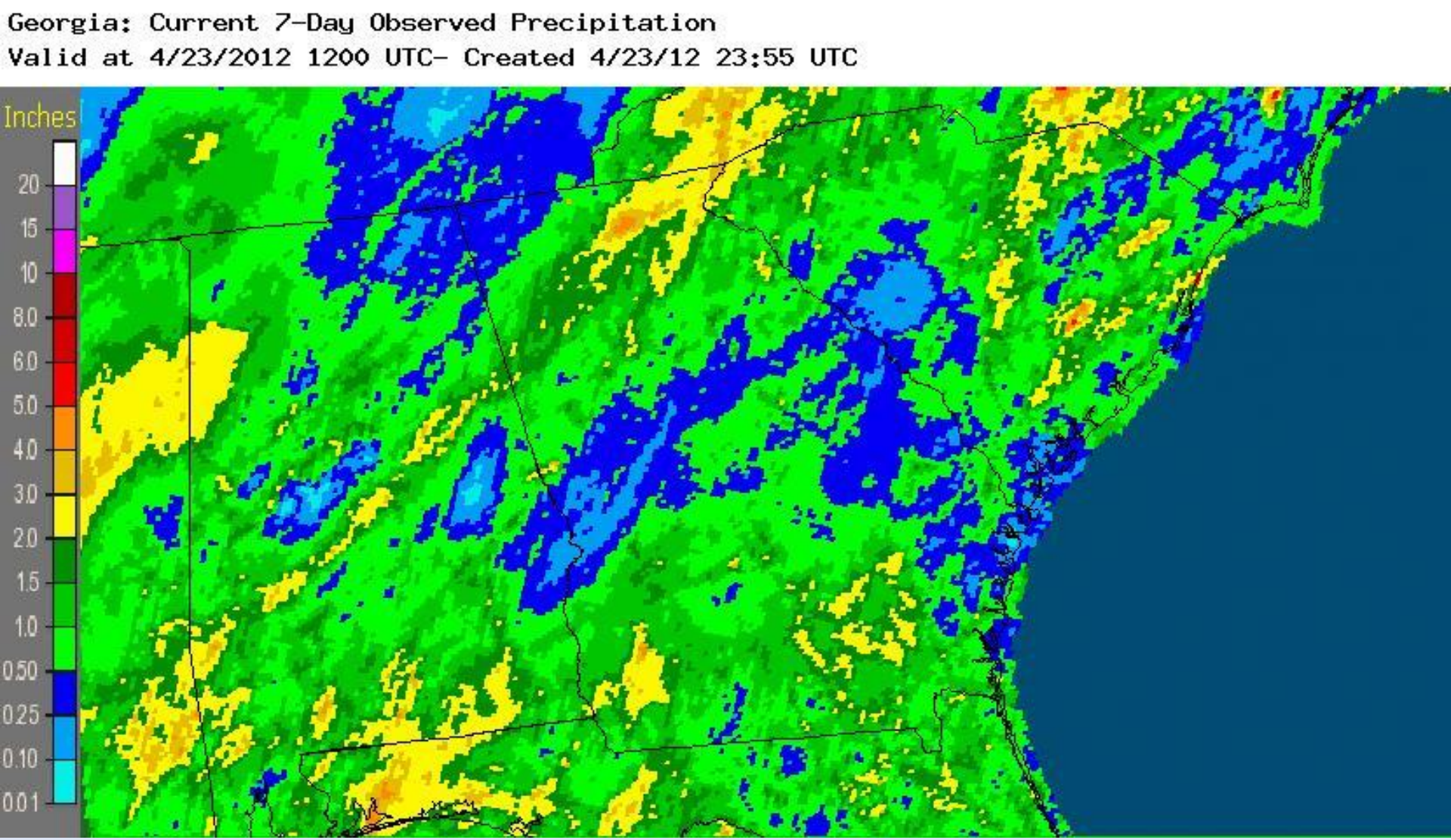


Past 180 days



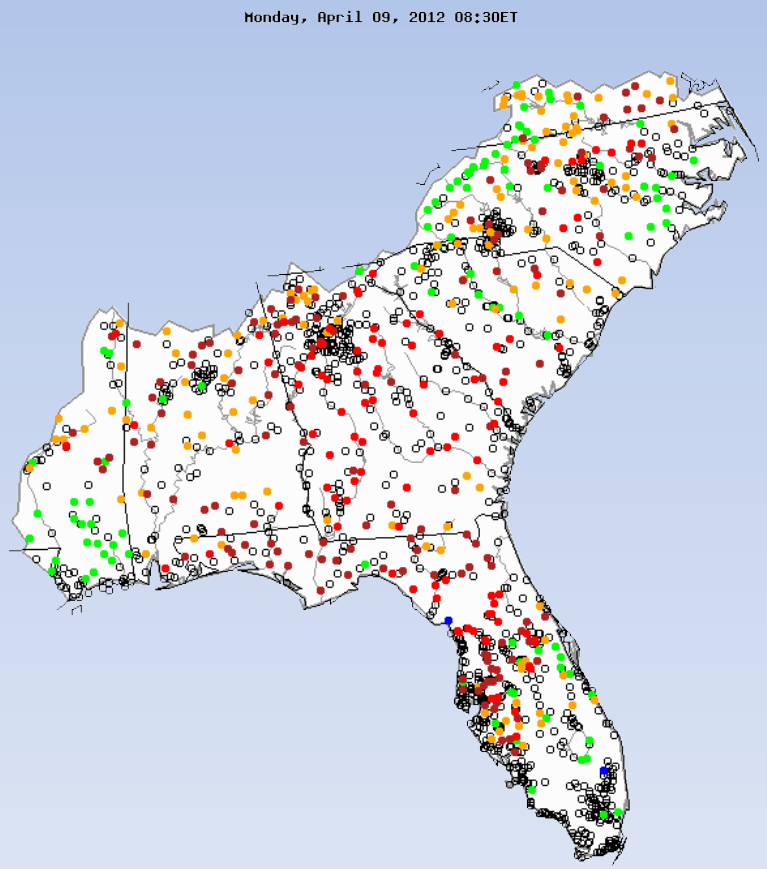
http://water.weather.gov/precip/

7-day Rainfall Totals

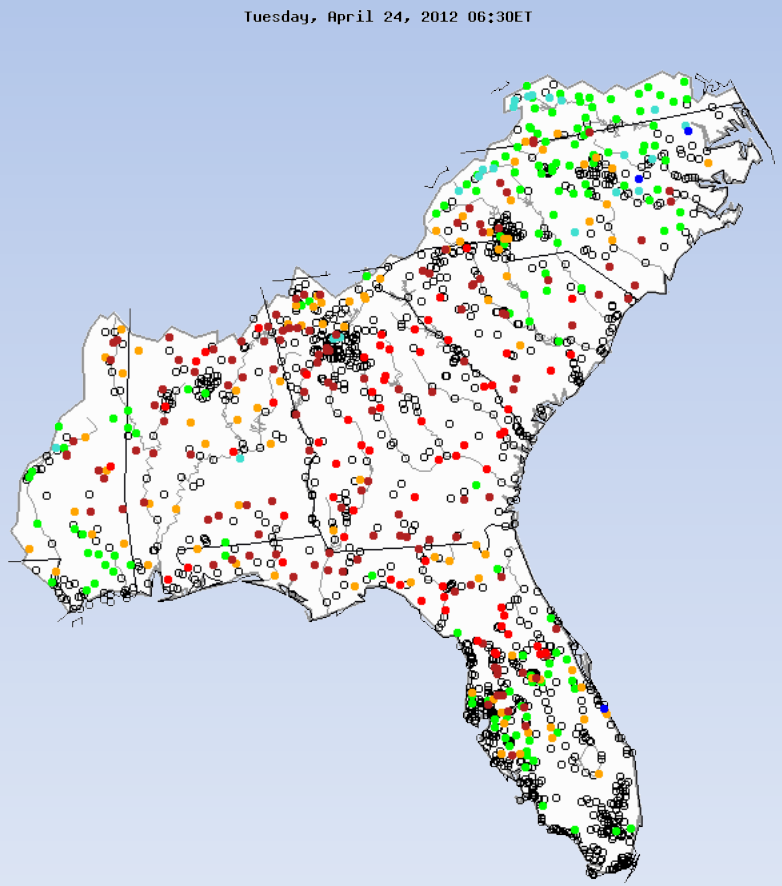


Realtime stream flow compared with historical monthly averages

Previous Month:



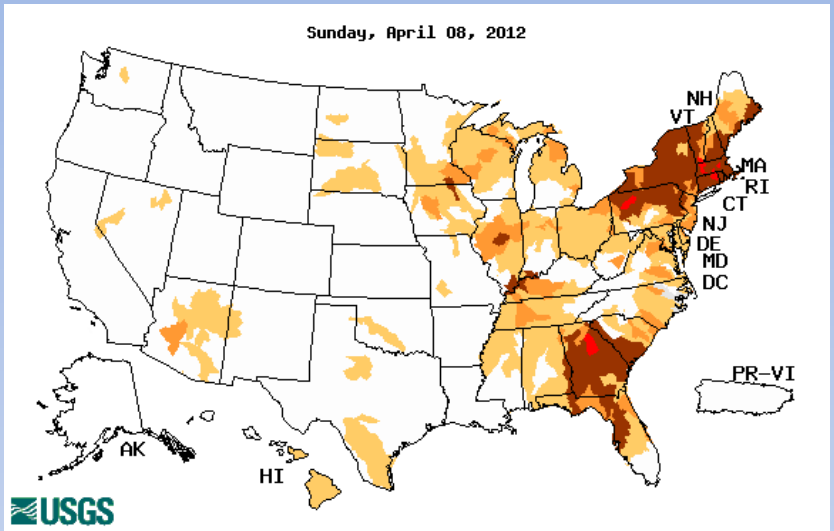
Current:

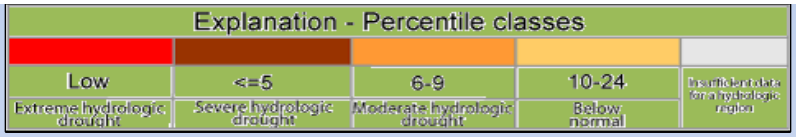


http://waterwatch.usgs.gov

Below Normal 7-day Average Streamflows

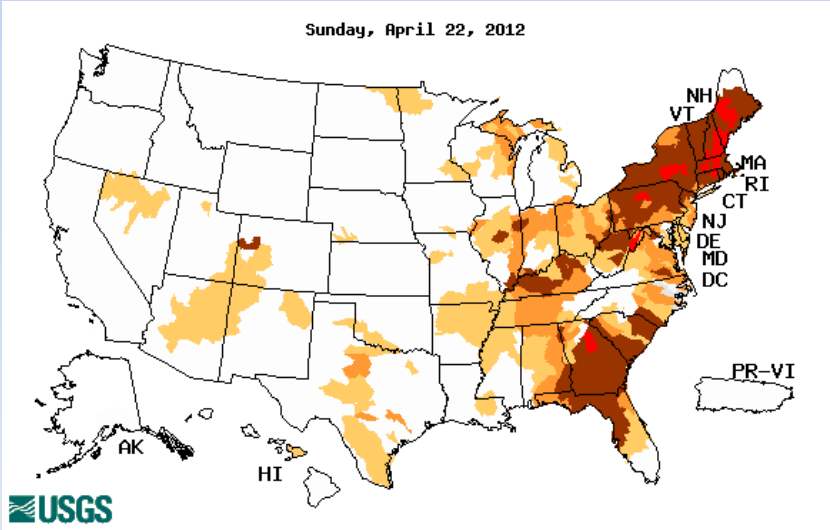
Previous month:





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

Current:

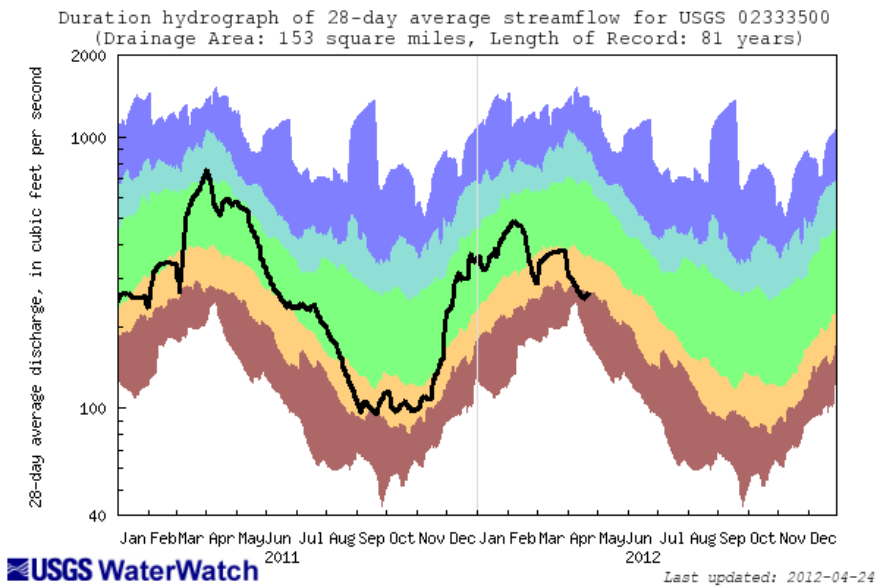


http://waterwatch.usgs.gov

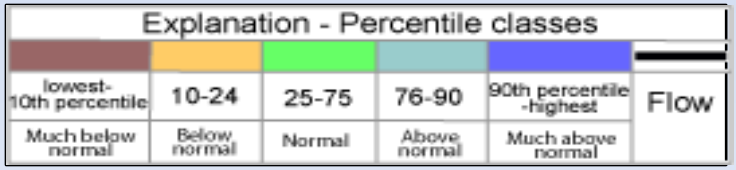
Lake Lanier Inflows

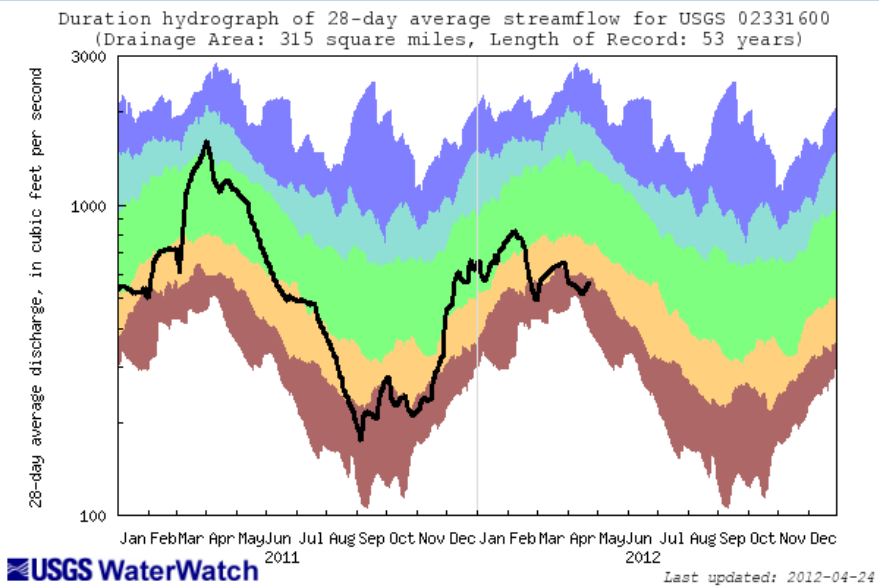
Chestatee near Dahlonega (02333500)

http://waterwatch.usgs.gov



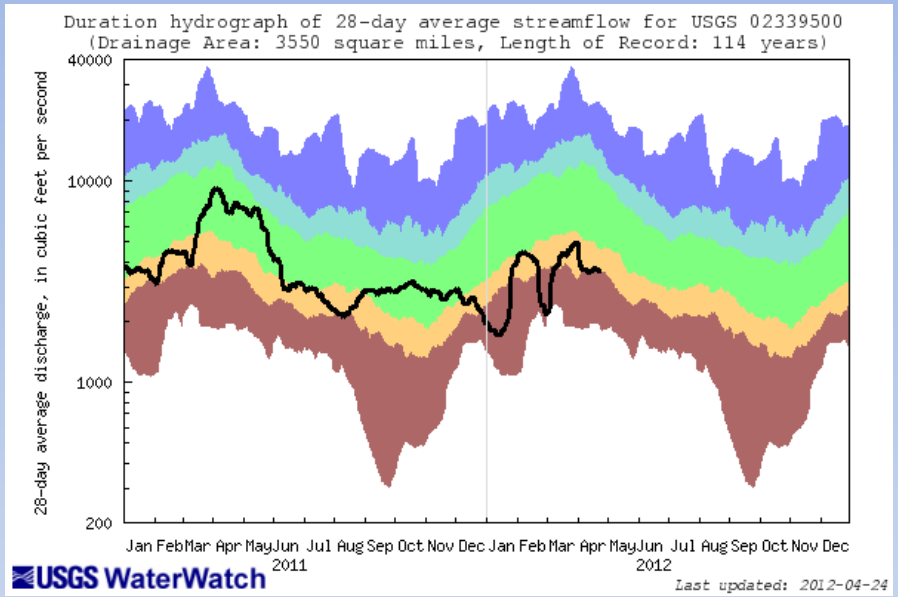
Chattahoochee near Cornelia (02331600)





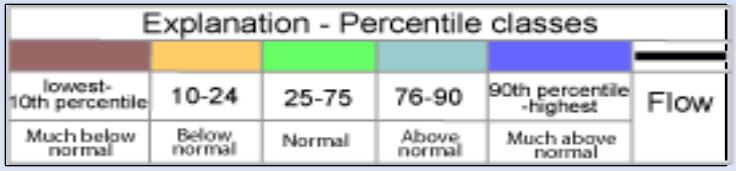
Current Streamflows

Chattahoochee at West Point (02339500)

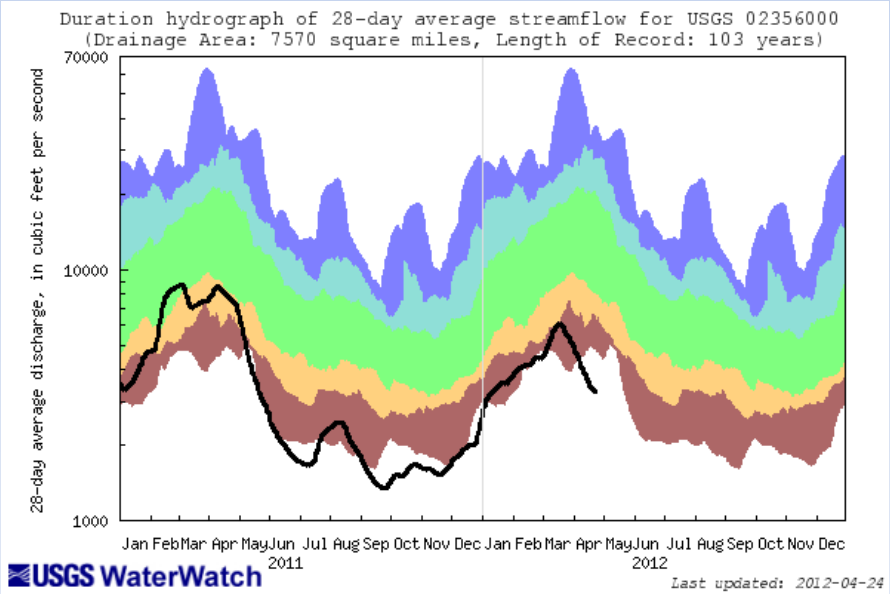


http://waterwatch.usgs.gov

Flint at Bainbridge (02356000)

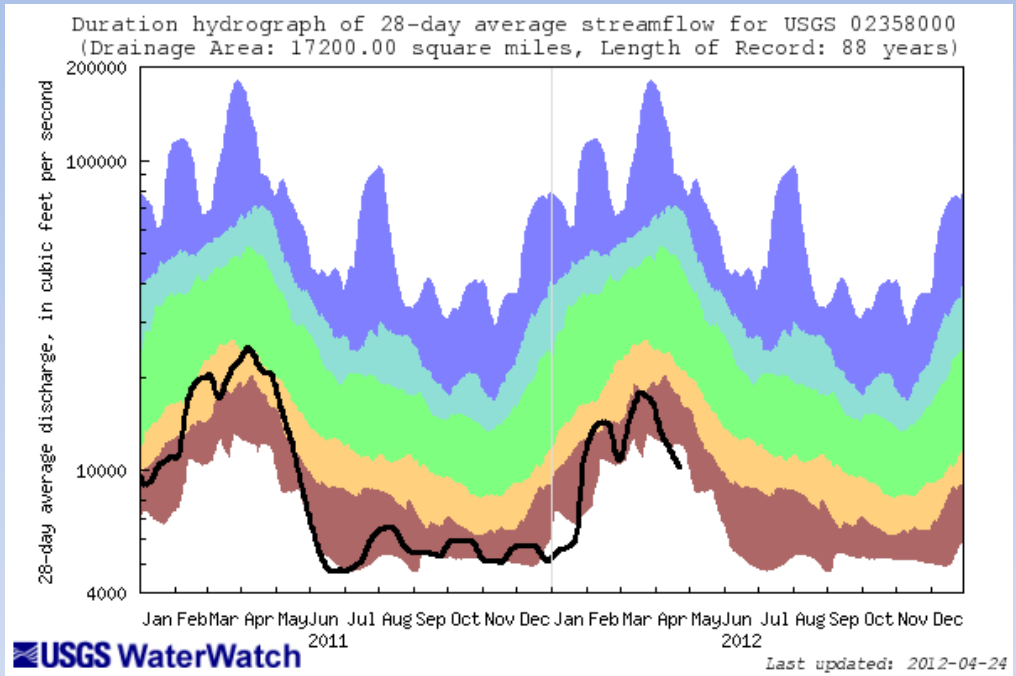


Explanation - Percentile classes					
lowest-10th percentile	10-24	25-75	76-90	90th percentile -highest	Flow
Much below normal	Below normal	Normal	Above normal	Much above normal	



Streamflows

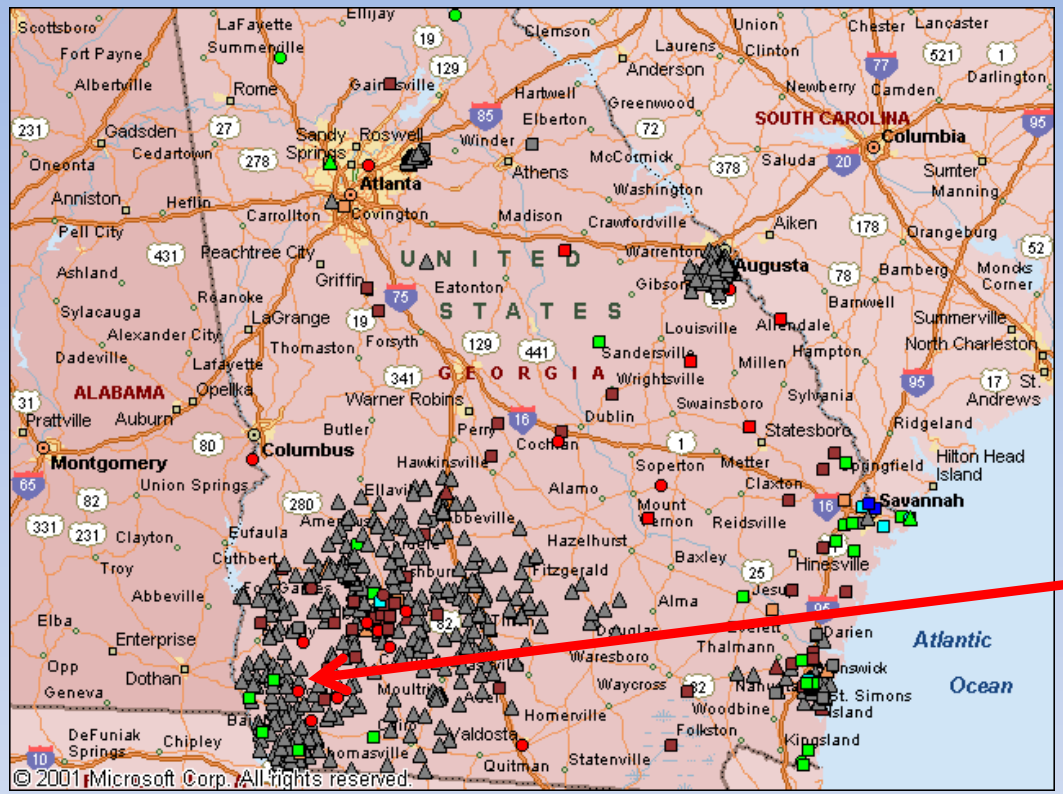
Apalachicola at Chattahoochee (02358000)

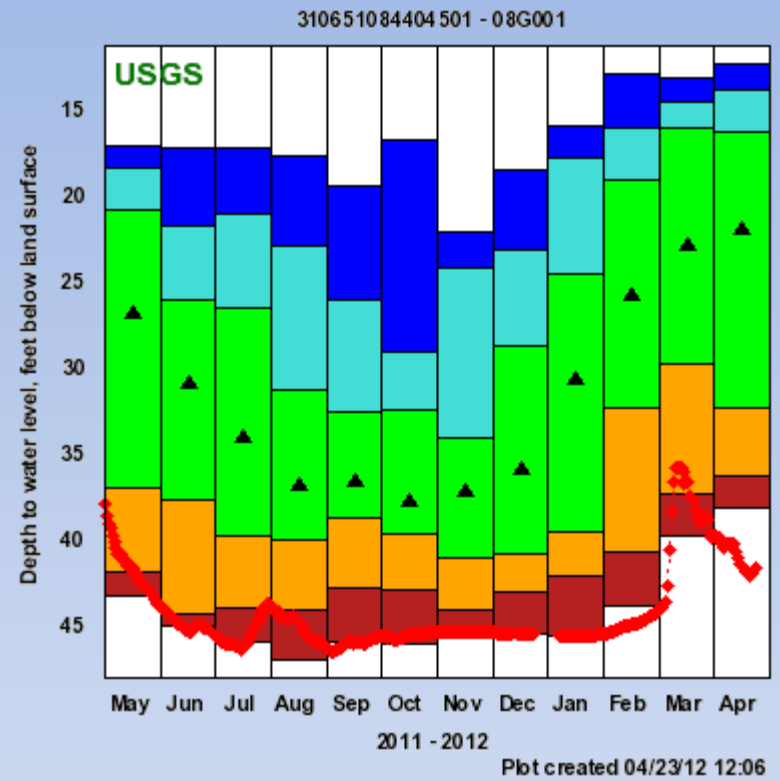


Explanation - Percentile classes					
lowest-10th percentile	10-24	25-75	76-90	90th percentile -highest	Flow
Much below normal	Below normal	Normal	Above normal	Much above normal	

http://waterwatch.usgs.gov

Groundwater Status





Explanation - Percentile classes (symbol color based on most recent measurement)			
	<10	10-24	
Low	Much Below Normal	Below Normal	

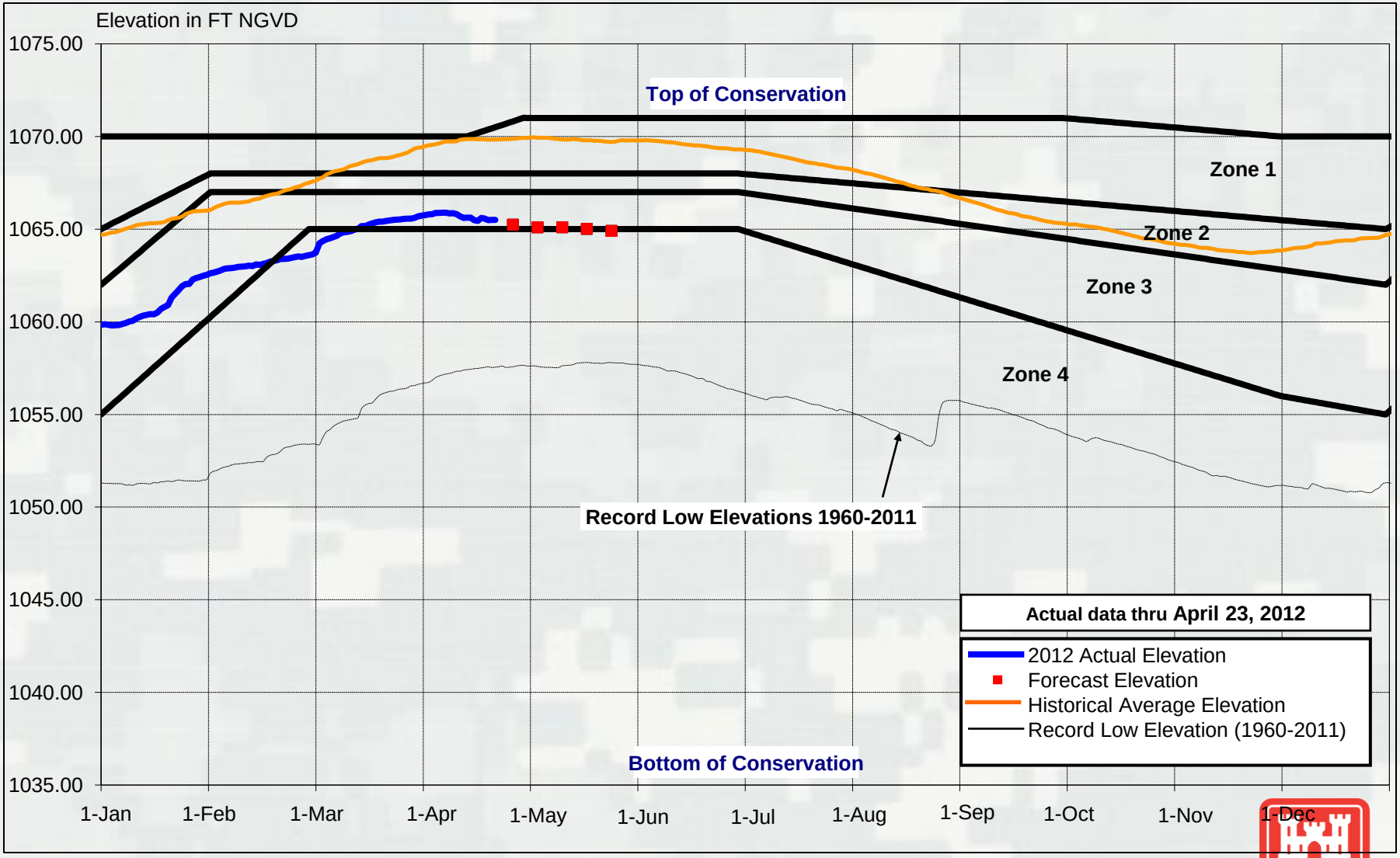
- ○ Real Time
- □ Continuous
- △ Periodic Measurements

Miller County, GA
(Upper Floridan Aquifer)

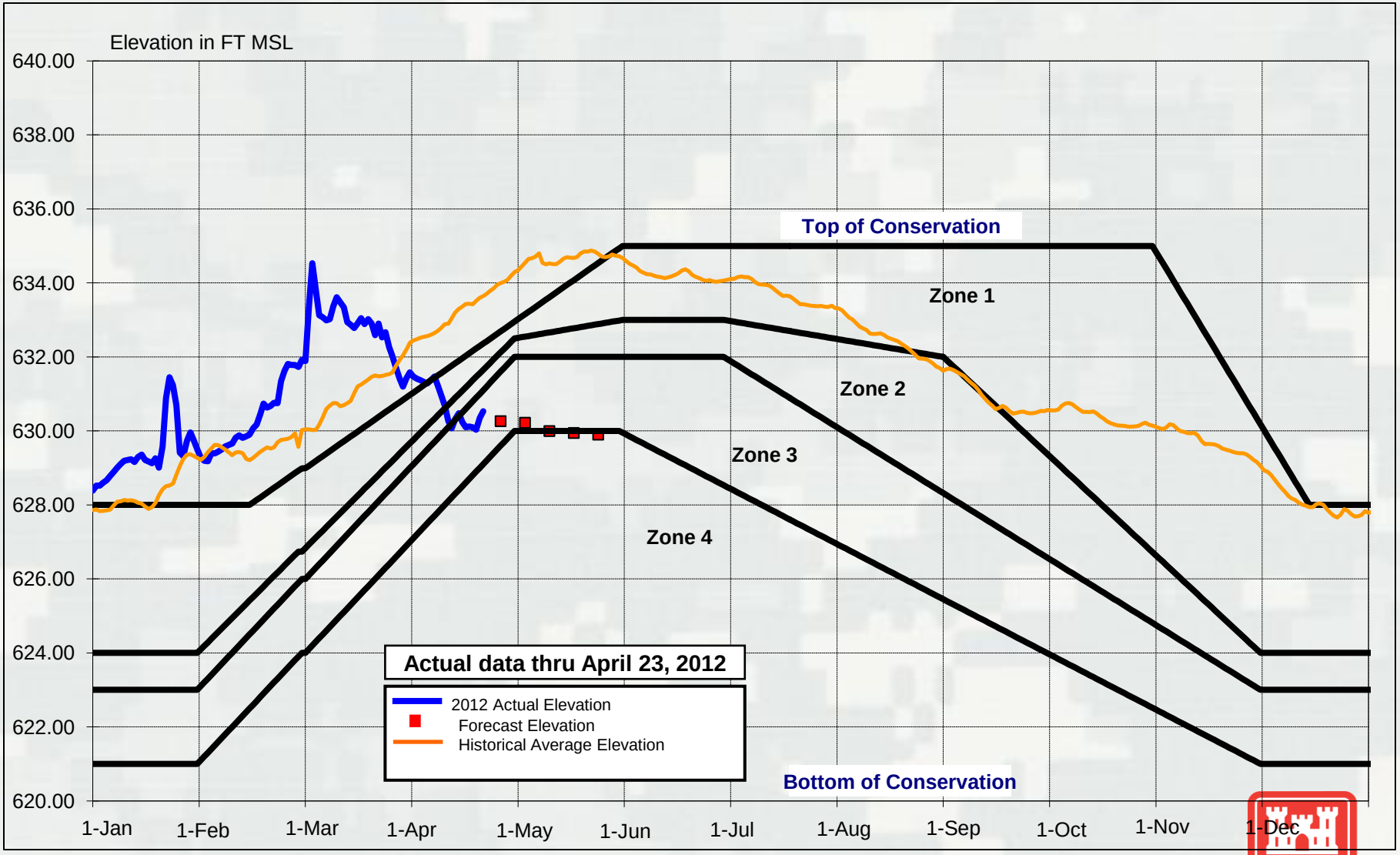
http://groundwaterwatch.usgs.gov

USACE – ACF Operations

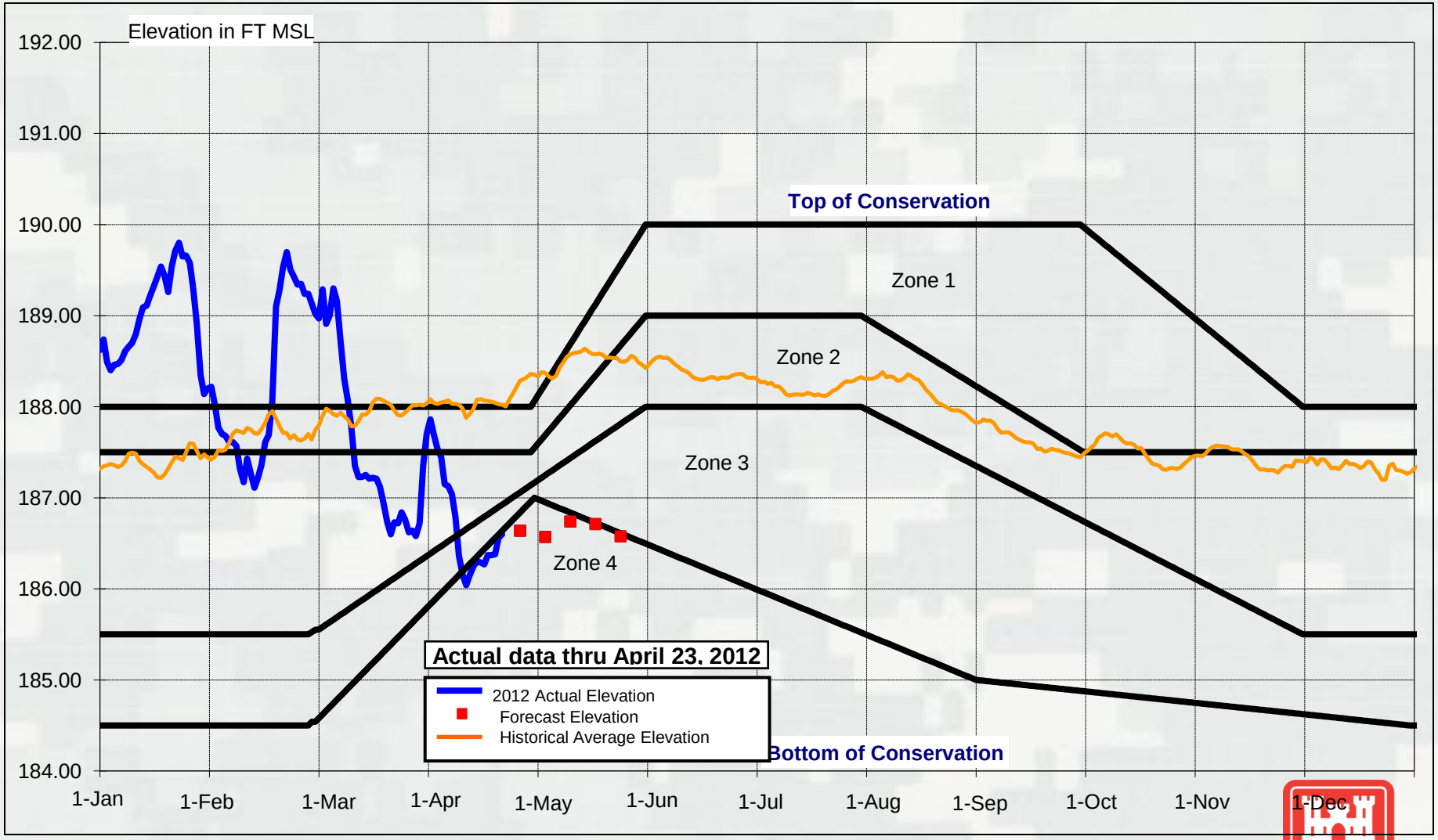
Lake Lanier


Elevation in FT NGVD
1075.00
1070.00
1065.00
1060.00
1055.00
1050.00
1045.00
1040.00
1035.00
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
Record Low Elevations 1960-2011
Bottom of Conservation
Actual data thru April 23, 2012
2012 Actual Elevation
Forecast Elevation
Historical Average Elevation
Record Low Elevation (1960-2011)

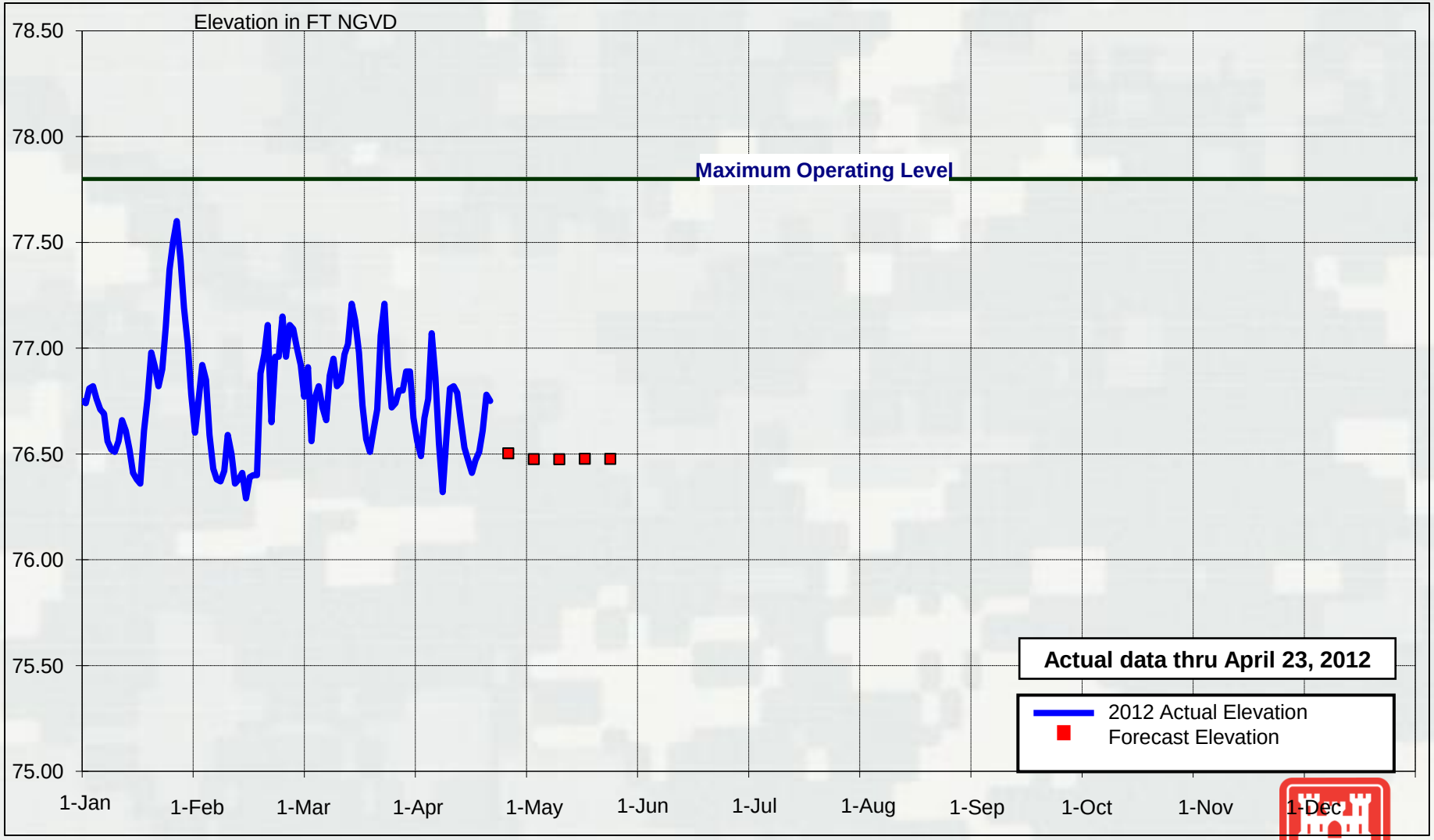
West Point


Elevation in FT MSL
640.00
638.00
636.00
634.00
632.00
630.00
628.00
626.00
624.00
622.00
620.00
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 April 23, 2012
2012 Actual Elevation
Forecast Elevation
Historical Average Elevation

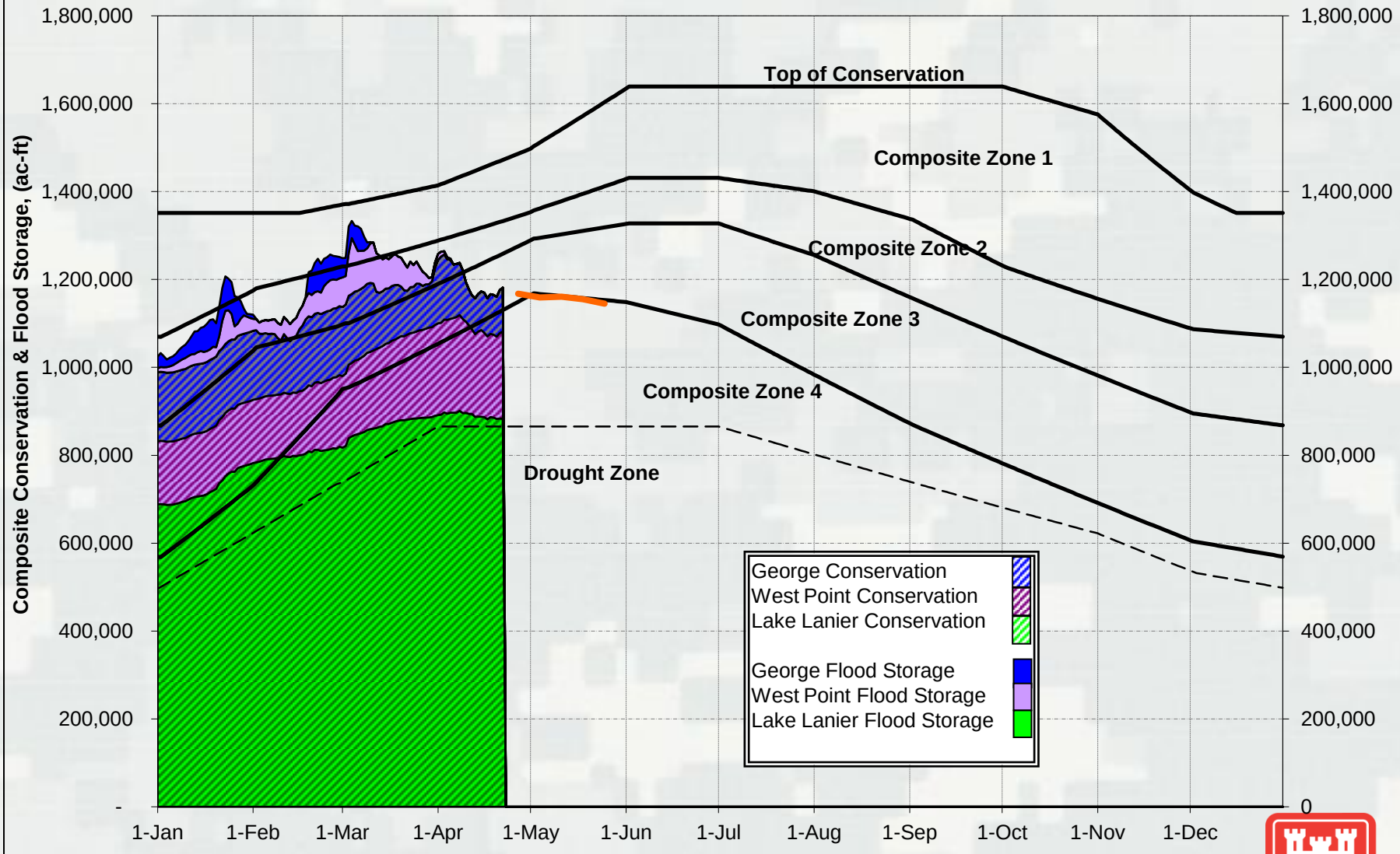
W.F. George


Elevation in FT MSL
192.00
191.00
190.00
189.00
188.00
187.00
186.00
185.00
184.00
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 April 23, 2012
2012 Actual Elevation
Forecast Elevation
Historical Average Elevation

Woodruff

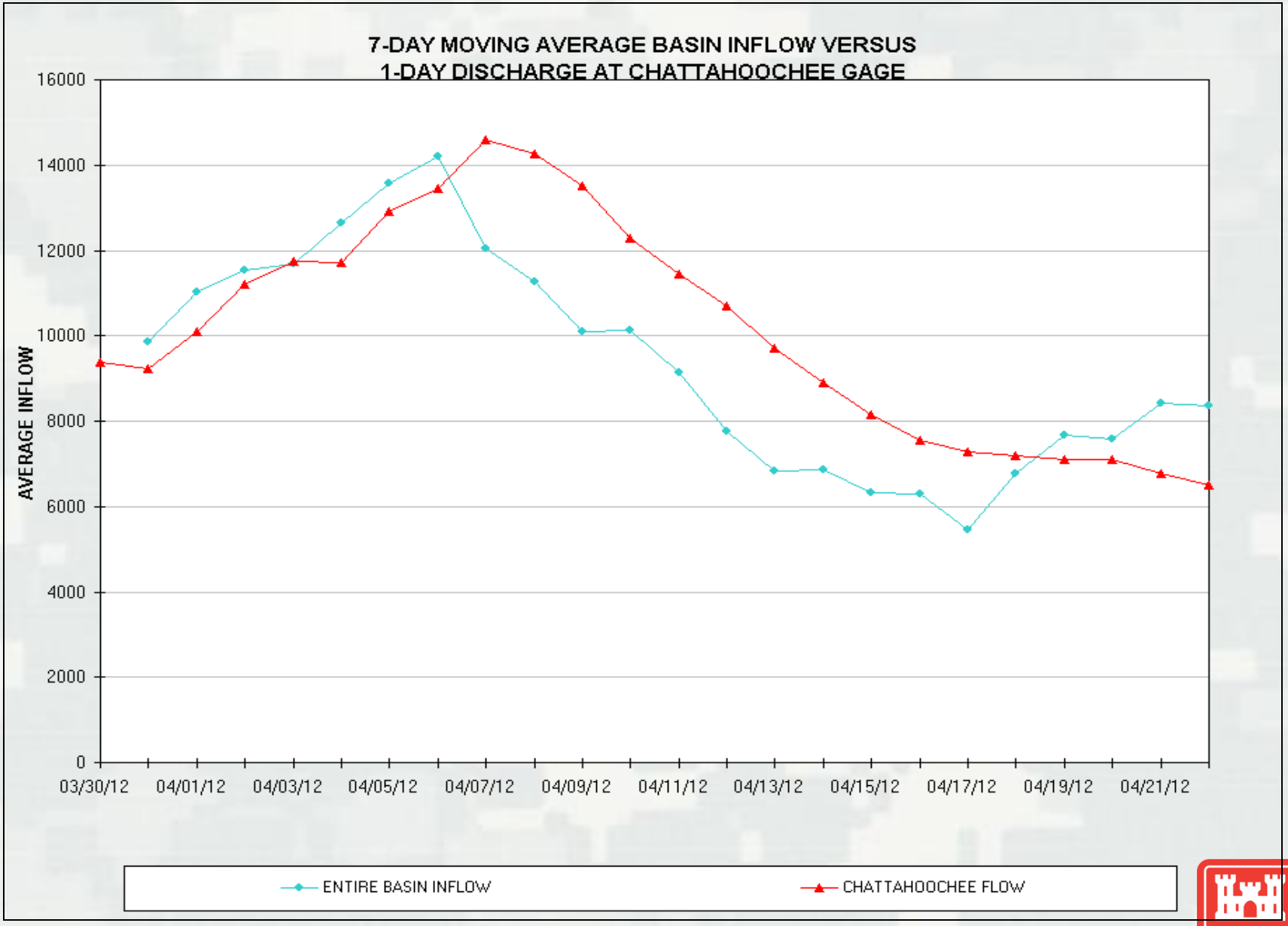

Elevation in FT NGVD
78.50
78.00
77.50
77.00
76.50
76.00
75.50
75.00
Maximum Operating Level
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec
Actual data thru April 23, 2012
2012 Actual Elevation
Forecast Elevation

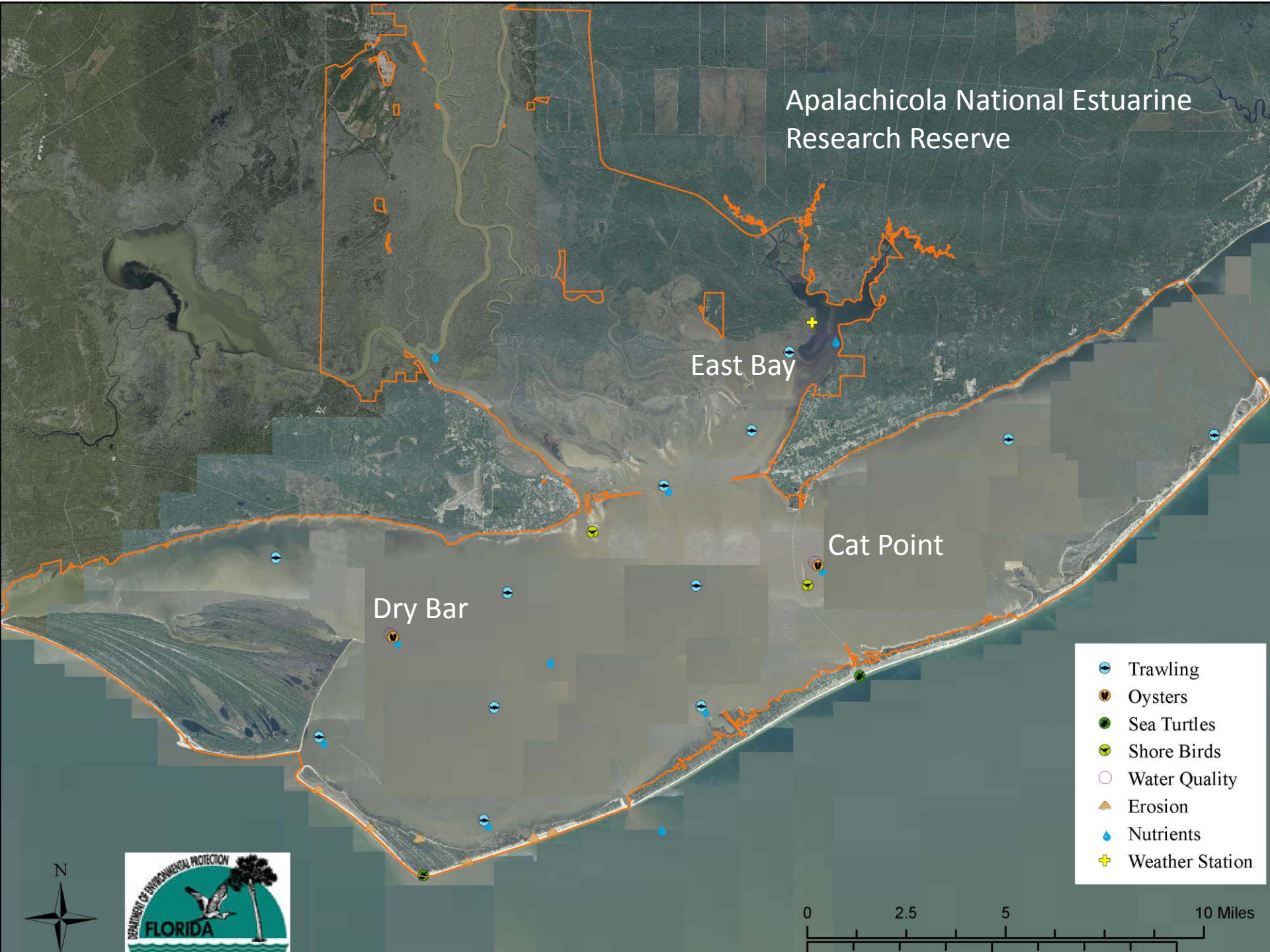
2012 ACF Basin Composite Conservation & Flood Storage



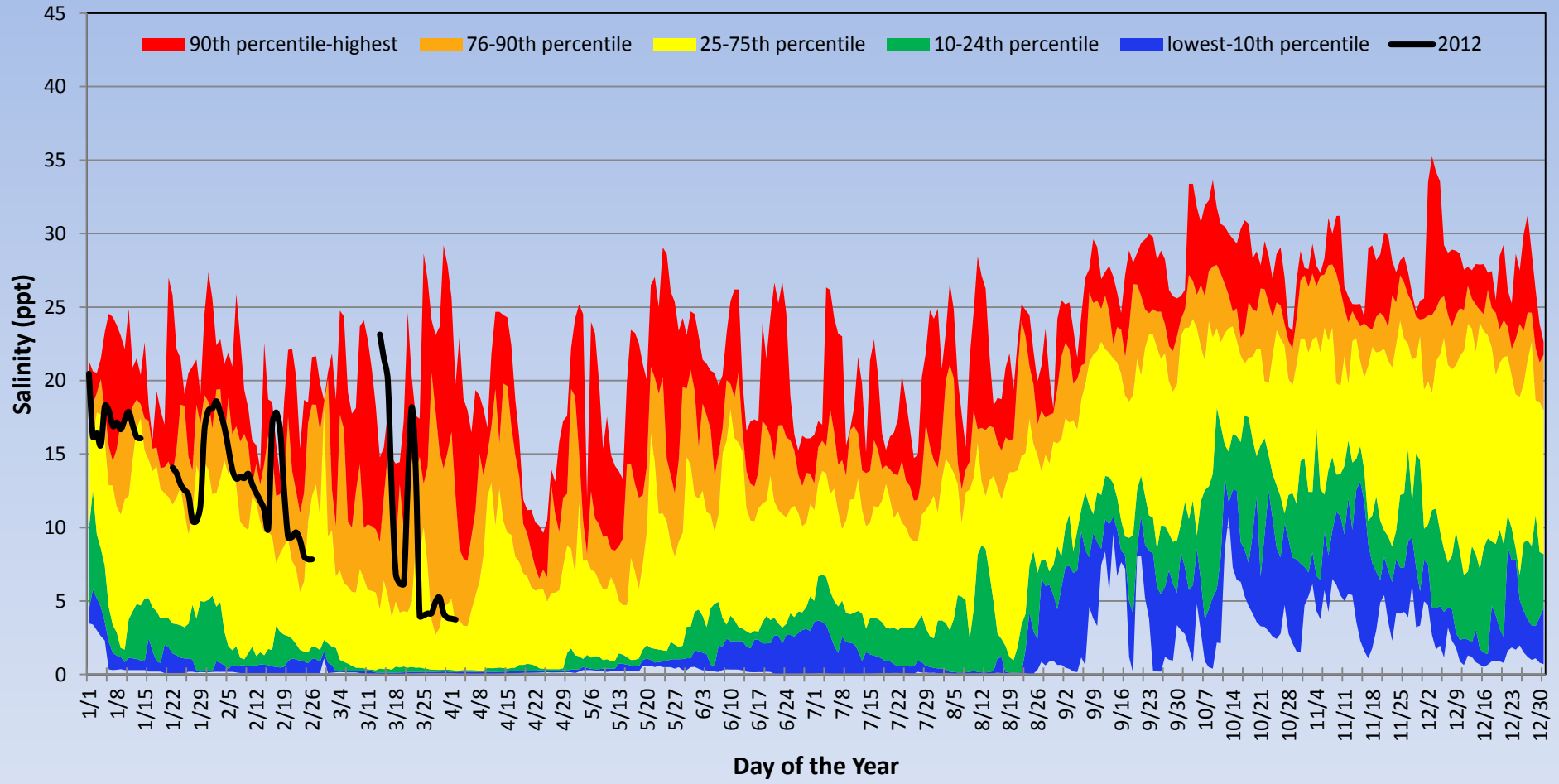
Actual data thru 4-23-2012

Add value of 1,856,000 acre-ft to include inactive storage.

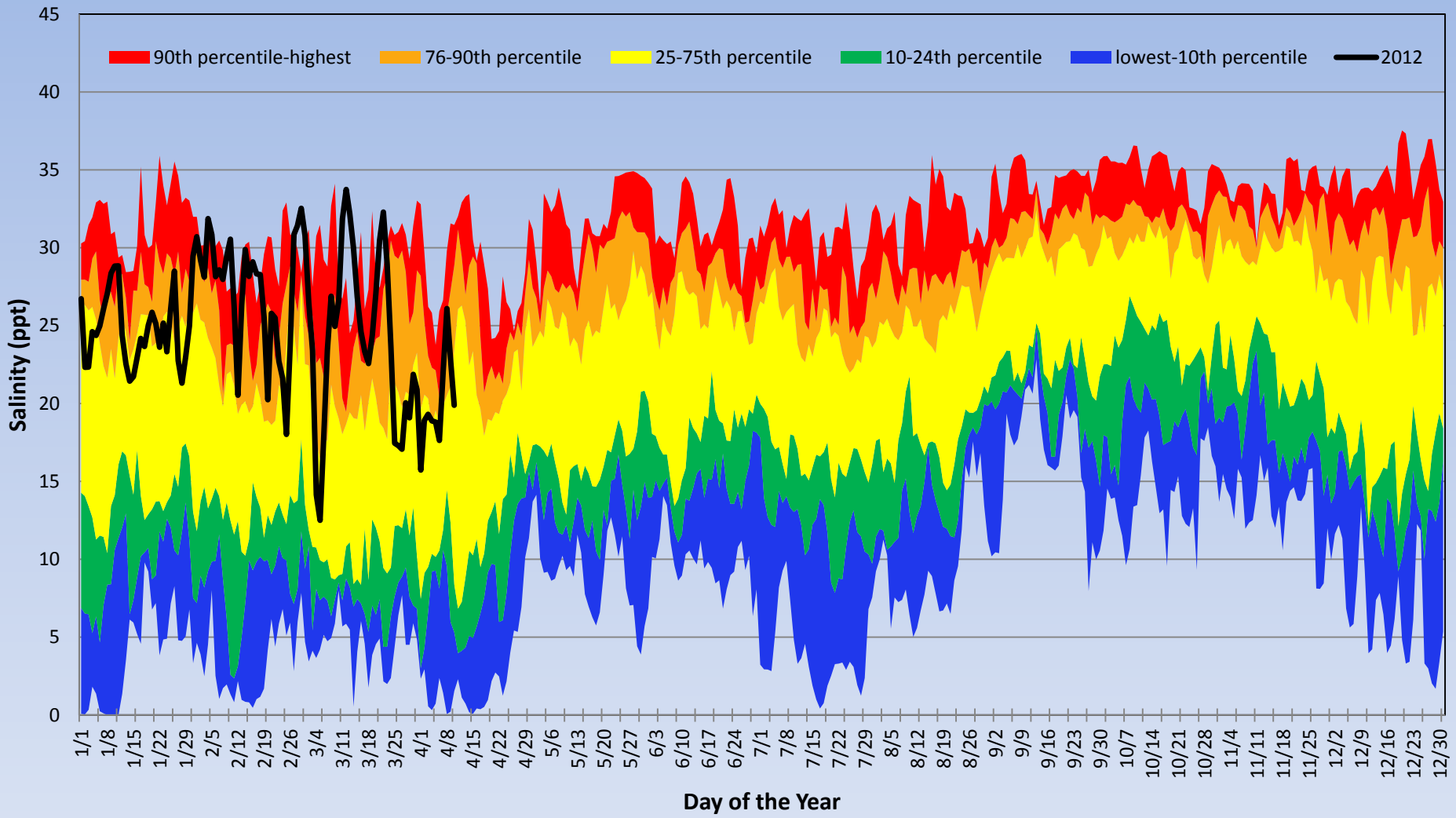

7-DAY MOVING AVERAGE BASIN INFLOW VERSUS
1-DAY DISCHARGE AT CHATTAHOOCHEE GAGE
AVERAGE INFLOW
16000
14000
12000
10000
8000
6000
4000
2000
0
03/30/12
04/01/12
04/03/12
04/05/12
04/07/12
04/09/12
04/11/12
04/13/12
04/15/12
04/17/12
04/19/12
04/21/12
ENTIRE BASIN INFLOW
CHATTAHOOCHEE FLOW

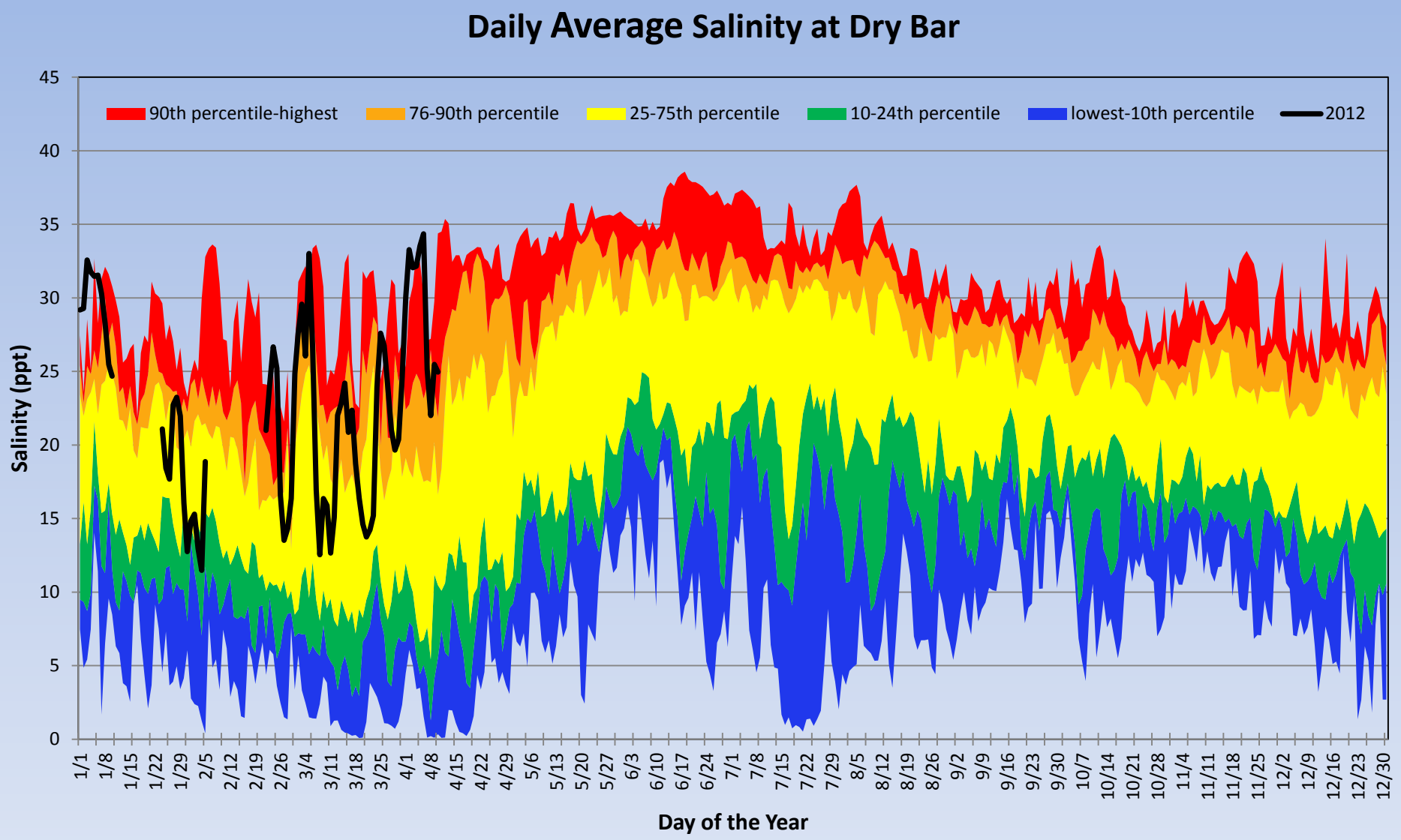

Apalachicola National Estuarine Research Reserve
East Bay
Cat Point
Dry Bar
Trawling
Oysters
Sea Turtles
Shore Birds
Water Quality
Erosion
Nutrients
Weather Station
N
0
2.5
5
10 Miles
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FLORIDA

Daily Average Salinity at East Bay Bottom

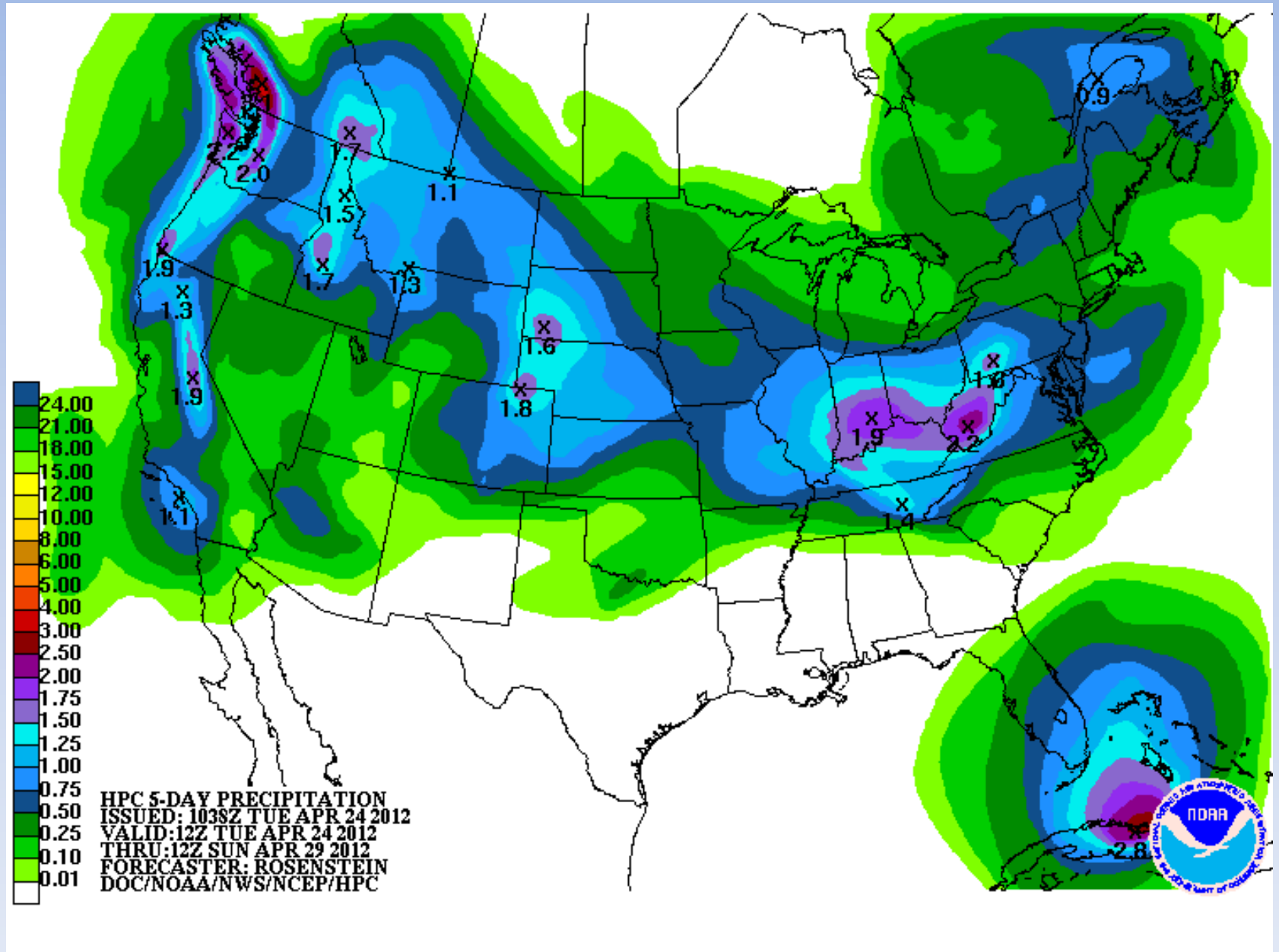


Daily Average Salinity at Cat Point



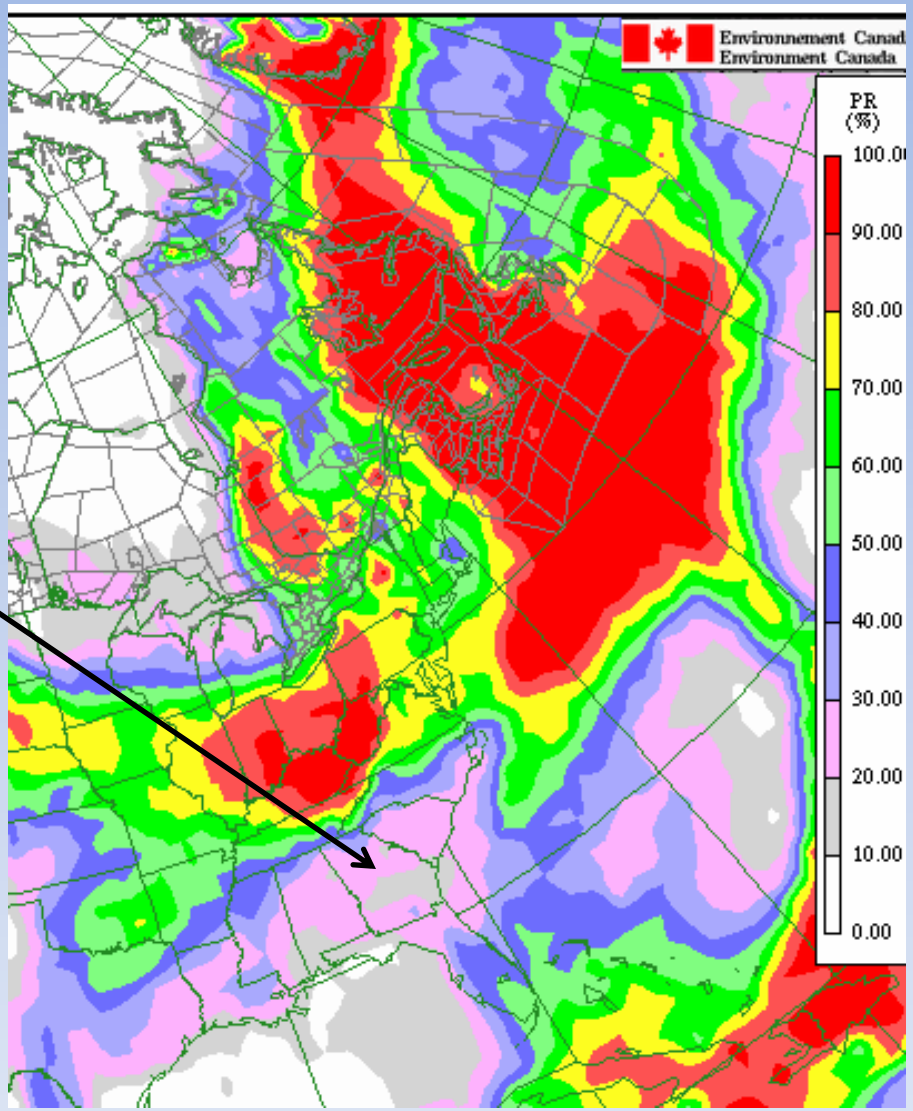

Daily Average Salinity at Dry Bar
90th percentile-highest
76-90th percentile
25-75th percentile
10-24th percentile
lowest-10th percentile
2012
Salinity (ppt)
45
40
35
30
25
20
15
10
5
0
1/1
1/8
1/15
1/22
1/29
2/5
2/12
2/19
2/26
3/4
3/11
3/18
3/25
4/1
4/8
4/15
4/22
4/29
5/6
5/13
5/20
5/27
6/3
6/10
6/17
6/24
7/1
7/8
7/15
7/22
7/29
8/5
8/12
8/19
8/26
9/2
9/9
9/16
9/23
9/30
10/7
10/14
10/21
10/28
11/4
11/11
11/18
11/25
12/2
12/9
12/16
12/23
12/30
Day of the Year

5-Day Precipitation Forecast

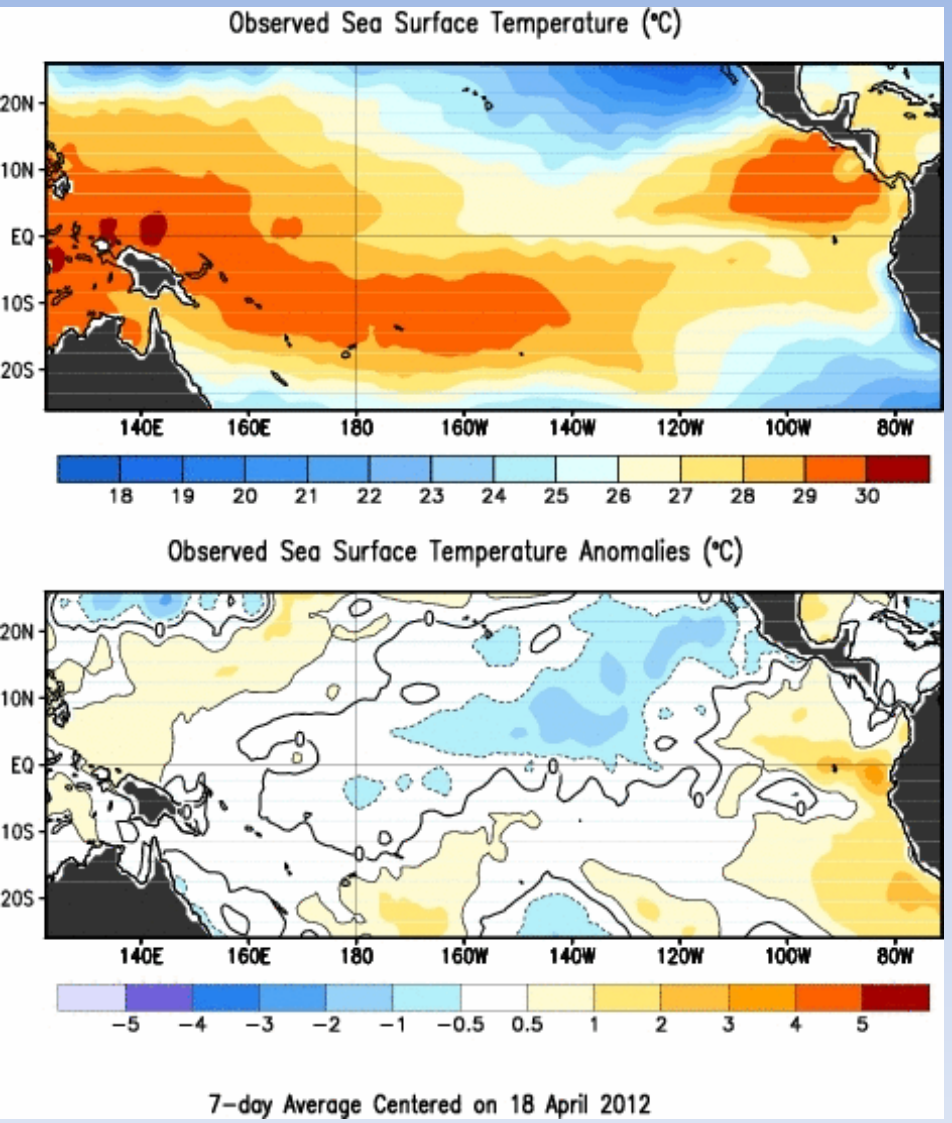


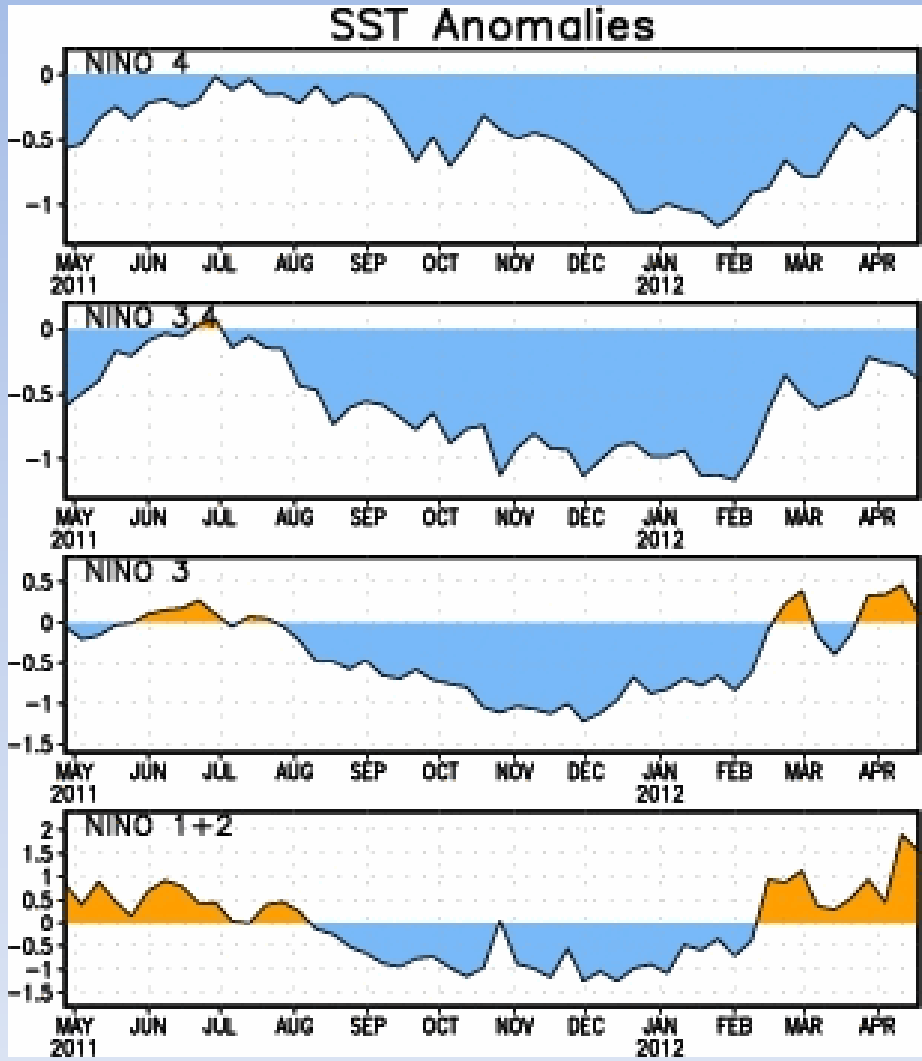
10-day Precipitation Forecast

For the Southeast, there is less that a 3 in 10 chance that we will receive more than 1 inch of rain over the next 10 days.



7-day average Pacific Ocean SST Anomalies

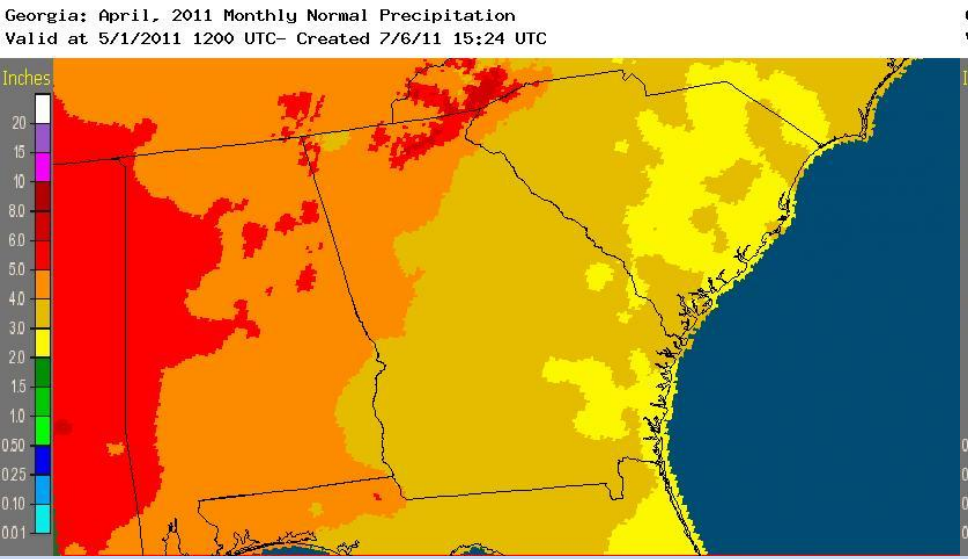




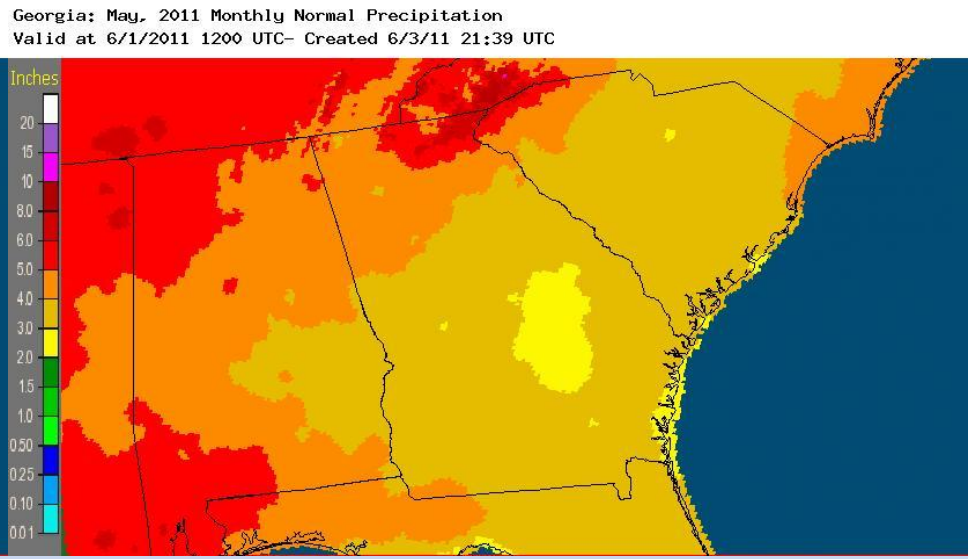
http://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/enso.shtml

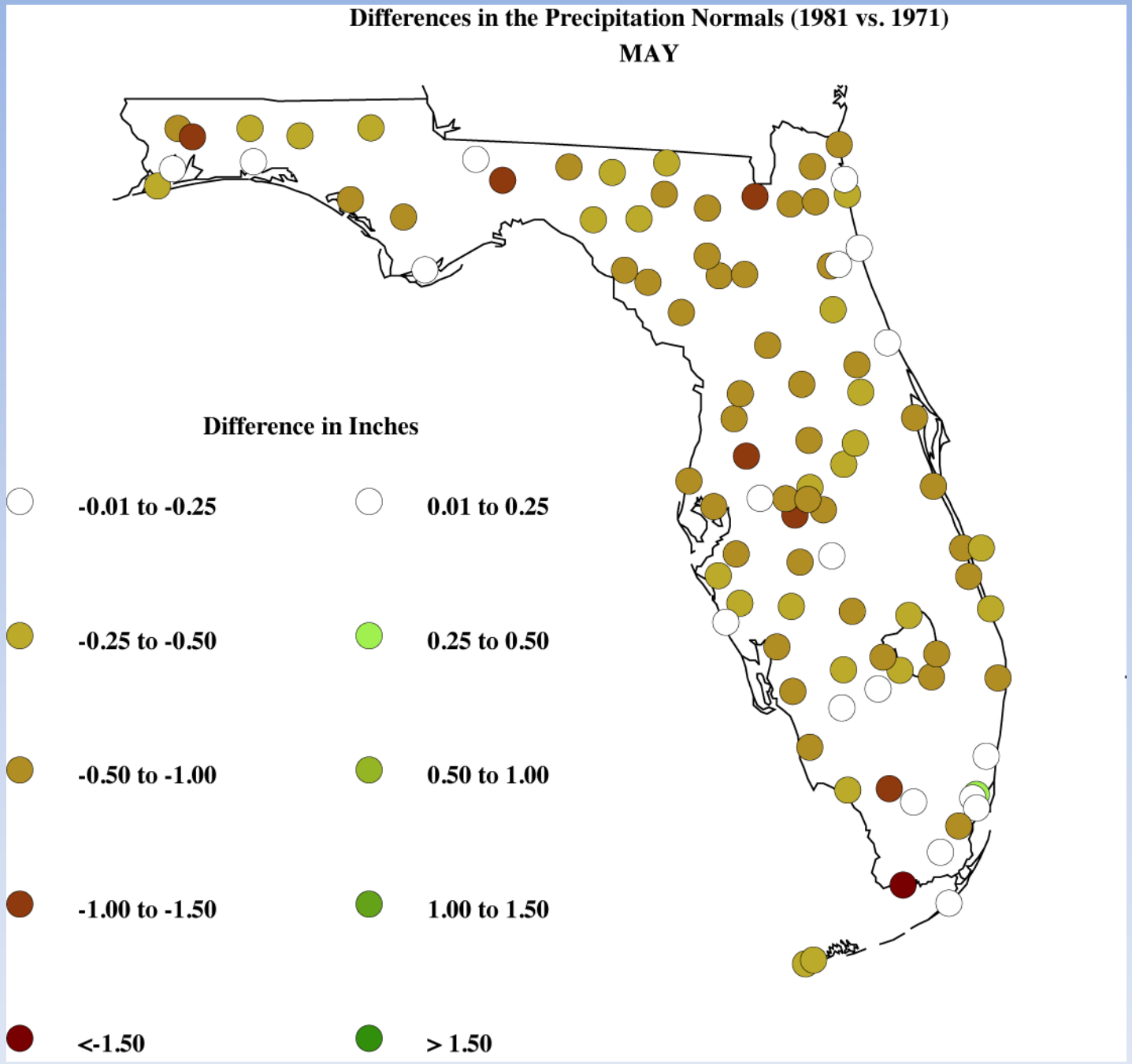
Normal Rainfall

April



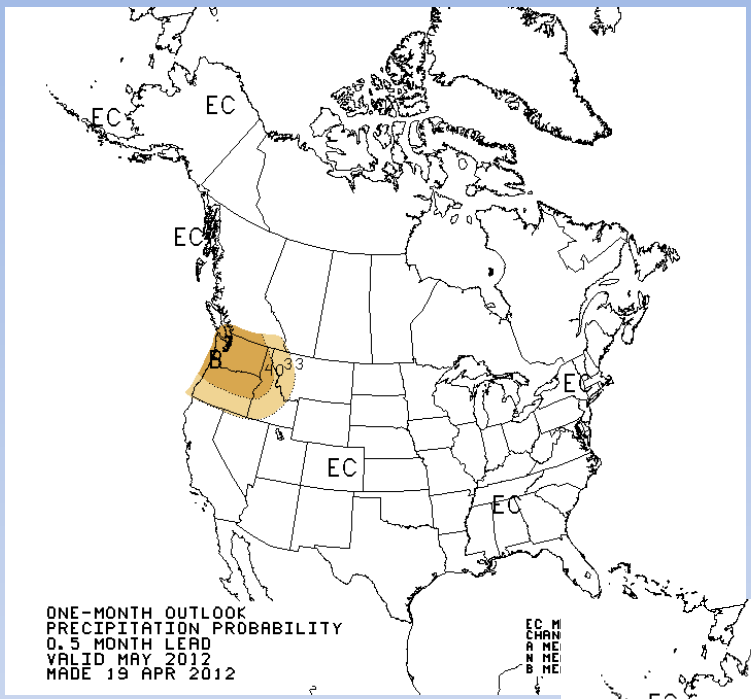
May



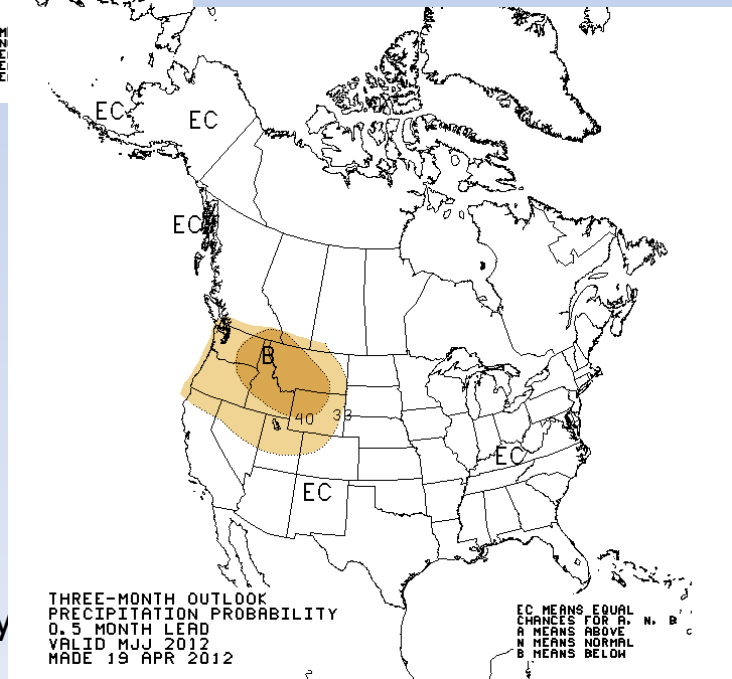

Differences in the Precipitation Normals (1981 vs. 1971)
MAY
Difference in Inches
-0.01 to -0.25
0.01 to 0.25
-0.25 to -0.50
0.25 to 0.50
-0.50 to -1.00
0.50 to 1.00
-1.00 to -1.50
1.00 to 1.50
<-1.50
> 1.50

Precipitation Outlook

1-month

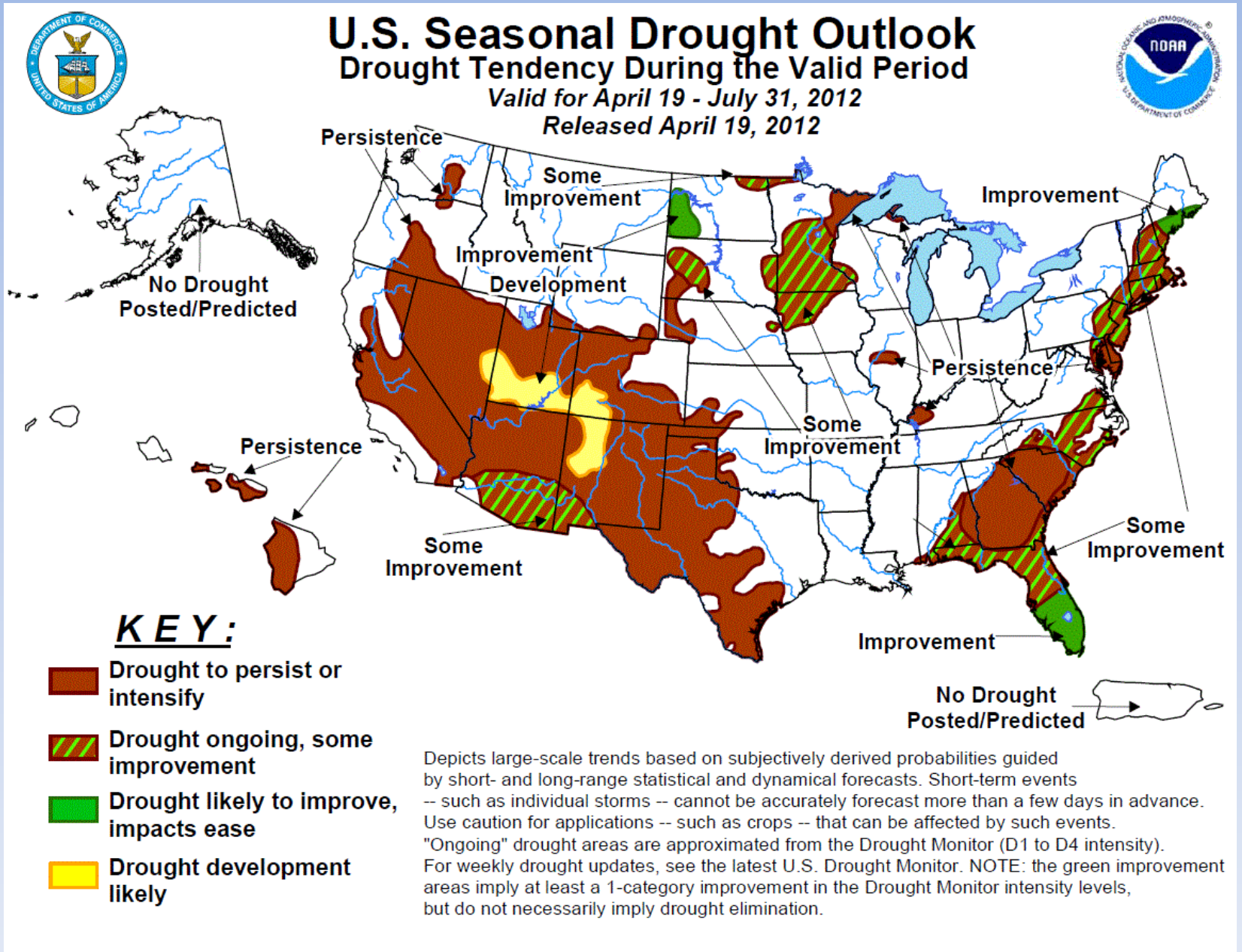


3-month (MAM)



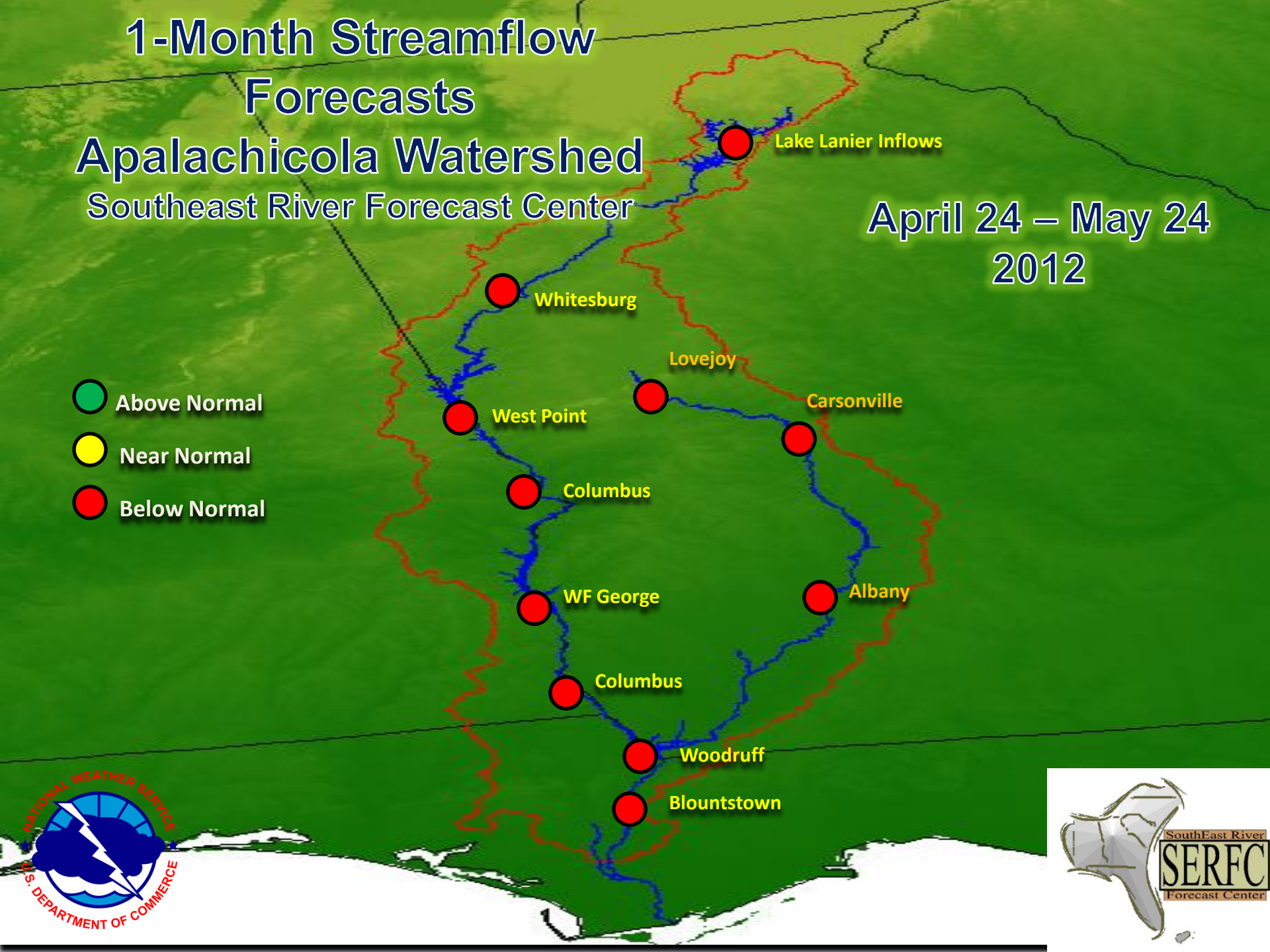
http://www.cpc.ncep.noaa.gov/products/predictions/30day

U.S. Drought Outlook



1-Month Streamflow Forecasts
Apalachicola Watershed
Southeast River Forecast Center

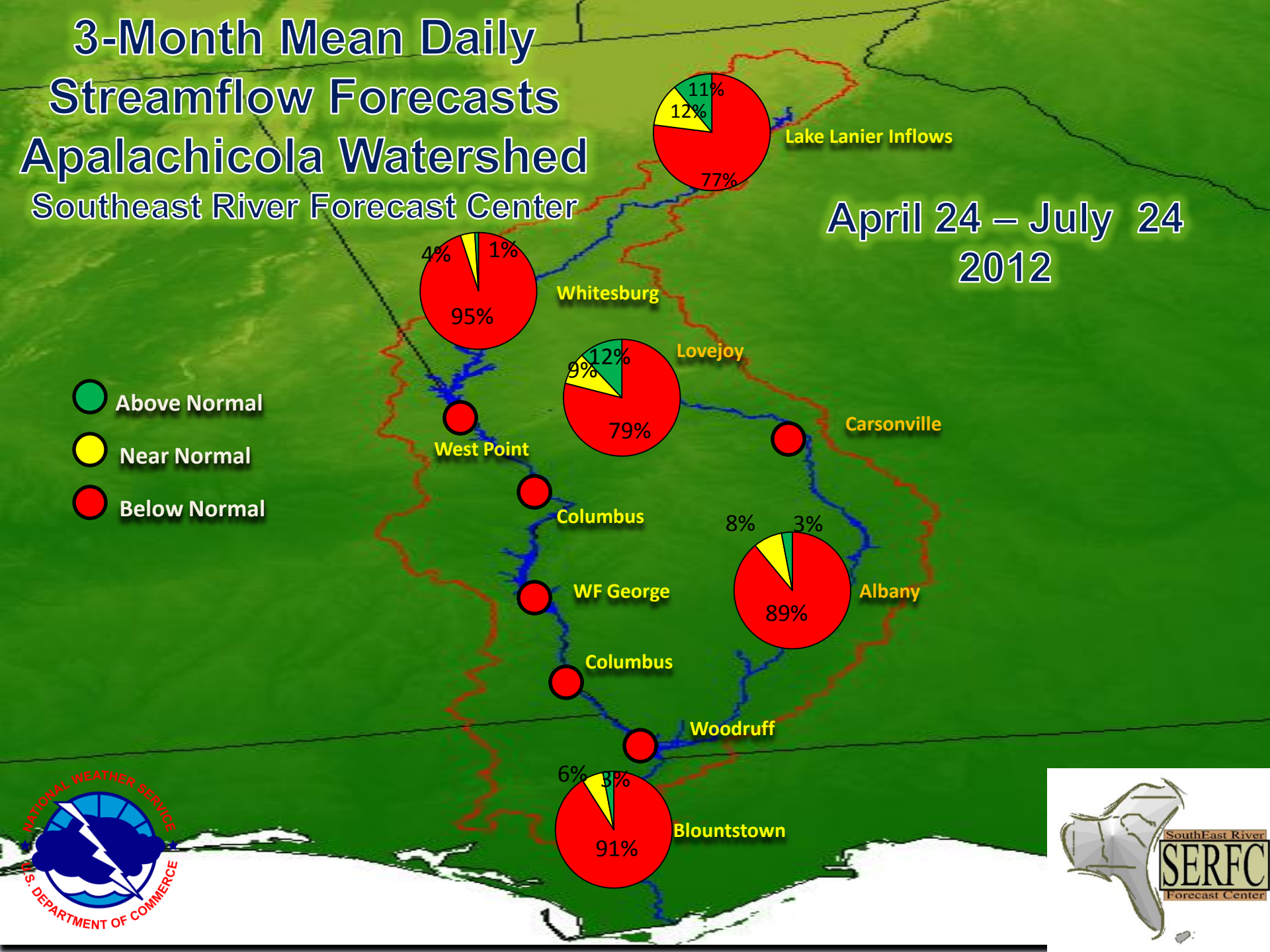
April 24 – May 24 2012



3-Month Mean Daily Streamflow Forecasts Apalachicola Watershed

Southeast River Forecast Center

April 24 – July 24 2012



Summary

- Except for northeastern Alabama, the Southeast is experiencing widespread drought, with extreme and exceptional drought in southern Georgia and the northern Florida peninsula
- Streamflows throughout the ACF basin are either in the range of the lowest 10% of historical observations or below levels ever recorded
- While ground waterlevels have recovered in a few locations, they are setting record lows in southern Georgia
- Reservoir levels for Lake Lanier and West Point are near or in Zone 3 and WF George at the top of Zone 4
- Salinity levels in Apalachicola are near the 75th percentile at East Bay and Cat Point and above the 90th percentile at Dry Bar

Summary

- No rain is forecast for the next 5 days, which is normal for the typically dry months of April and May
- The forecast for streamflows in the ACF are likely to remain below normal for the next 3 months
- The 3-month outlook suggests:
  - Drought will likely continue through the coastal plain of Georgia and S. Carolina
  - Some relief of drought is likely in southeastern Alabama, the panhandle and northern peninsula of Florida panhandle, and N. Carolina
  - Improvement is likely in the southern peninsula of Florida

Caveat: Improvement in drought conditions in the 3-month outlook, might not happen until early June or later

References

Speakers

David Zierden, FSU

Brian McCallum, USGS

Bailey Crane, USACE

Danielle Jones, FDEP

Jeffry Dobur, SERFC

Moderator

Keith Ingram, SECC

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

http://waterwatch.usgs.gov

Groundwater monitoring

http://groundwaterwatch.usgs.gov

Thanks for joining us!

Next Briefing: May 8, 2012, 1:00 pm EDT

Sides presented today and announcements for future briefings will be posted at:
http://www.drought.gov/portal/server.pt/community/acfrb

Photo source: Ocala Star-Banner, June 26, 2011