



Streamflow conditions across North Carolina

*Assessment of hydrologic
conditions observed through latter July 2011...*

USGS North Carolina Water Science Center
<http://nc.water.usgs.gov>

Online drought pages for USGS North Carolina WSC
<http://nc.water.usgs.gov/drought/>

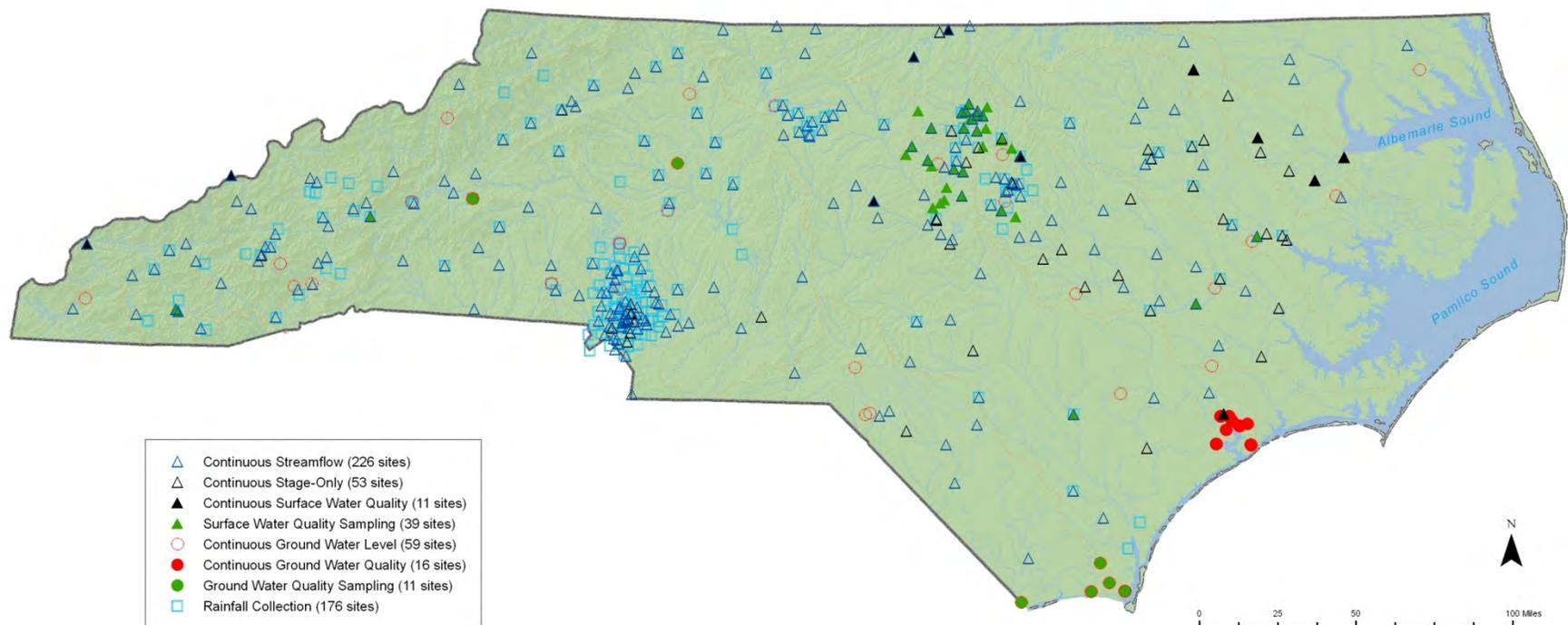
U.S. Department of the Interior
U.S. Geological Survey

*Presented to:
North Carolina Drought Management Advisory Council
Senator Bob Martin Agricultural Center, Williamston, NC
July 21, 2011*

USGS WY 2010 inventory map for NC

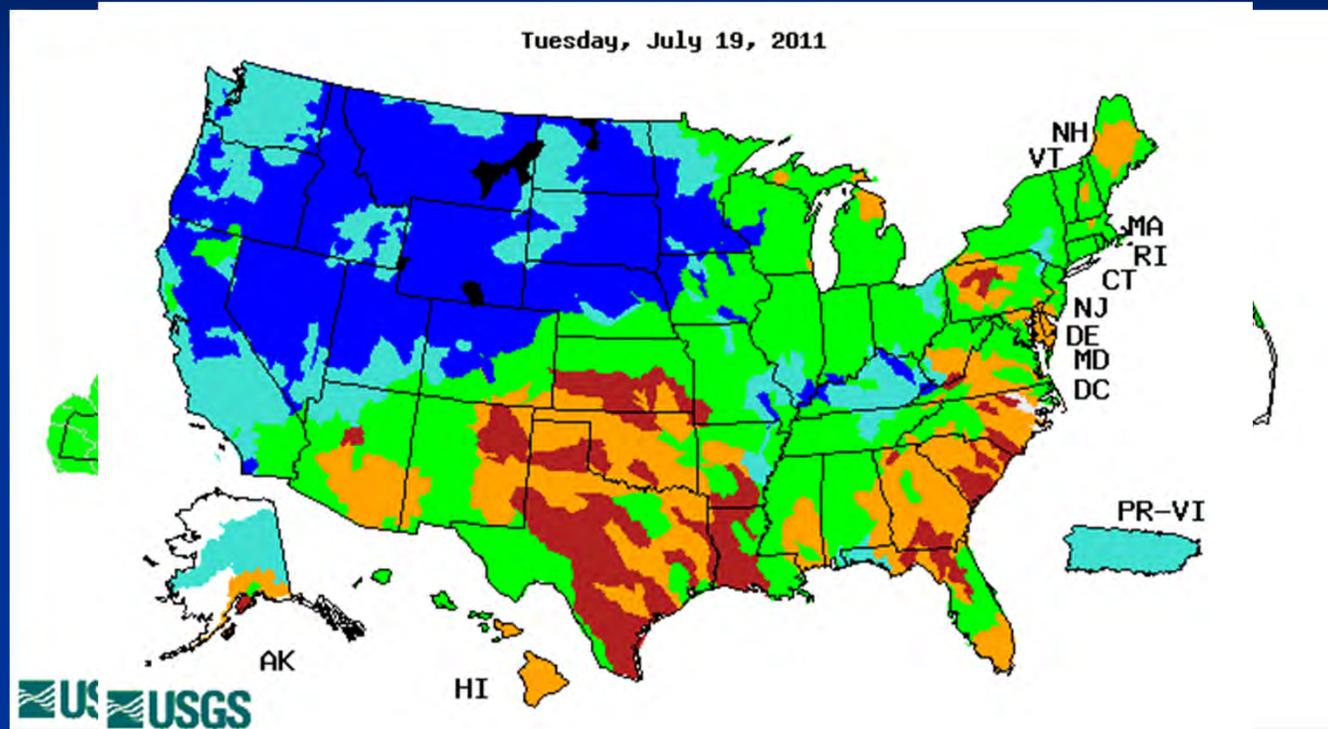
North Carolina - Water Year 2010

Annual Water Data Site Inventory Map



Available at URL <http://nc.water.usgs.gov/reports/WDR/>

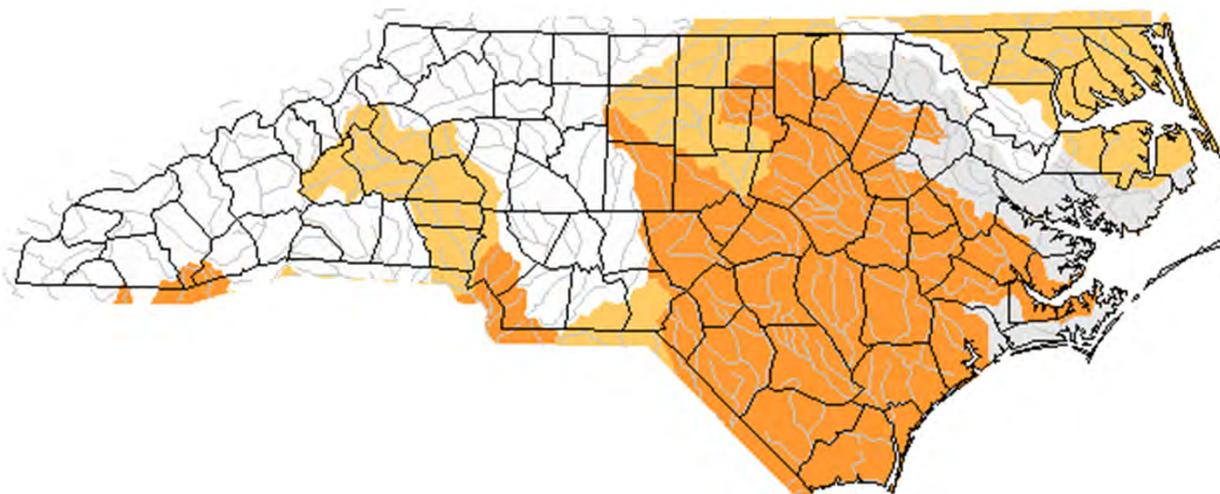
Overall 7-day average flows *as of July 19*



Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	
	Much below normal	Below normal	Normal	Above normal	Much above normal		

Below-normal 7-day average flows *as of July 19*

Tuesday, March 22, 2011



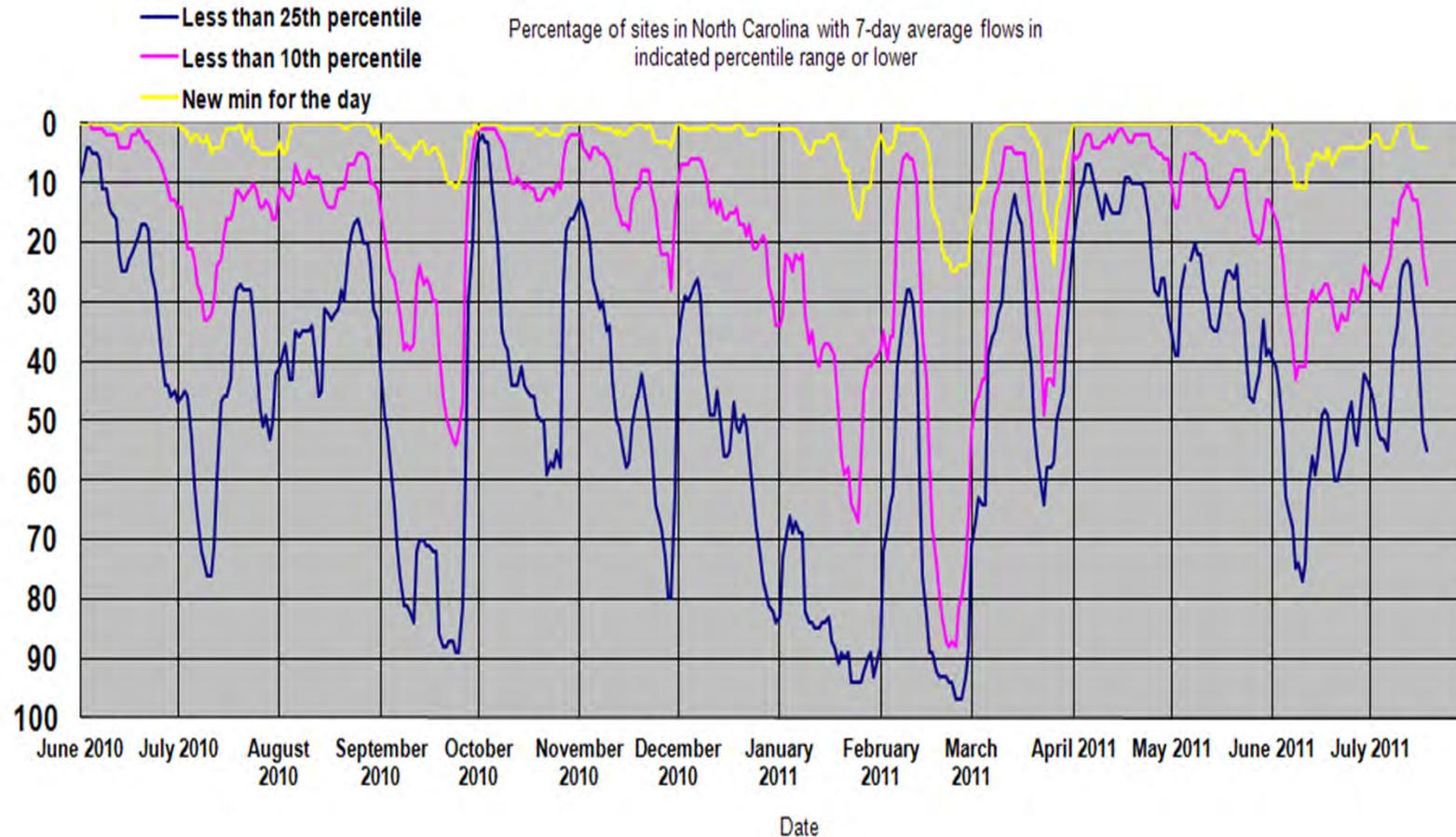
USGS

Explanation - Percentile classes				
Low	≤ 5	6-9	10-24	Insufficient data for a hydrologic region
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

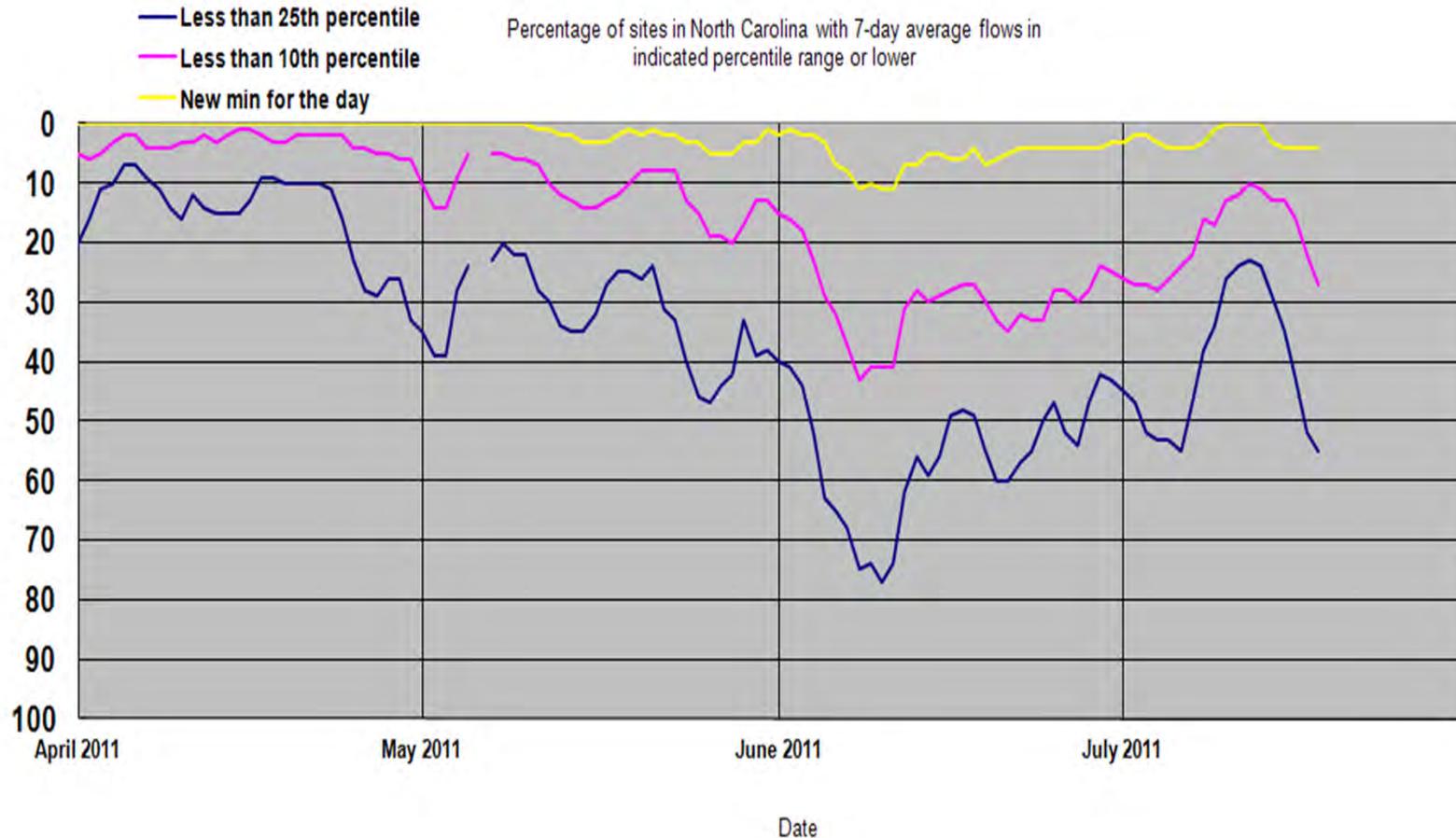
USGS

Available at URL <http://water.usgs.gov/waterwatch/>

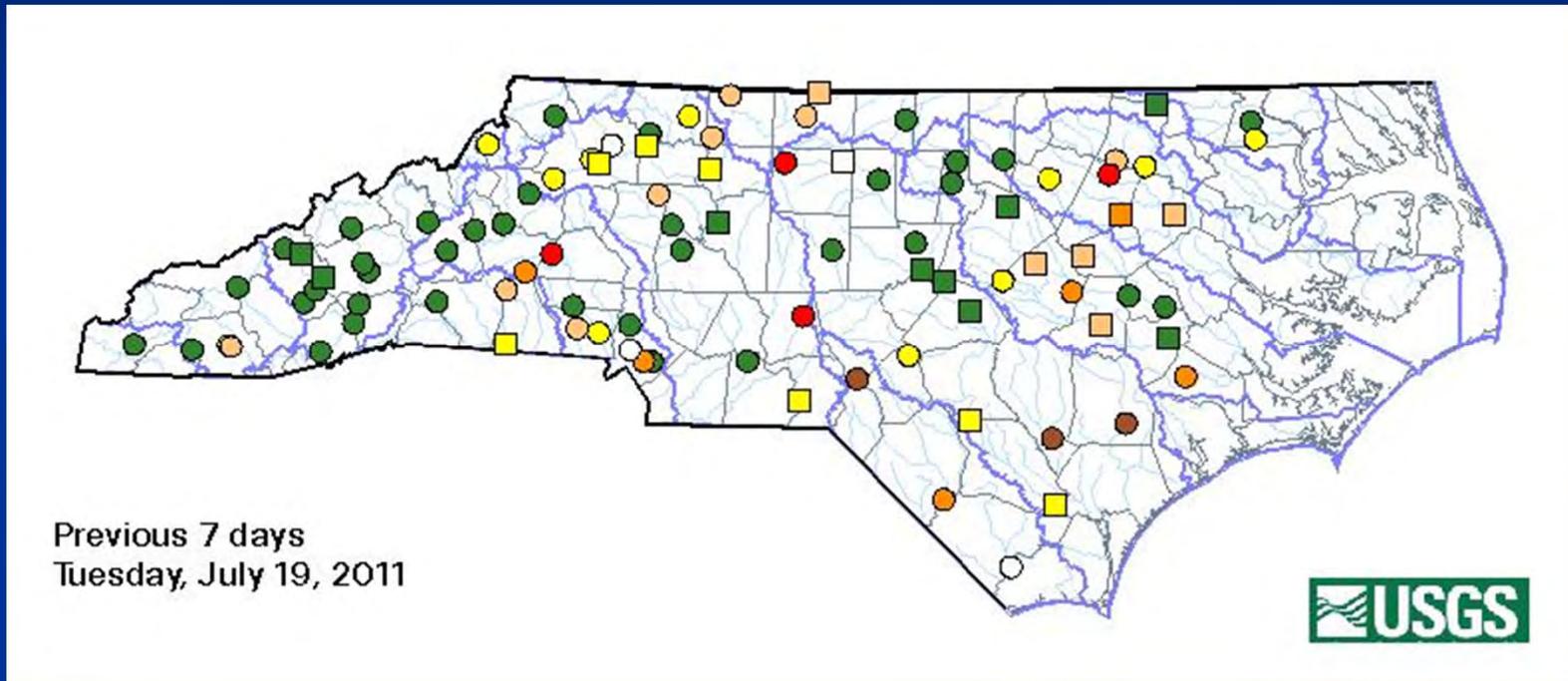
Percentage of sites with 7-day average flows below normal (< 25th percentile)



Percentage of sites with 7-day average flows below normal (< 25th percentile)

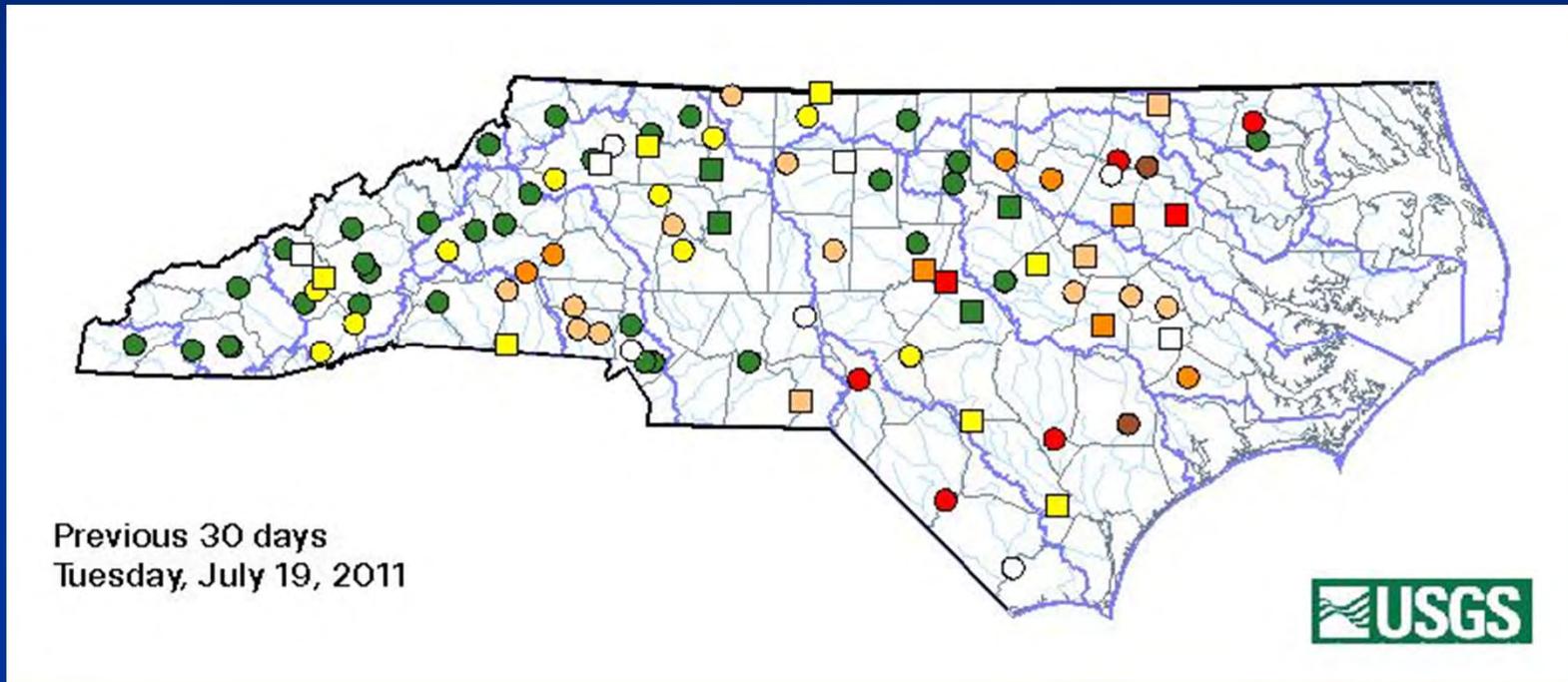


Median of percentiles for 7-day average flows during previous 7-day period through July 19



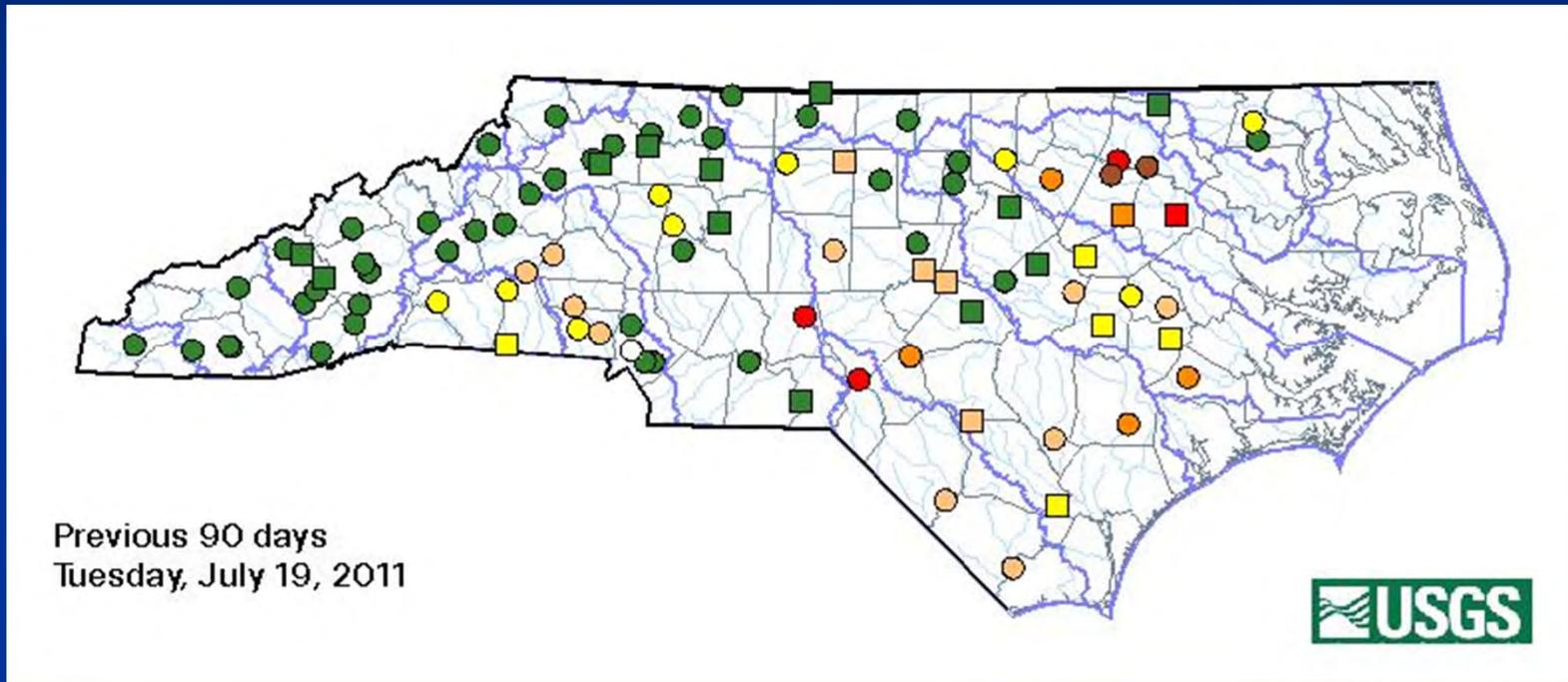
- | | |
|---|--|
|  No – No drought |  D2 – Severe drought |
|  D0 – Abnormally dry |  D3 – Extreme drought |
|  D1 – Moderate drought |  D4 – Exceptional drought |

Median of percentiles for 7-day average flows during previous 30-day period through July 19



- | | |
|---|--|
|  No – No drought |  D2 – Severe drought |
|  D0 – Abnormally dry |  D3 – Extreme drought |
|  D1 – Moderate drought |  D4 – Exceptional drought |

Median of percentiles for 7-day average flows during previous 90-day period through July 19

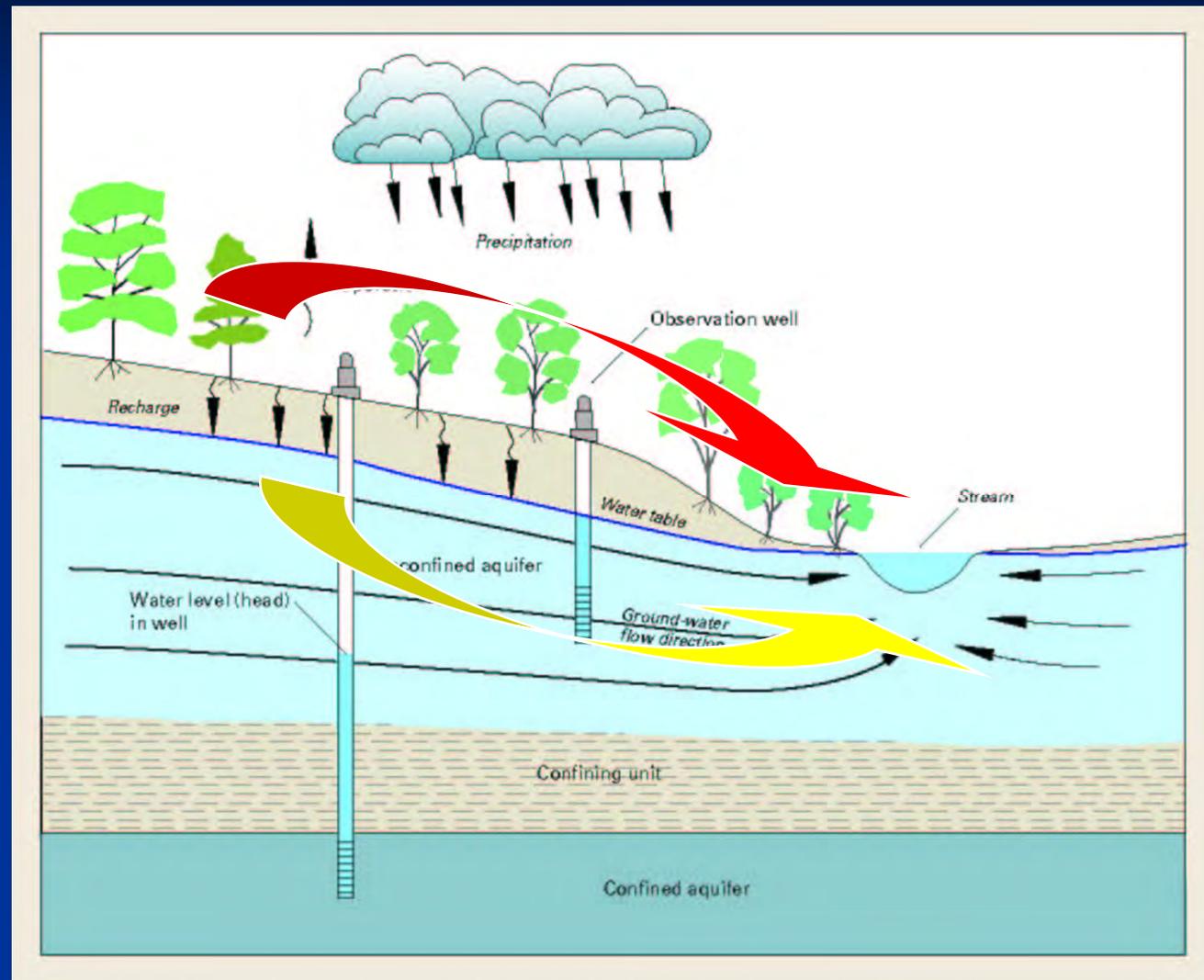


- | | |
|-----------------------|--------------------------|
| No – No drought | D2 – Severe drought |
| D0 – Abnormally dry | D3 – Extreme drought |
| D1 – Moderate drought | D4 – Exceptional drought |

Visualizing the components in streamflow

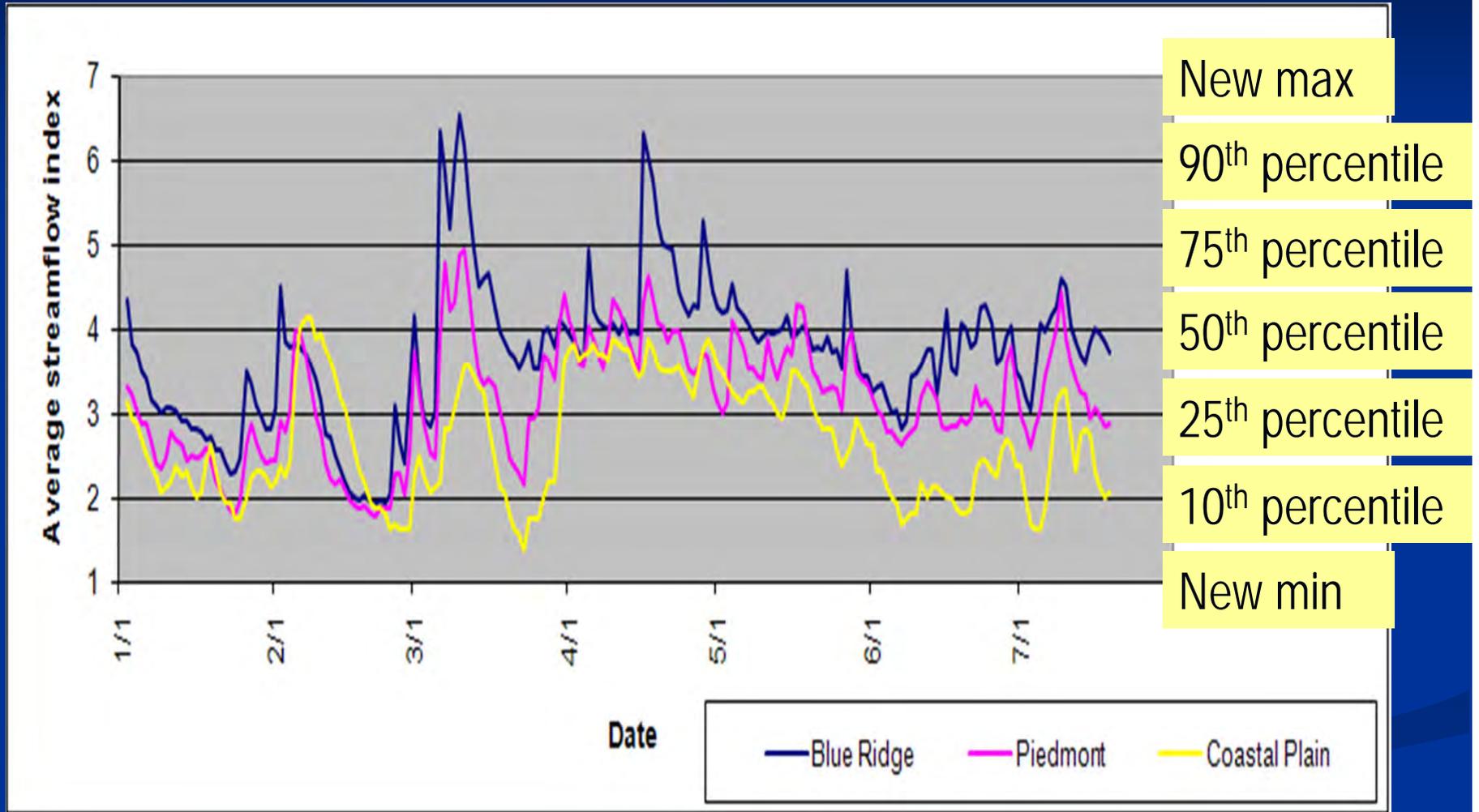
Overland runoff

Base flow
(ground-water discharge to streams)



From:
Ground-water-level Monitoring and the Importance of Long-Term Water-Level Data
USGS Circular 1217 by Taylor and Alley, 2002 (Figure A-2, page 4)

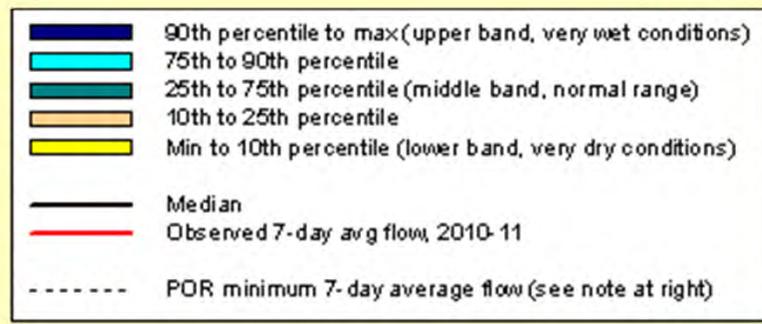
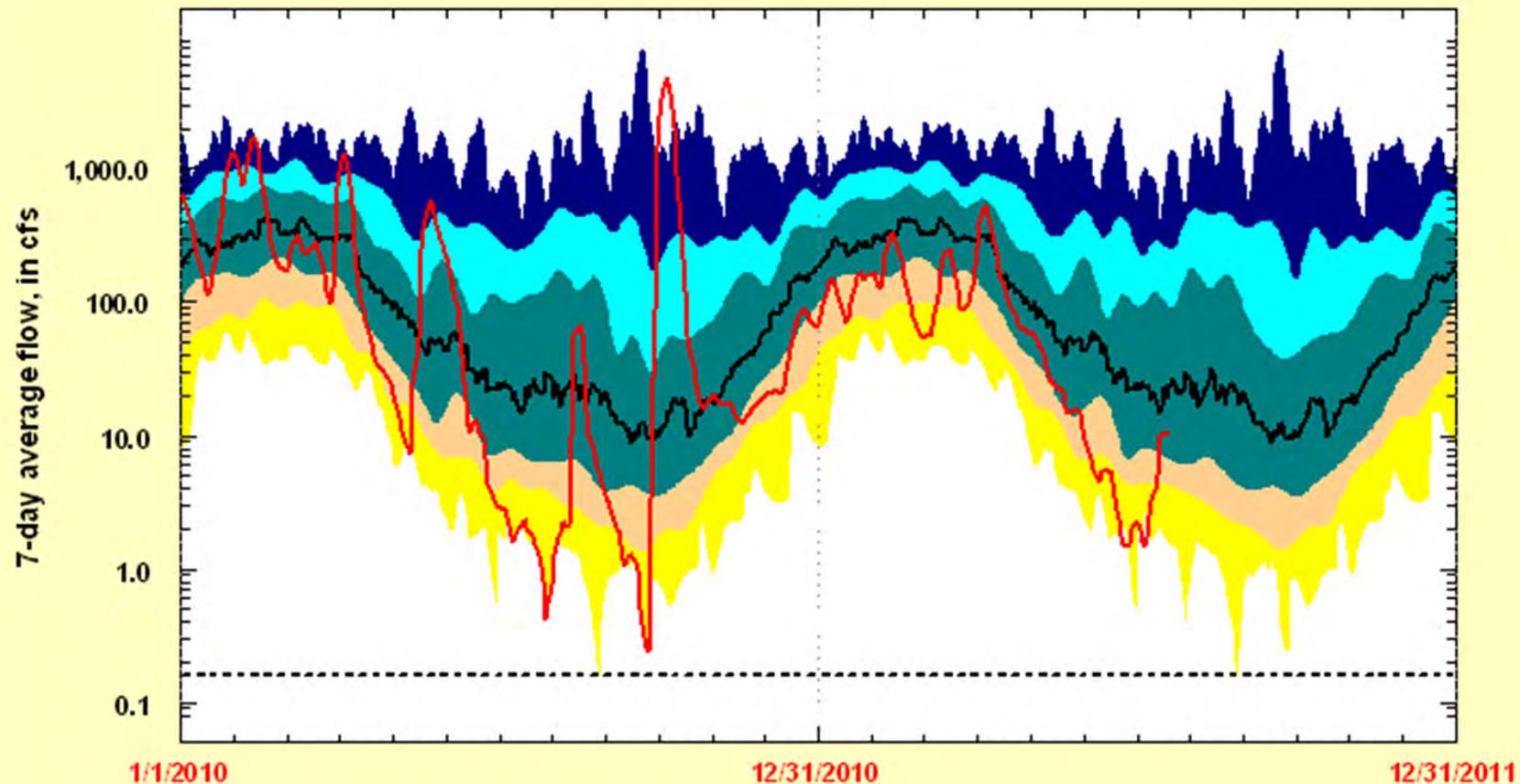
Average streamflow index (by Province)



Sta. 02053200, Potecasi Creek near Union (Hertford County), DA = 225 sqmi

Period of record (POR): March 1958 to current

Approx. 53 total years record available to date, flow conditions at this site known or considered to be unregulated



POR minimum 7-day average flow:
0.16 cfs, ending on 08/28/2008

Observed data through 07/19/2011
Statistics based on 04/01/1958 through 09/30/2010

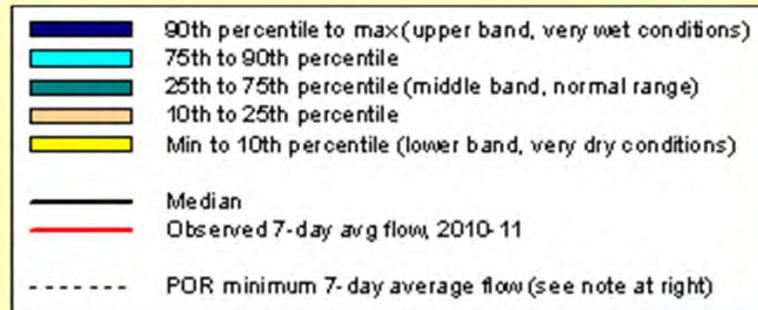
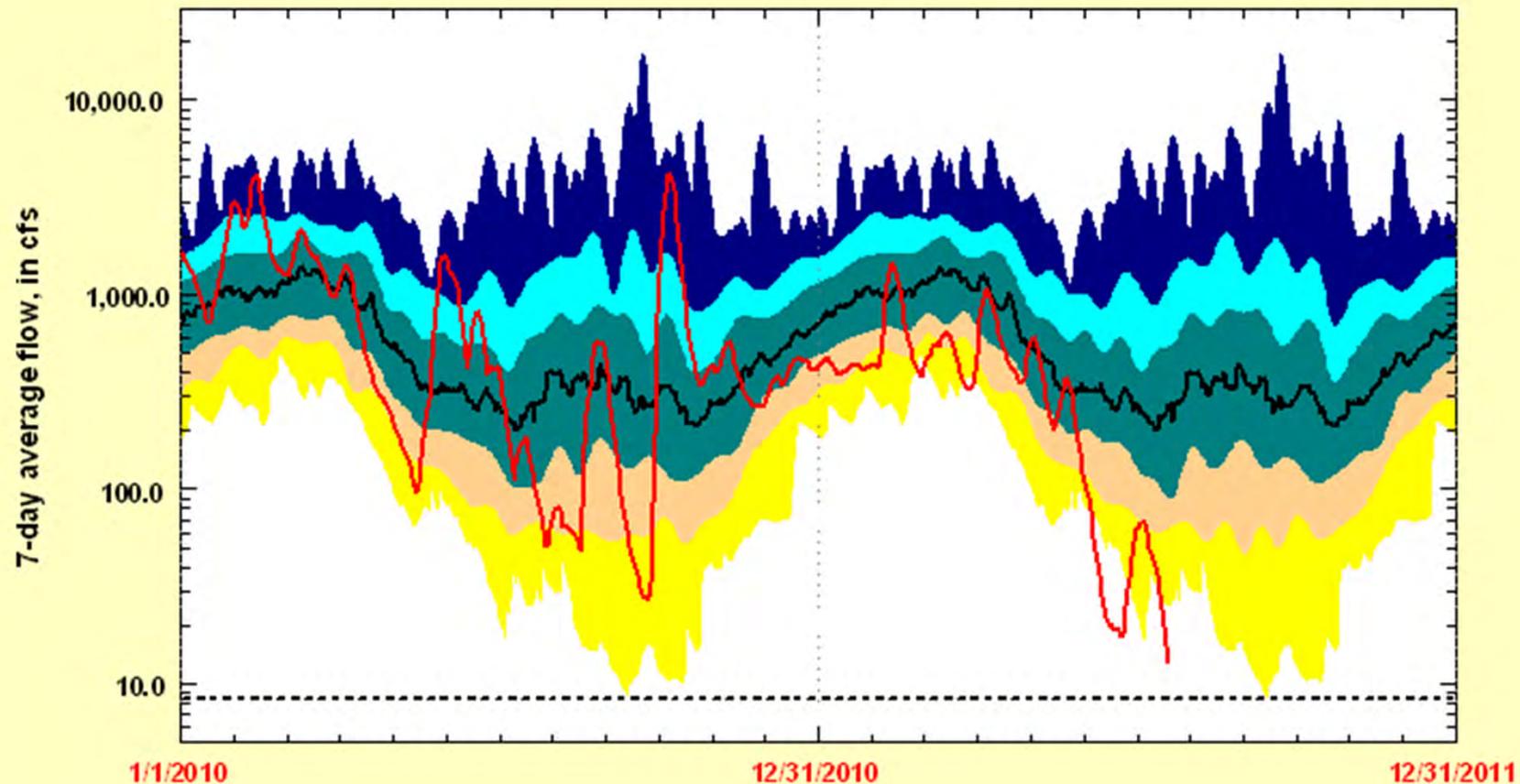
Note: Data and statistics since 09/30/2010 considered provisional and subject to revision.
Plot created: July 20, 2011 6:15:23 AM



Sta. 02106500, Black River near Tomahawk (Sampson County), DA = 676 sqmi

Period of record (POR): October 1951 to current

Approx. 60 total years record available to date, flow conditions at this site known or considered to be unregulated



POR minimum 7-day average flow:
8.44 cfs, ending on 09/14/2007

Observed data through 07/19/2011
Statistics based on 10/01/1951 through 09/30/2010

Note: Data and statistics since 09/30/2010
considered provisional and subject to revision.

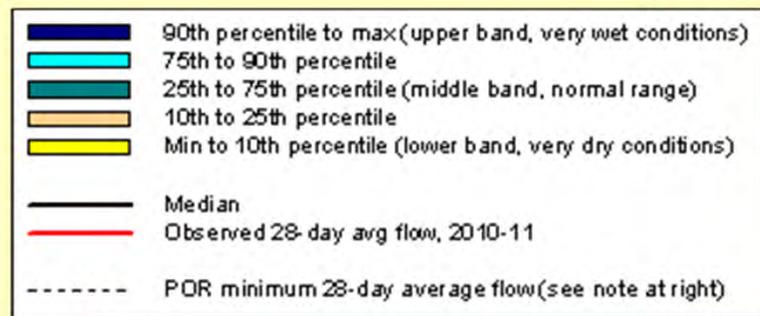
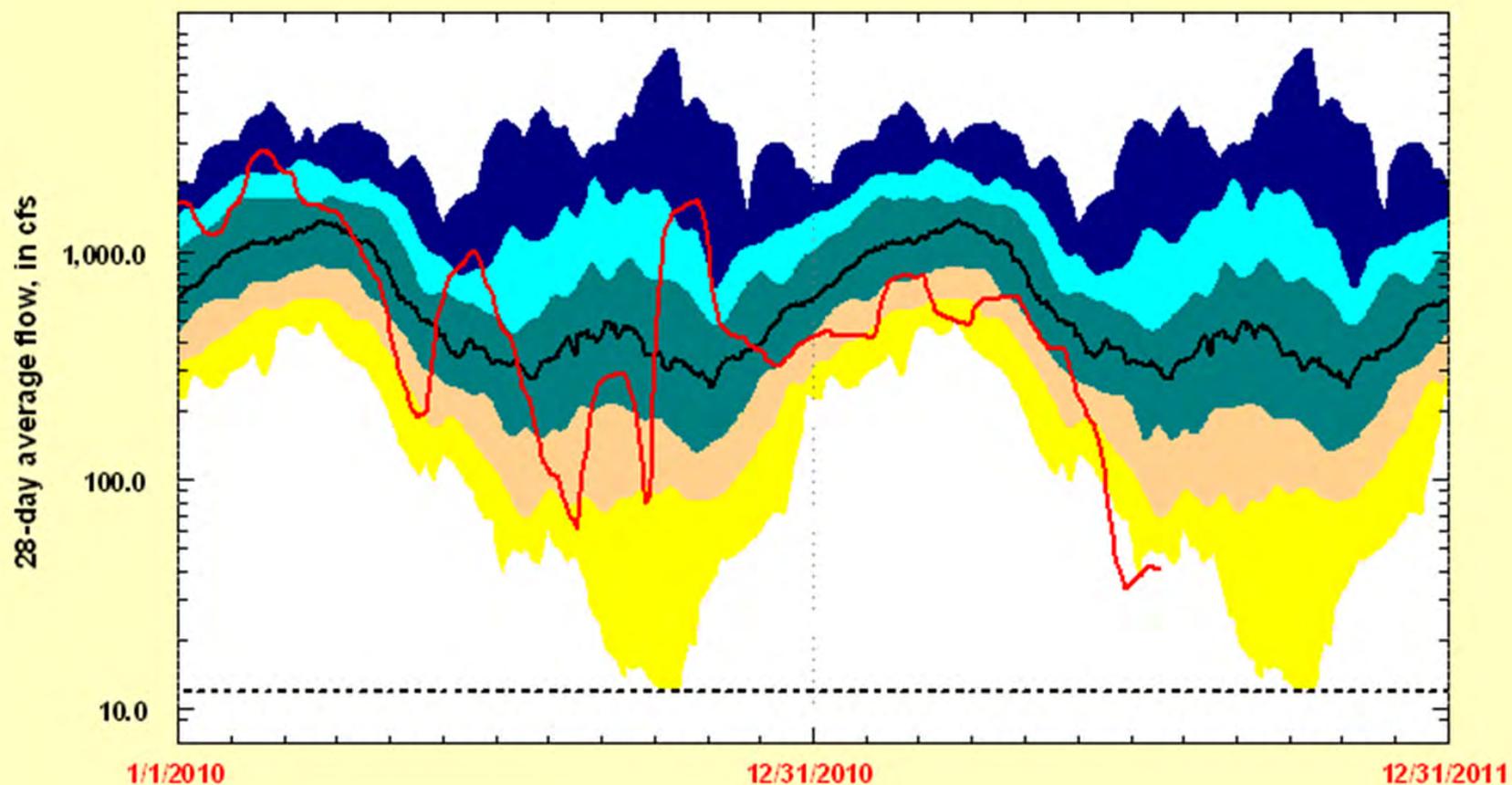
Plot created: July 20, 2011 6:36:41 AM



Sta. 02106500, BLACK RIVER NEAR TOMAHAWK, NC (Sampson County), DA = 676 sqmi

Period of record (POR): 0/0/ through 0/0/

Approx. 60 total years record available to date (Site info from <http://waterdata.usgs.gov/nwis/inventory>)



POR minimum 28-day average flow:
11.92 cfs, ending on 10/15/1954

Observed data through 07/18/2011
Statistics based on 10/01/1951 through 09/30/2010

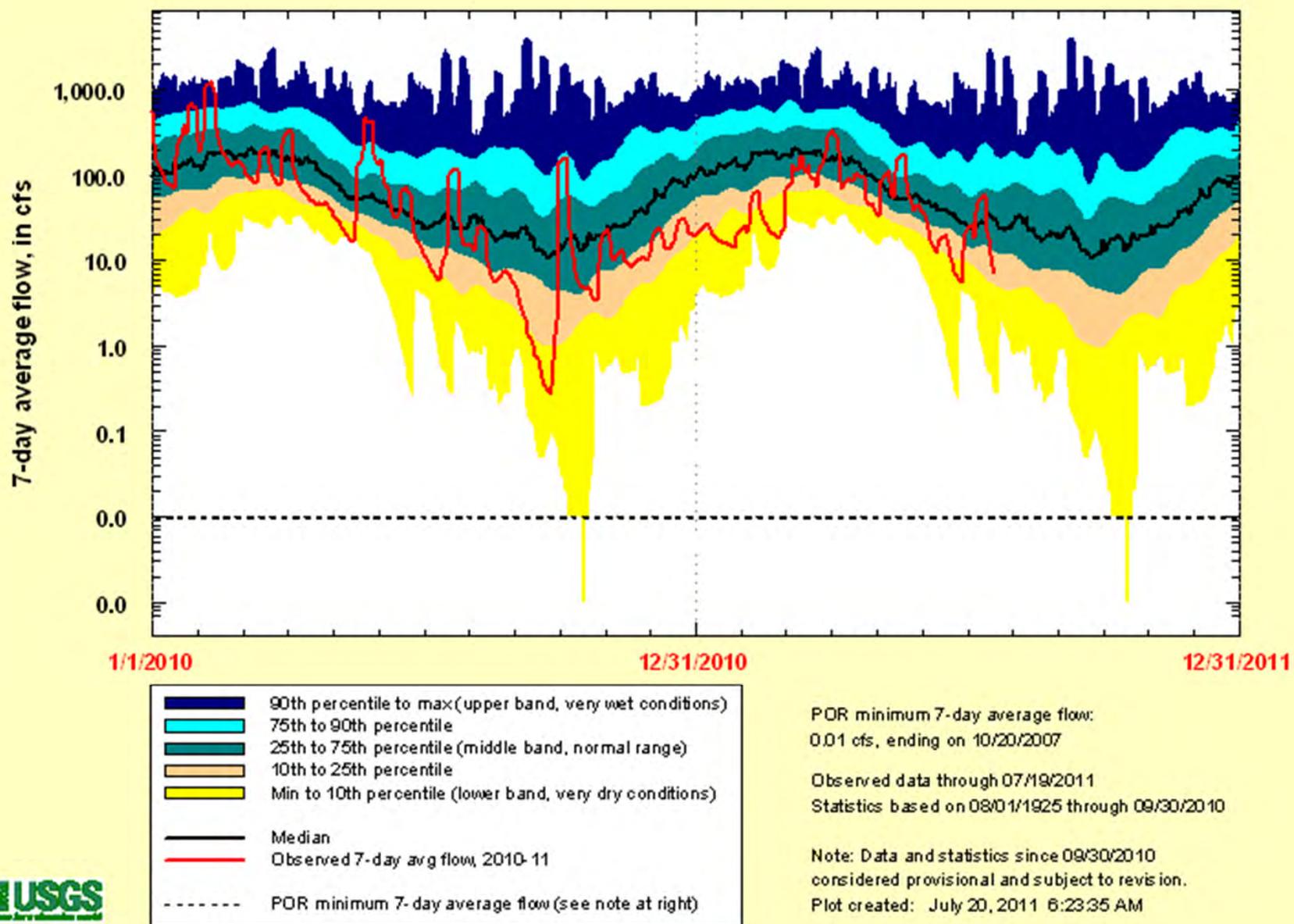
Note: Data and statistics since 09/30/2010
considered provisional and subject to revision.
Plot created: July 20, 2011 1:13:18 AM



Sta. 02085500, Flat River at Bahama (Durham County), DA = 149 sqmi

Period of record (POR): July 1925 to current

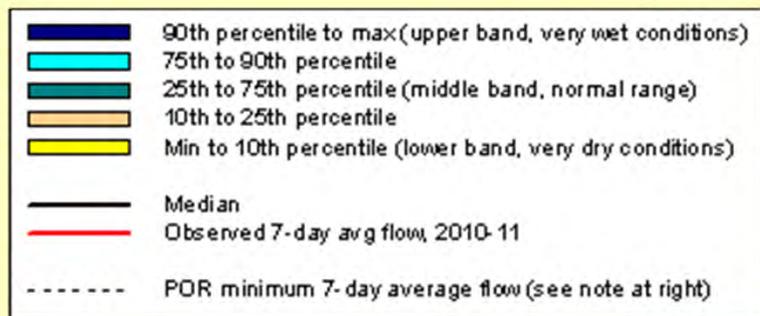
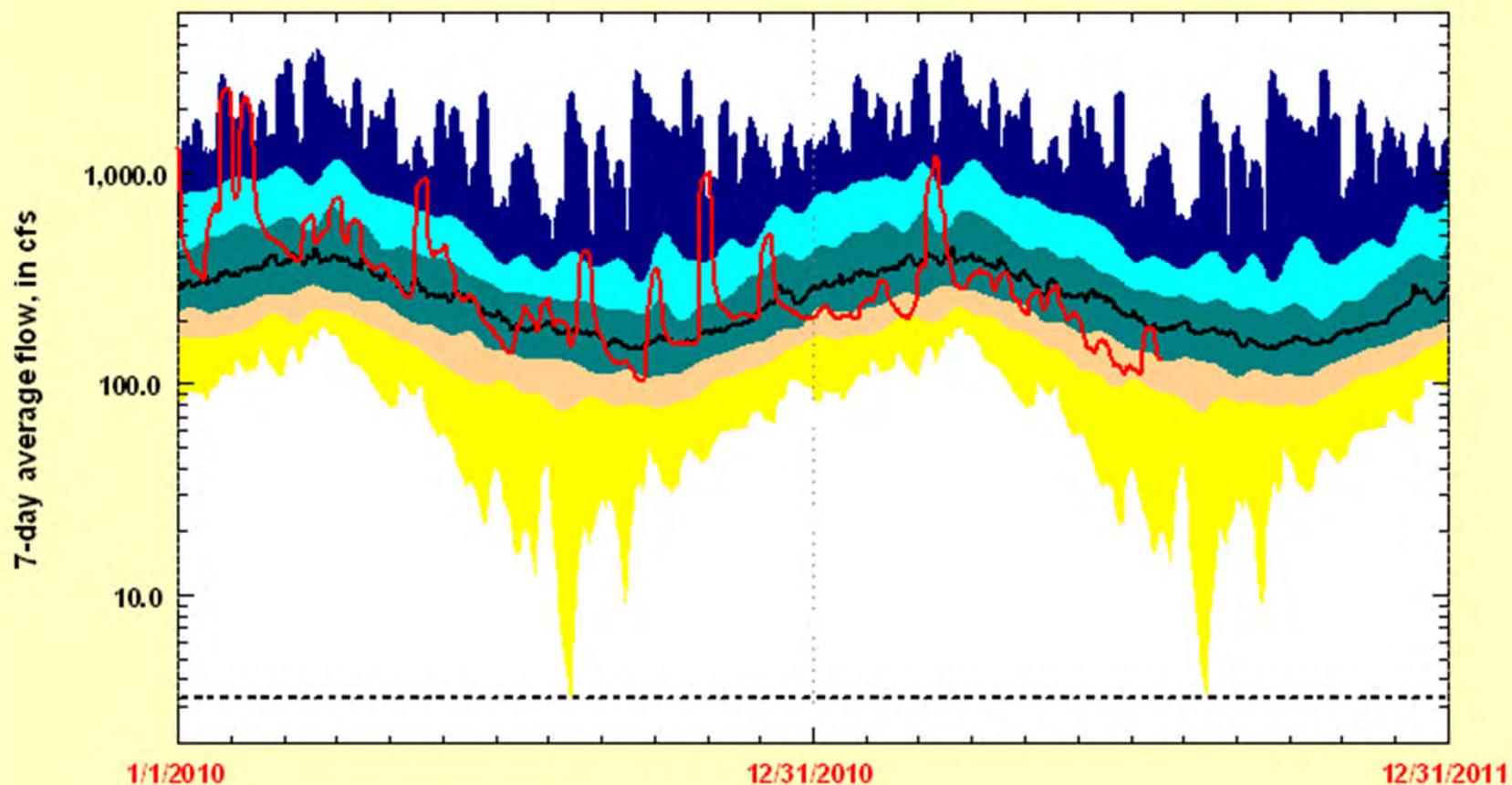
Approx. 86 total years record available to date, flow conditions at this site known or considered to be unregulated



Sta. 02118000, South Yadkin River near Mocksville (Rowan County), DA = 306 sqmi

Period of record (POR): October 1938 to current

Approx. 73 total years record available to date, flow conditions at this site known or considered to be affected by diversion(s)



POR minimum 7-day average flow:
3.31 cfs, ending on 08/15/2002

Observed data through 07/19/2011
Statistics based on 10/01/1938 through 09/30/2010

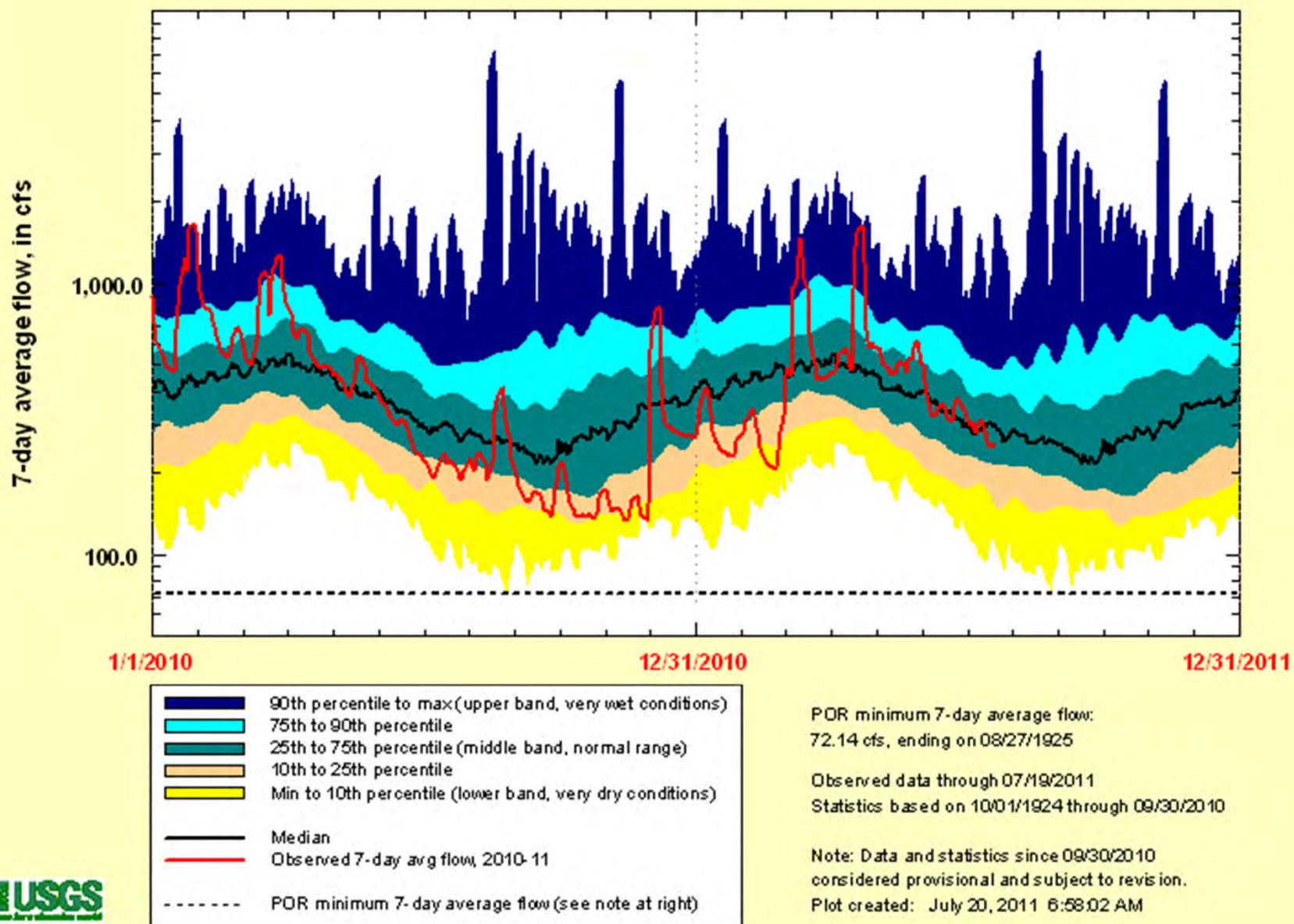
Note: Data and statistics since 09/30/2010
considered provisional and subject to revision.
Plot created: July 20, 2011 6:44:46 AM



Sta. 03161000, South Fork New River at Jefferson (Ashe County), DA = 205 sqmi

Period of record (POR): October 1924 to current

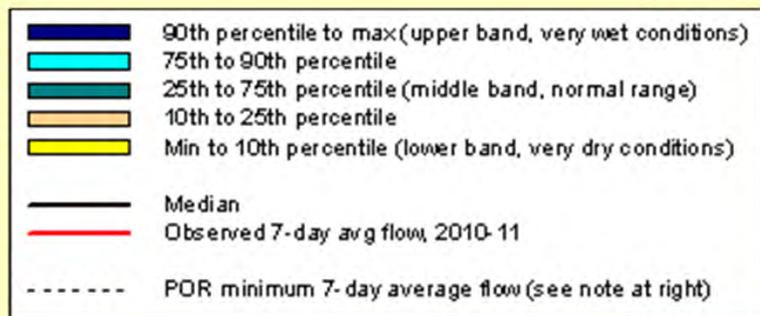
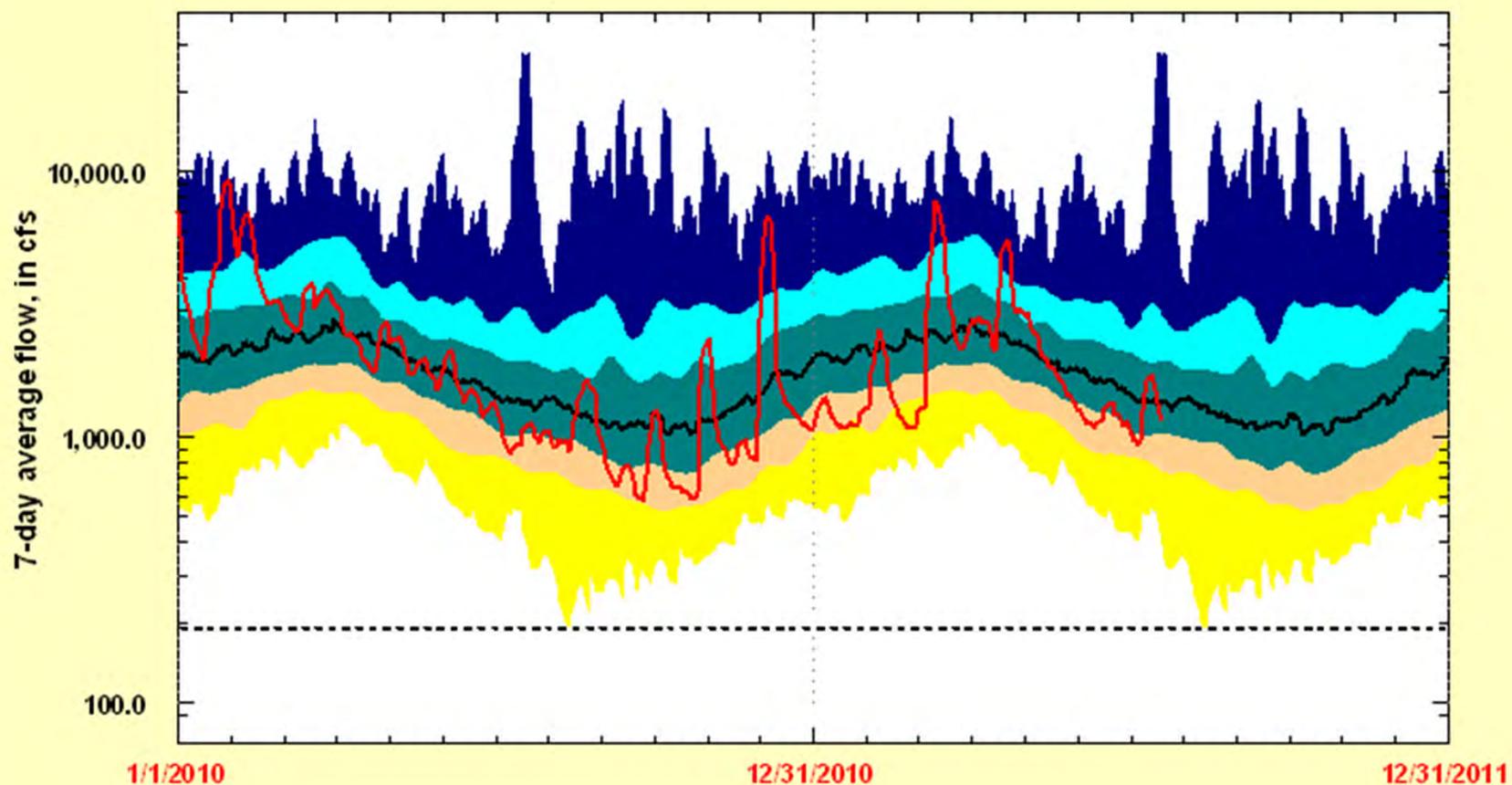
Approx. 87 total years record available to date, flow conditions at this site known or considered to be unregulated



Sta. 03451500, French Broad River at Asheville (Buncombe County), DA = 945 sqmi

Period of record (POR): Oct 1895 to current

Approx. 116 total years record available to date, flow conditions at this site known or considered to be affected by diversion(s)



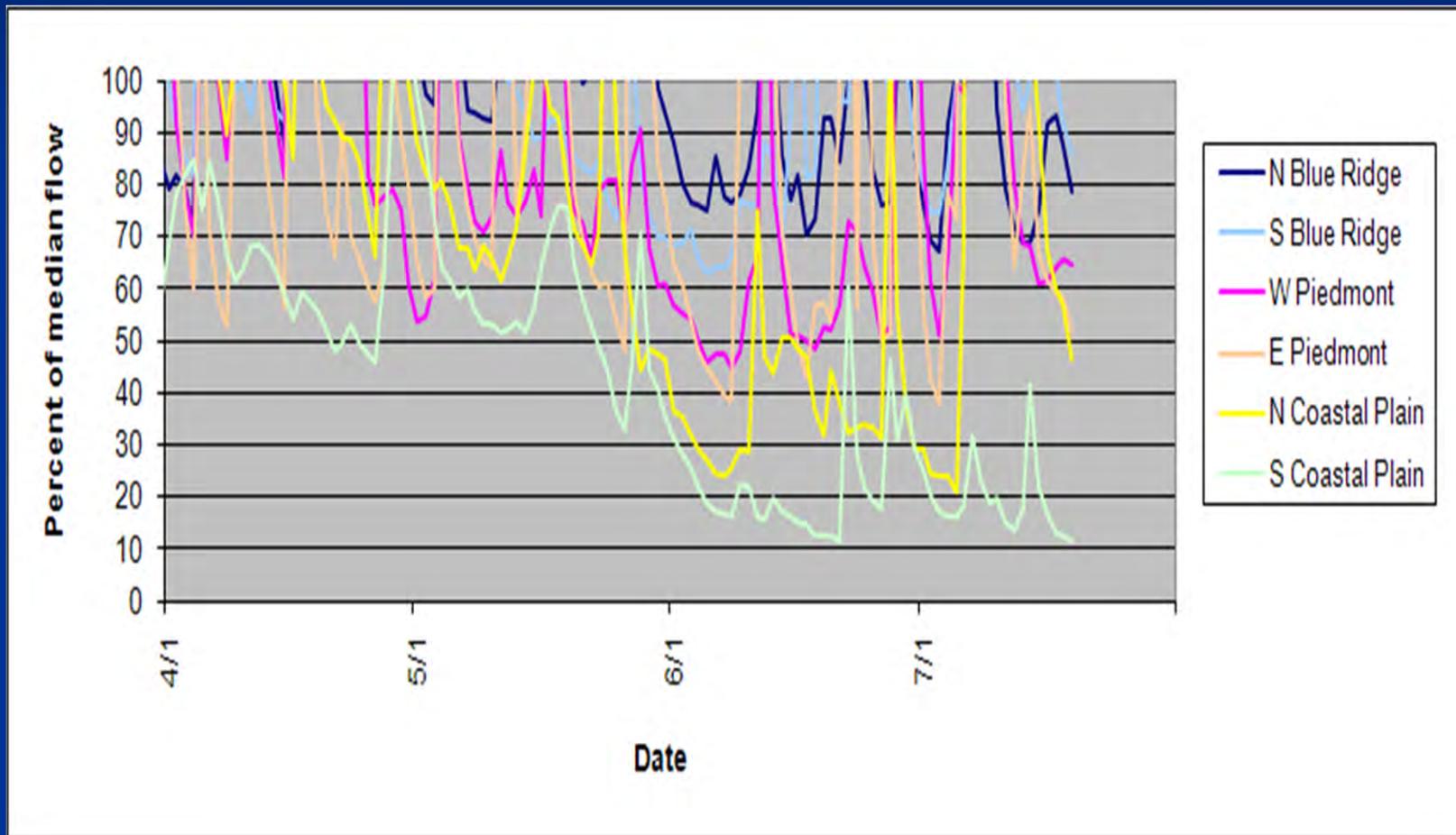
POR minimum 7-day average flow:
190.29 cfs, ending on 08/13/2008

Observed data through 07/19/2011
Statistics based on 10/01/1895 through 09/30/2010

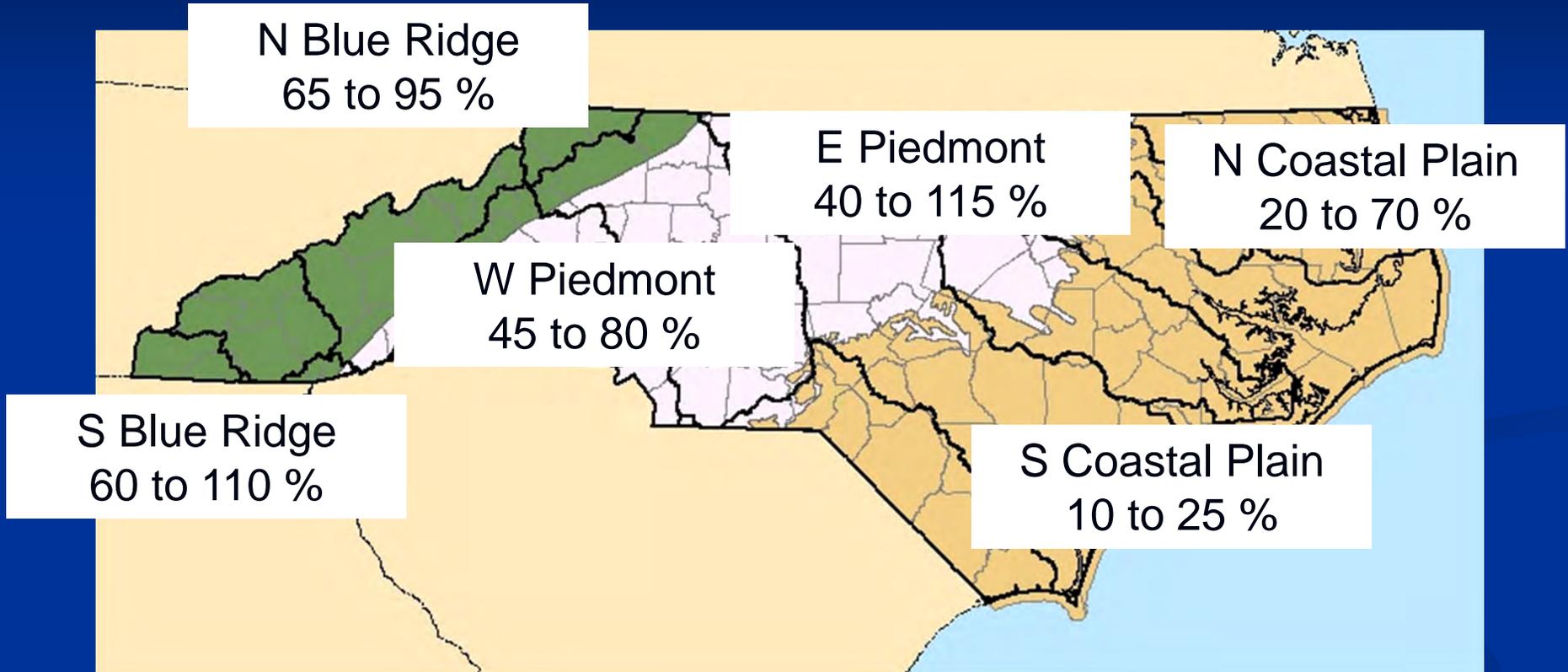
Note: Data and statistics since 09/30/2010
considered provisional and subject to revision.
Plot created: July 20, 2011 7:00:54 AM



Percent of median (by region)



Typical ranges in **percentage of median flow** since June 1...(by region)

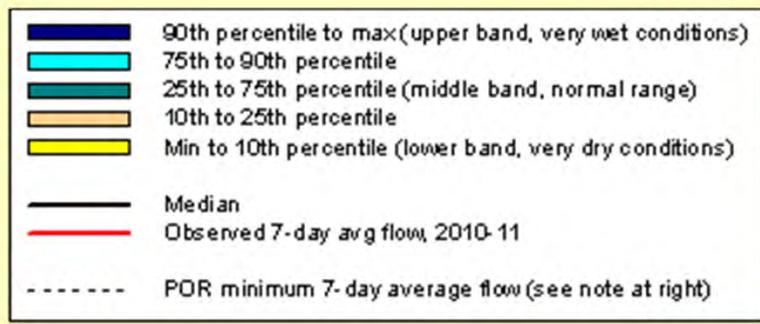
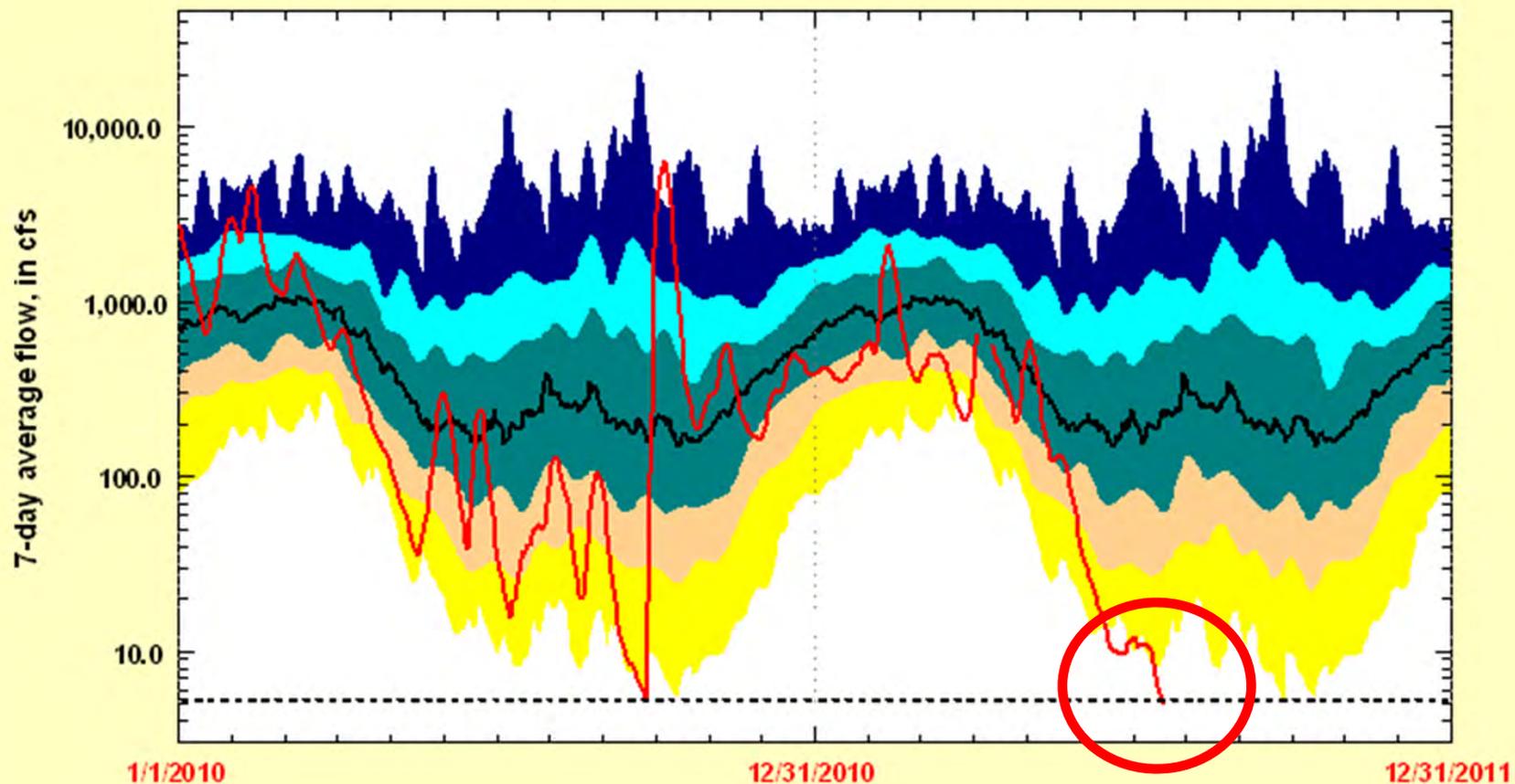


...as of July 19

Sta. 02108000, Northeast Cape Fear River near Chinquapin (Duplin County), DA = 599 sqmi

Period of record (POR): July 1940 to current

Approx. 71 total years record available to date, flow conditions at this site known or considered to be unregulated



POR minimum 7-day average flow:
5.27 cfs, ending on 09/26/2010

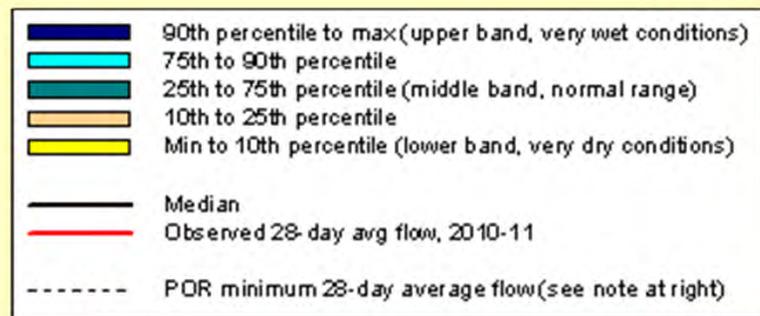
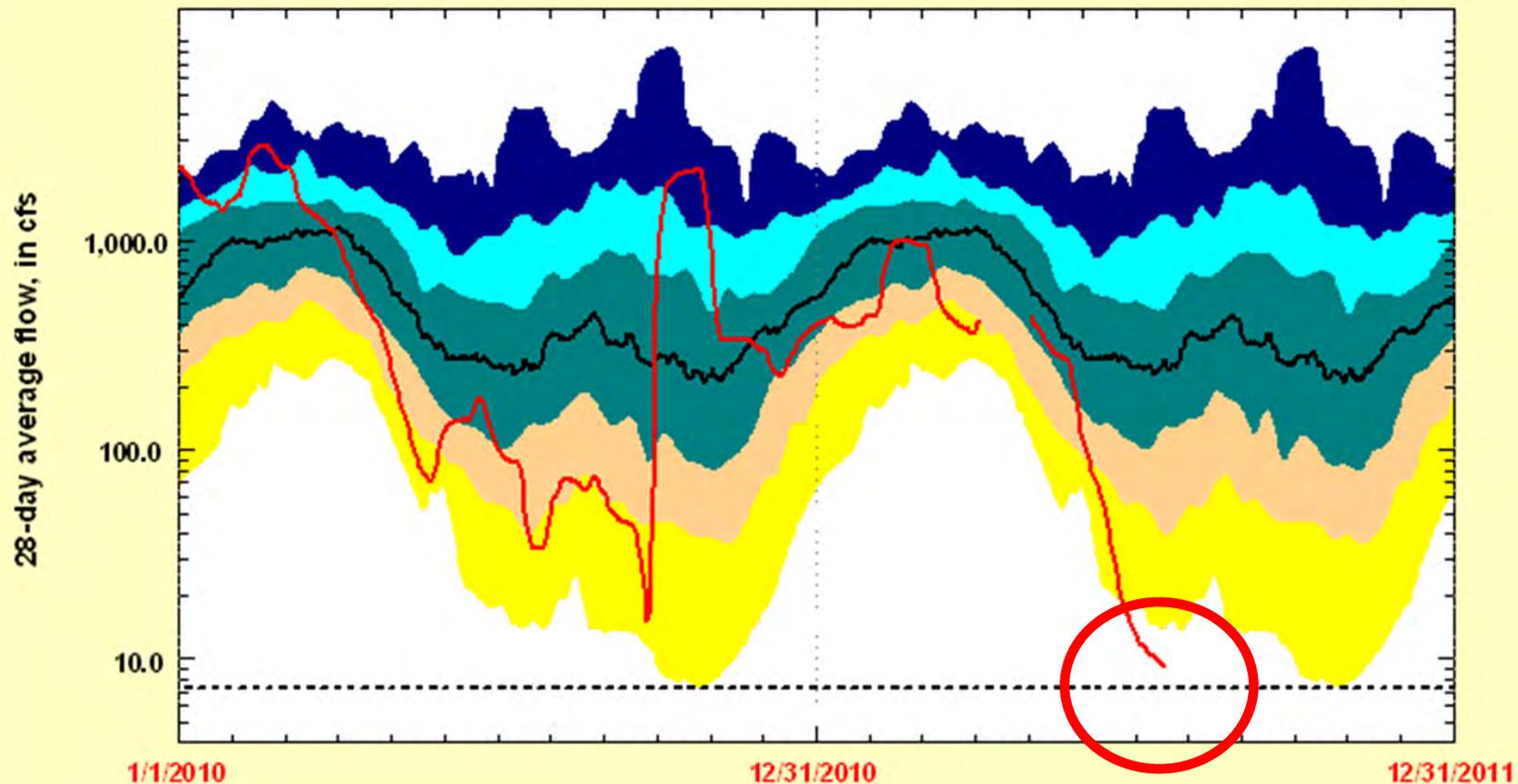
Observed data through 07/19/2011
Statistics based on 08/01/1940 through 09/30/2010

Note: Data and statistics since 09/30/2010
considered provisional and subject to revision.

Plot created: July 20, 2011 6:37:27 AM



Sta. 02108000, NORTHEAST CAPE FEAR RIVER NEAR CHINQUAPIN, NC (Duplin County), DA = 599 sqmi
 Period of record (POR): 0/0/ through 0/0/
 Approx. 71 total years record available to date (Site info from <http://waterdata.usgs.gov/nwis/inventory>)



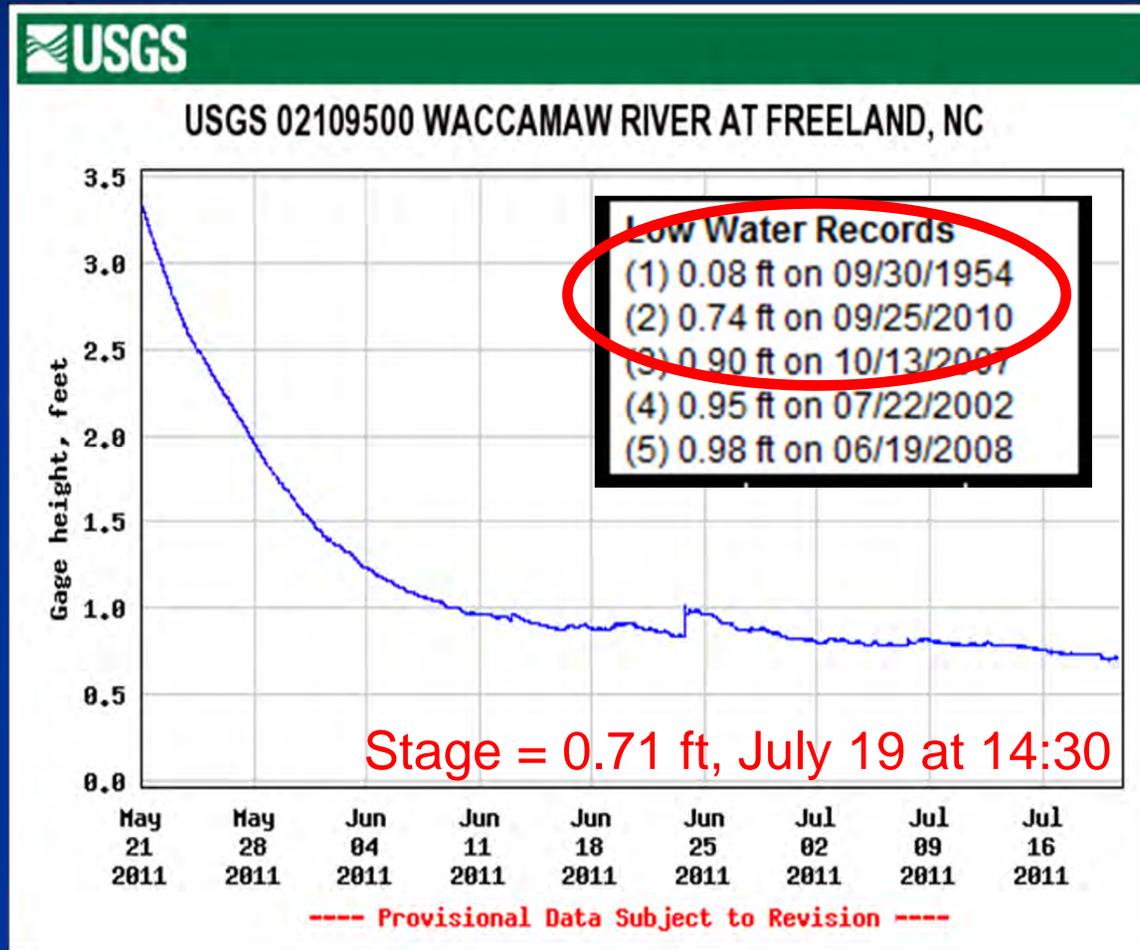
POR minimum 28-day average flow:
 7.33 cfs, ending on 10/26/1954

Observed data through 07/18/2011
 Statistics based on 08/01/1940 through 09/30/2010

Note: Data and statistics since 09/30/2010 considered provisional and subject to revision.
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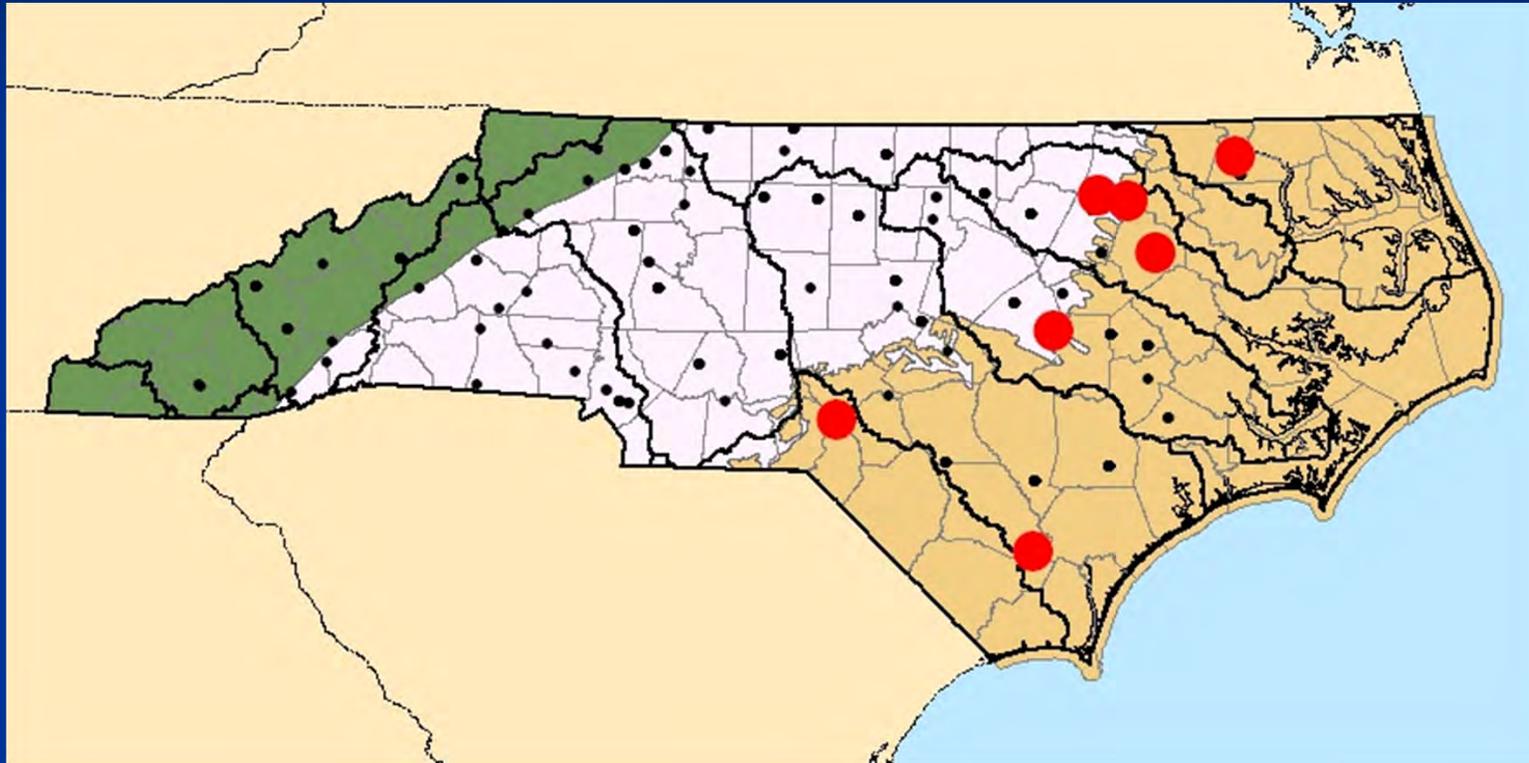


Near record low stage at USGS Sta. 02109500 Waccamaw River at Freeland in Brunswick County,



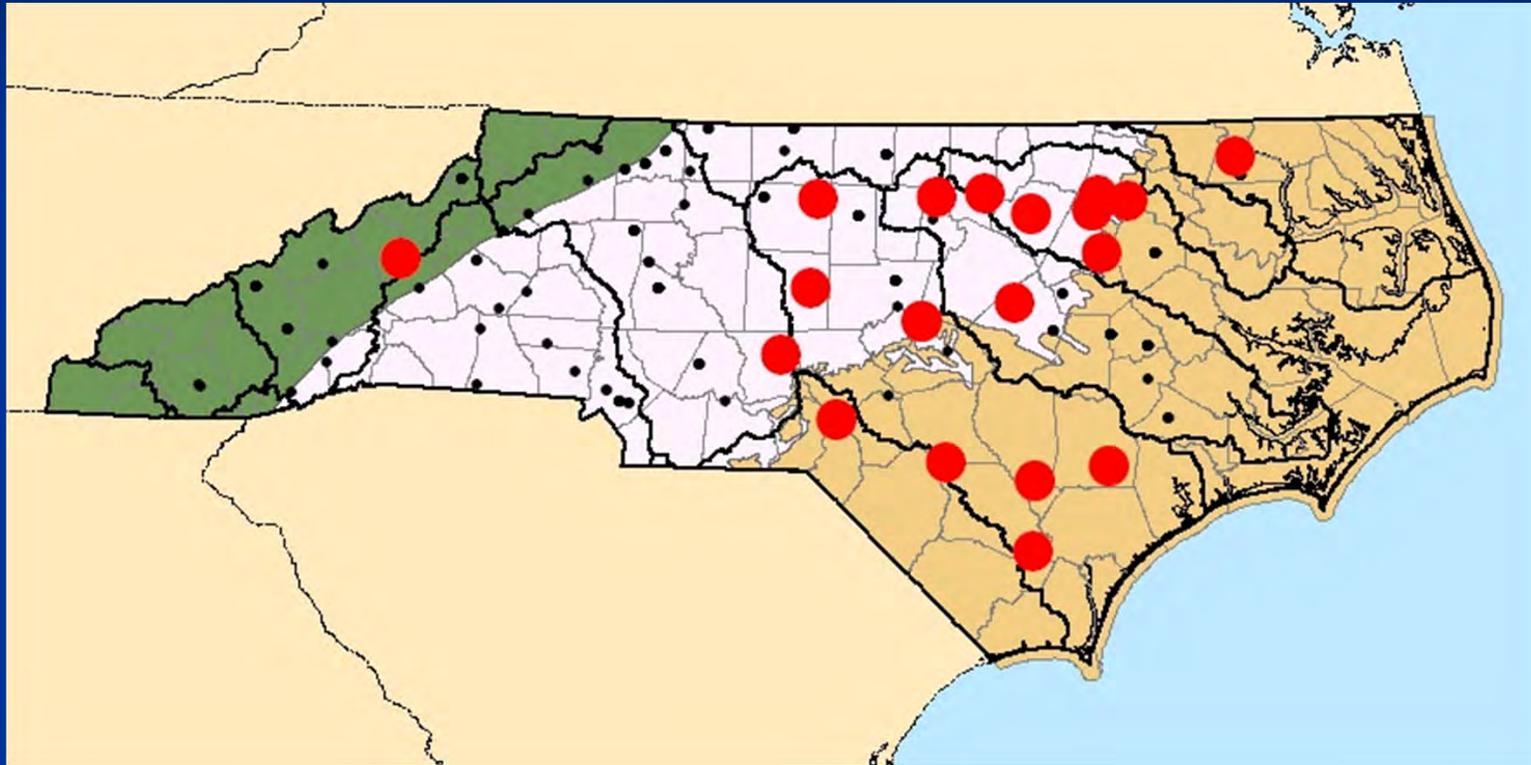
*DA = 680 sqmi, daily records since July 1939
currently second lowest stage on record*

*New record monthly minimum average
during 2010 water year*



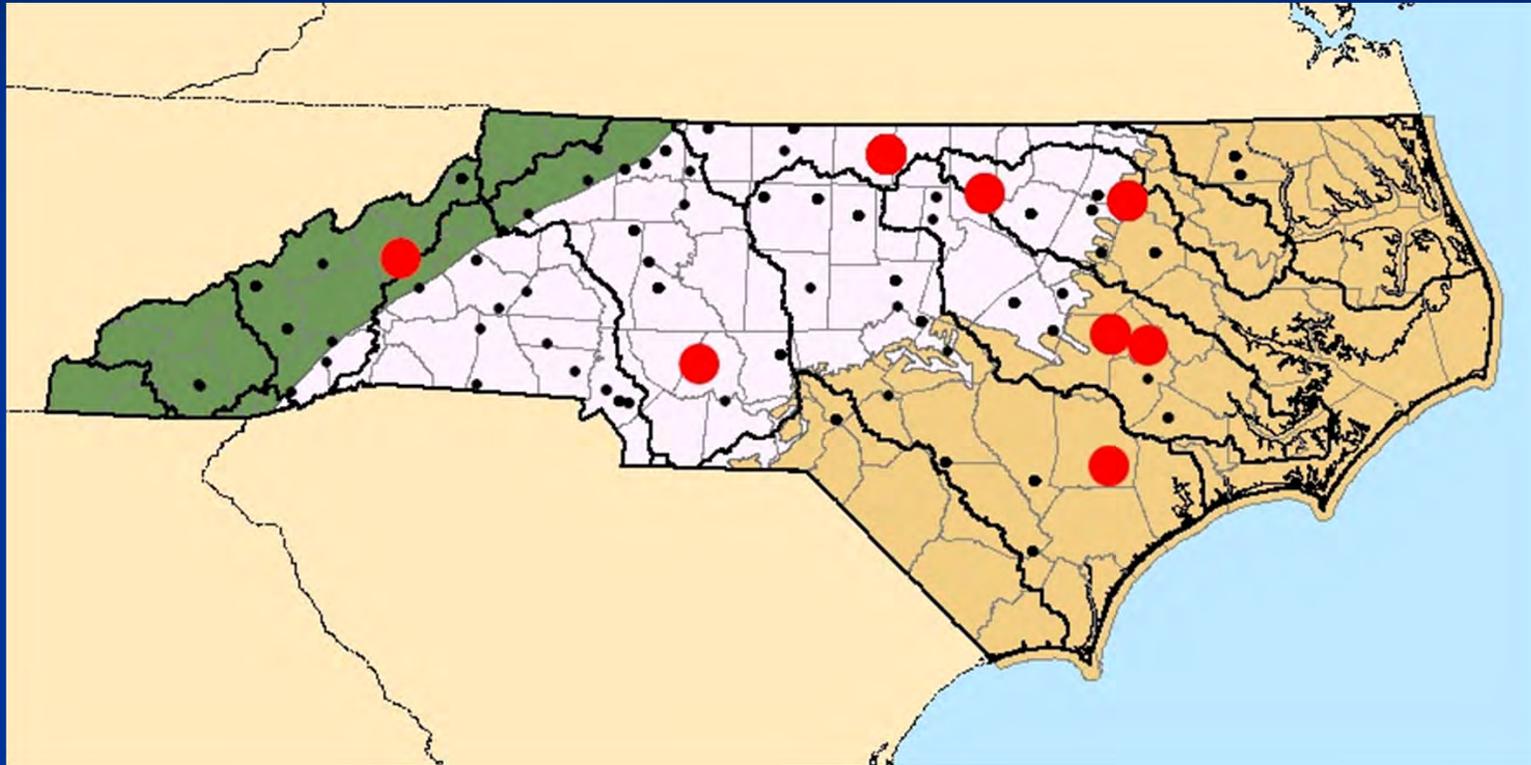
7 sites in Coastal Plain...

*New record monthly minimum average
during 2011 water year*



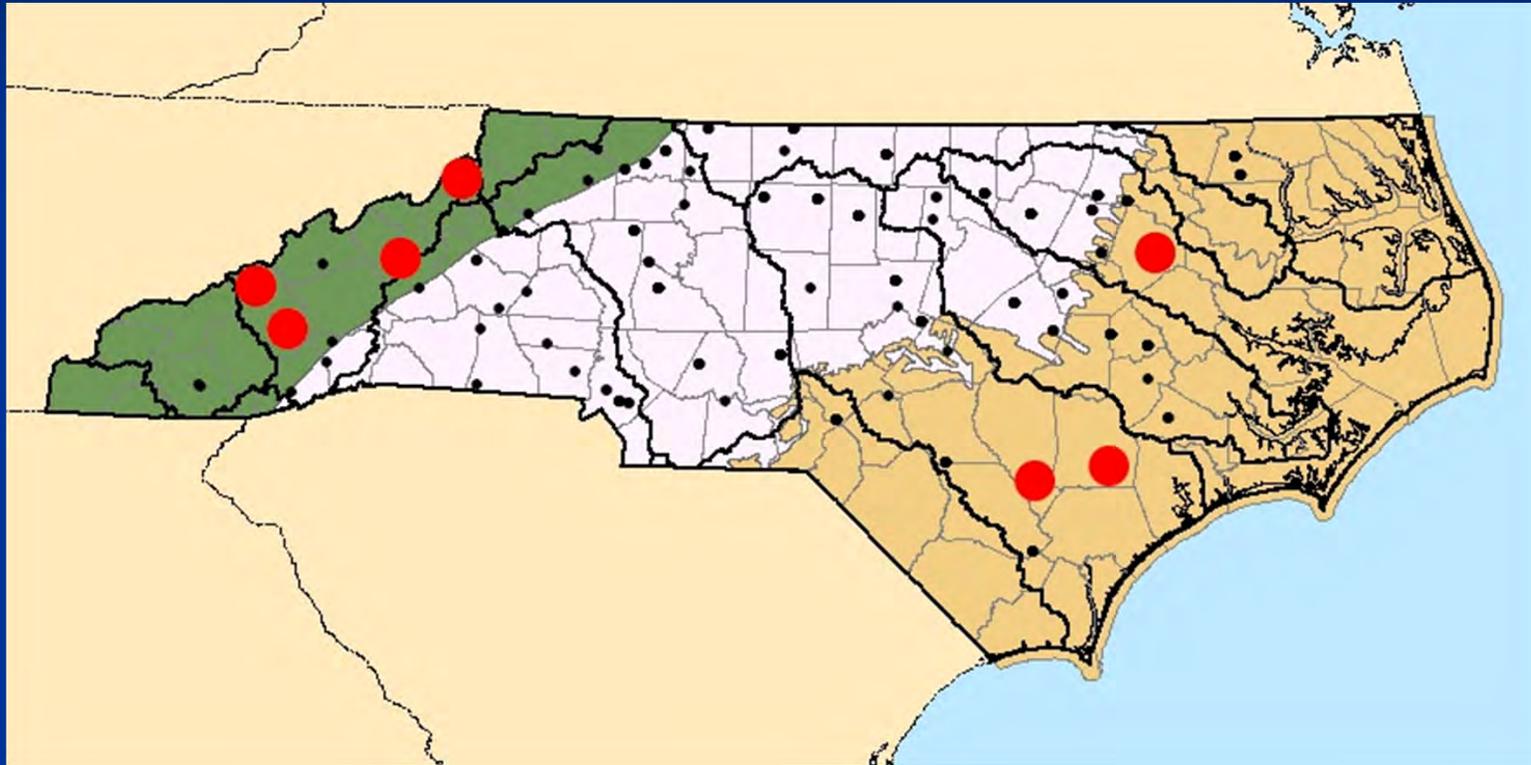
19 sites...as of July 19

New period of record minimum daily mean discharge during 2010 water year



8 sites across state...

New period of record minimum daily mean discharge during 2011 water year



6 sites...as of July 19

In closing...

- Questions
- Concerns

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French Broad River at Asheville
Buncombe County