Streamflow conditions across North Carolina

Assessment of hydrologic conditions observed through latter April 2012...

USGS North Carolina Water Science

http://nc.water.usgs.gov

Online drought pages for USGS North Carolina WSC

http://nc.water.usgs.gov/drought/

Presented to:
North Carolina Drought Management Advisory Council
Gov. James G. Martin Building, NC State Fairgrounds, Raleigh, NC
April 26, 2012
USGS WY 2011 inventory map for NC

North Carolina - Water Year 2011
Annual Water Data Report Site Inventory Map

2011WY data available at URL: http://nc.water.usgs.gov/reports/WDR/
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)
Overall 7-day average flows as of April 24

Available at URL http://waterwatch.usgs.gov/
Below-normal 7-day average flows as of April 24

Available at URL http://waterwater.usgs.gov/
Percentage of sites with 7-day average flows below normal (< 25\textsuperscript{th} percentile)
Percentage of sites with 7-day average flows below normal (< 25th percentile) since April 1, 2011.
Average streamflow index (by Province)

- **New max**
- **90th percentile**
- **75th percentile**
- **50th percentile**
- **25th percentile**
- **10th percentile**
- **New min**

Legend:
- Blue Ridge
- Piedmont
- Coastal Plain
Sta. 02082950, Little Fishing Creek near White Oak (Halifax County), DA = 177 sq mi

Period of record (POR): October 1959 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:
0.17 cfs, ending on 10/21/2007

Observed data through 04/24/2012
Statistics based on 10/01/1959 through 09/30/2011

Note: Data and statistics since 09/30/2011 considered provisional and subject to revision.
Plot created: Apr. 25, 2012 01:19:37 AM
Sta. 02106500, Black River near Tomahawk (Sampson County), DA = 676 sqmi
Period of record (POR): October 1951 to current
Approx. 61 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 04/24/2012
Statistics based on 10/01/1951 through 09/30/2011
Note: Data and statistics since 09/30/2011 considered provisional and subject to revision.
Plot created: Apr. 25, 2012 8:30:46 AM
Sta. 02085500, Flat River at Bahama (Durham County), DA = 149 sqmi

Period of record (POR): July 1925 to current

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

POR minimum 7-day average flow:
0.01 cfs, ending on 10/20/2007

Observed data through 04/24/2012
Statistics based on 08/01/1925 through 09/30/2011

Note: Data and statistics since 09/30/2011 considered provisional and subject to revision.
Plot created: Apr. 25, 2012 6:21:21 AM
Sta. 02118000, South Yadkin River near Mocksville (Rowan County), DA = 306 sqmi
Period of record (POR): October 1938 to current
Approx. 74 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 04/24/2012
Statistics based on 10/01/1938 through 09/30/2011
Note: Data and statistics since 09/30/2011 considered provisional and subject to revision.
Plot created: Apr. 25, 2012 0:37:11 AM
Sta. 03161000, South Fork New River at Jefferson (Ashe County), DA = 205 sqmi

Period of record (POR): October 1924 to current

Approx. 88 total years record available to date, flow conditions at this site known or considered to be unregulated

7-day average flow, in cfs

1/1/2011  1/1/2012  12/31/2012

Note: Data and statistics since 09/30/2011 considered provisional and subject to revision.
Plot created:  Apr. 25, 2012  6:48:42 AM
Sta. 03451500, French Broad River at Asheville (Buncombe County), DA = 945 sqmi
Period of record (POR): Oct 1895 to current
Approx. 117 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 04/24/2012
Statistics based on 10/01/1895 through 09/30/2011
Note: Data and statistics since 09/30/2011 considered provisional and subject to revision.
Plot created: Apr. 25, 2012 6:48:55 AM
Percent of median (by region)
Typical ranges in percentage of median flow since March 1…(by region)

- **N Blue Ridge**: 70 to 110%
- **S Blue Ridge**: 70 to 90%
- **W Piedmont**: 50 to 80%
- **E Piedmont**: 40 to 70%
- **N Coastal Plain**: 30 to 80%
- **S Coastal Plain**: 30 to 80%

…as of April 24
New record monthly minimum average during 2011 water year

20 sites…most all in eastern half of NC
New record monthly minimum average during 2012 water year

provisional data…12 sites…as of April 24
New period of record minimum daily mean discharge during 2011 water year

8 sites in eastern half of NC
New period of record minimum daily mean discharge during 2012 water year

provisional…3 sites…as of April 24
“Take home” message…

• Winter streamflows not very strong, particularly in the eastern half of the state…30 to 50 percent of median

• On-going “roller coaster” pattern with recent rainfall events…quickly rise in response to precipitation, then quickly decline following event
In closing…

- Questions
- Concerns

J. Curtis Weaver, Hydrologist
USGS North Carolina
Water Science Center
jcweaver@usgs.gov
(919) 571-4043

French Broad River at Asheville
Buncombe County