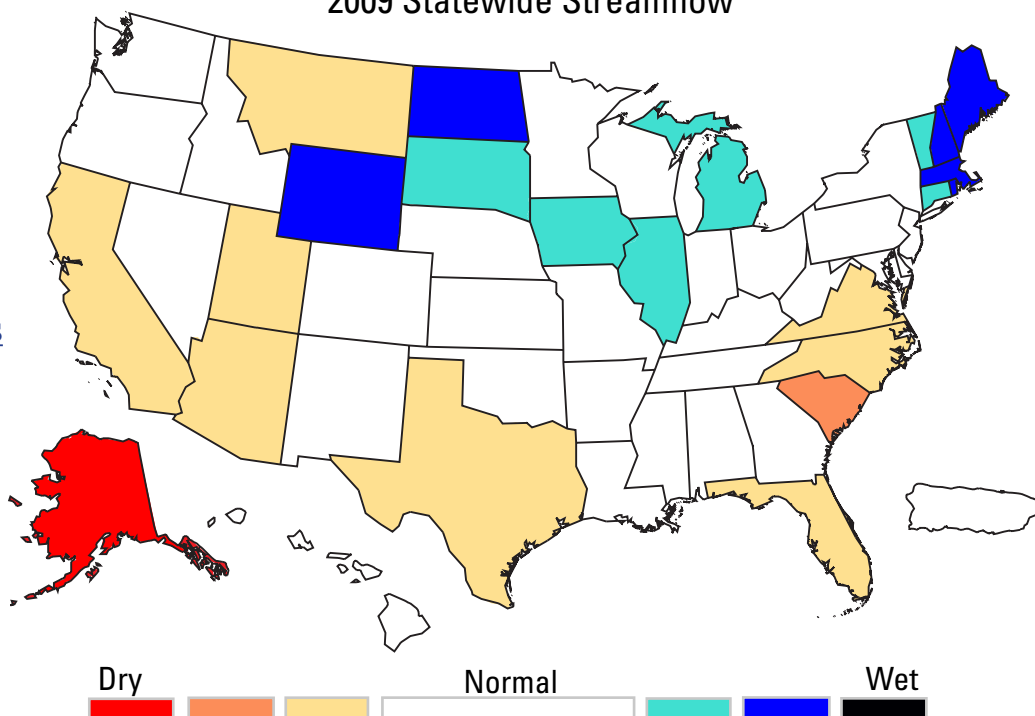


Streamflow of 2009 – Water Year Summary

U.S. Geological Survey
Reston, Virginia
January 2010

2009 Statewide Streamflow

- [National Overview](#)
- [Regional Patterns](#)
- [Seasonal Characteristics](#)
- [High and Low Flows](#)



Introduction

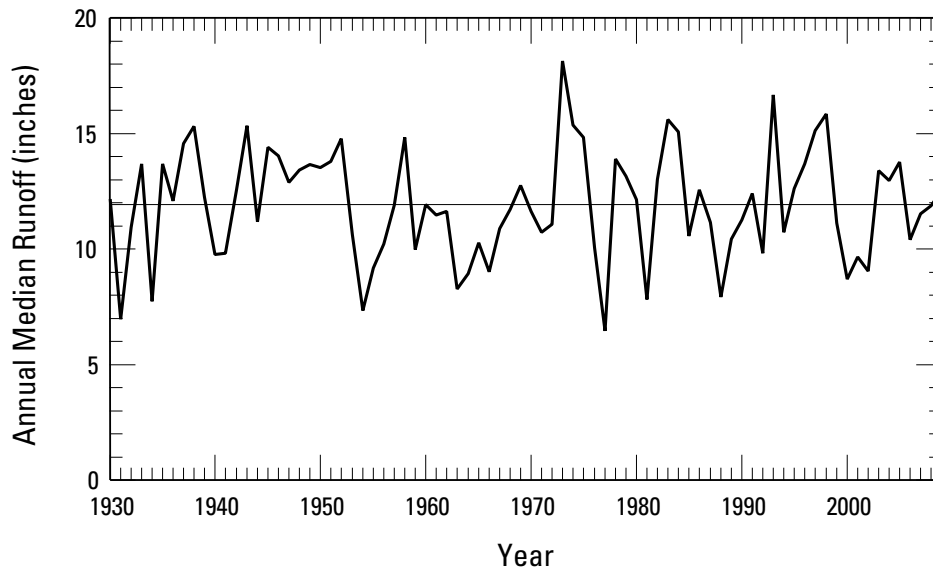
The maps and graph in this summary describe streamflow conditions for water-year 2009 (October 1, 2008 to September 30, 2009) in the context of the 80-year period 1930-2009, unless otherwise noted. The illustrations are based on observed data from the U.S. Geological Survey's (USGS) National Streamflow Information Program. The period 1930-2009 was used because prior to 1930, the number of streamgages was too small to provide representative data for computing statistics for most regions of the country.

In the summary, reference is made to the term “runoff,” which is the depth to which a river basin, State, or other geographic area would be covered with water if all the streamflow within the area during a single year was uniformly distributed upon it. Runoff quantifies the magnitude of water flowing through the Nation's rivers and streams in measurement units that can be compared from one area to another.

Each of the maps and graphs below can be expanded to a larger view by clicking on the image. In all the graphics, a rank of 1 indicates the highest flow of all years analyzed.

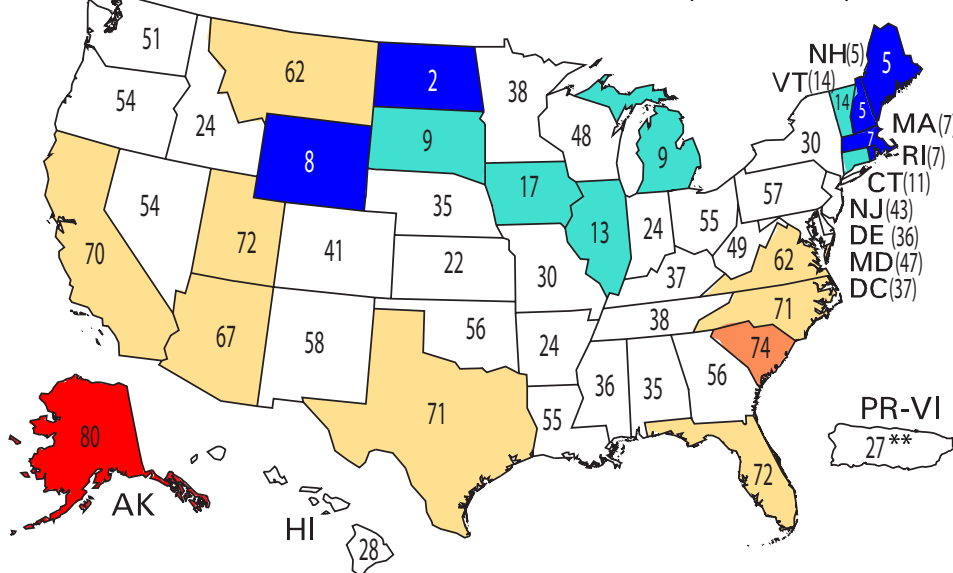
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Annual Median U.S. Runoff, 1930-2009



Runoff in the Nation's rivers and streams during 2009 (12.58 inches) was slightly above the long-term annual median for the United States (11.94 inches). Nationwide, 2009 streamflow ranked 32th out of the 80 years in the period 1930-2009.

2009 Statewide Streamflow Ranks (1930 - 2009)

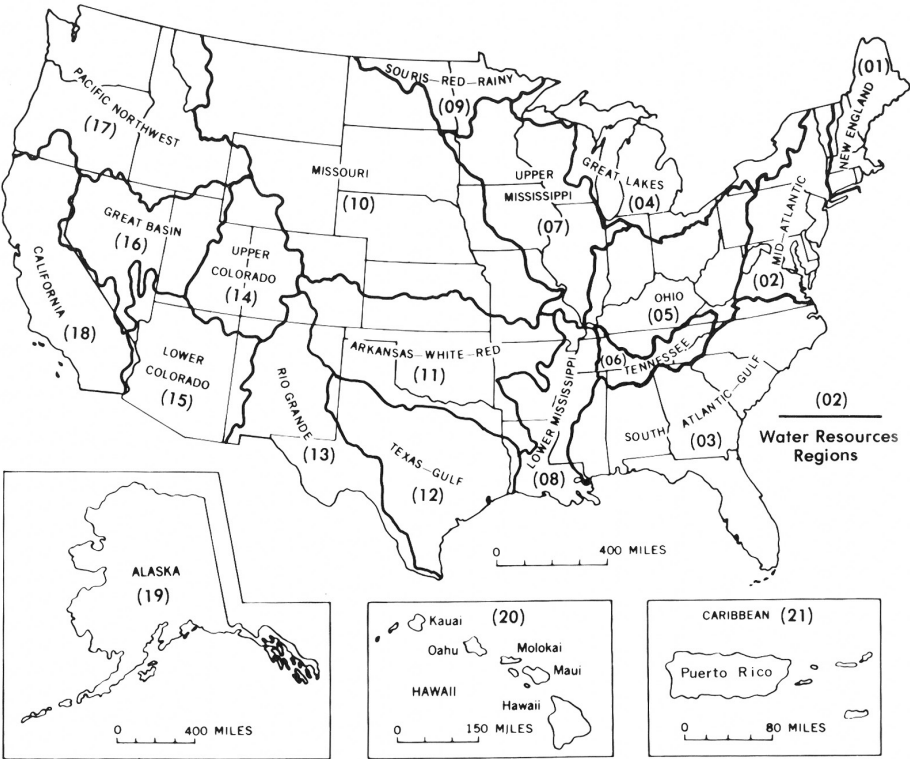


Above normal streamflow characterized New England, the Northern Plains, and parts of the Great Lakes region. Below normal streamflow was prevalent in the southern Mid-Atlantic states and Florida, as well as in Texas and much of the Southwest. Alaska reported its lowest annual streamflow for the third consecutive year.

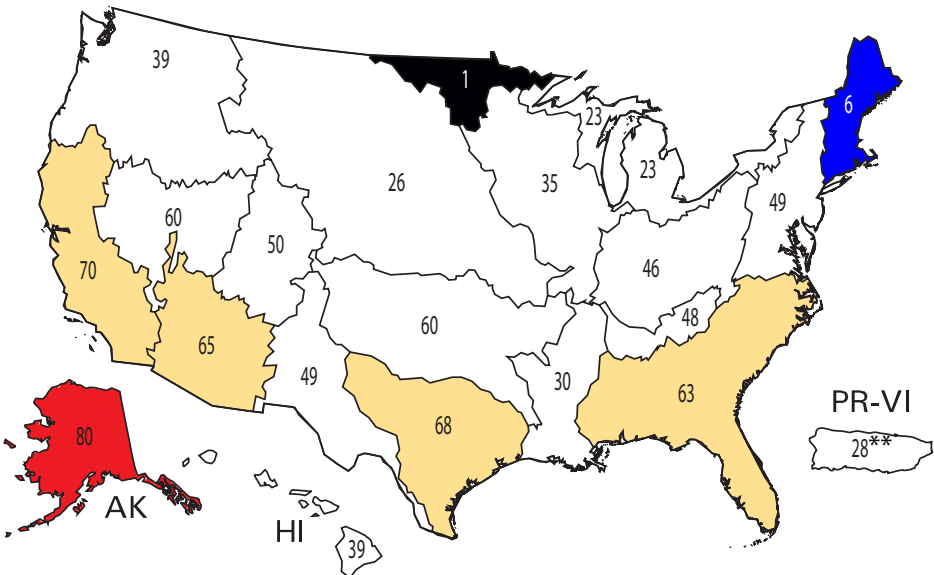
* Out of 71 years of historical data.
** Out of 66 years of historical data.

Explanation - Rank						
80	72-79	61-73	21-60	9-20	2-8	1
Lowest	Much below normal	Below normal	Normal	Above normal	Much above normal	Highest

Regional Patterns



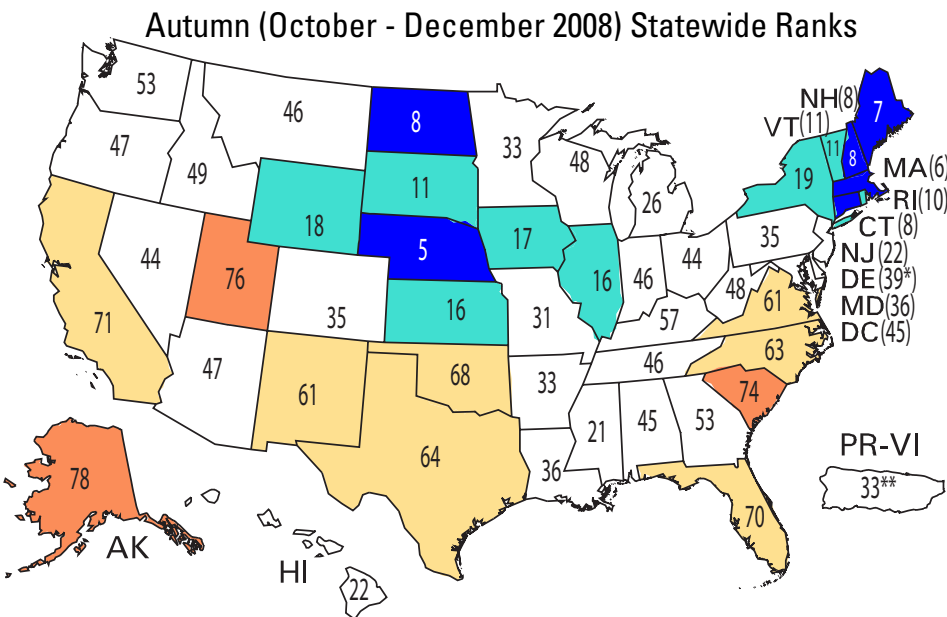
The United States (including Puerto Rico) is divided into 21 large drain-ages, or water resources regions. These hydrologic areas are based on surface topography and contain either the drainage area of a major river, such as the Columbia, the combined drainage areas of a series of rivers, such as the Texas-Gulf region which includes a number of rivers draining into the Gulf of Mex-ico, or the area of an island or island group. Water resources regions provide a coherent, watershed-based framework for depicting streamflow variations.



Streamflow was generally in the normal range in most of the Nation's water resources regions. Below normal flows occurred in the southern regions, and Alaska experienced its lowest flow since 1930. This was the third consecutive year that Alaska set a new record low flow. Above normal flows dominated New England, while the Souris-Red-Rainy region reported its highest annual streamflow over the 80-year period.

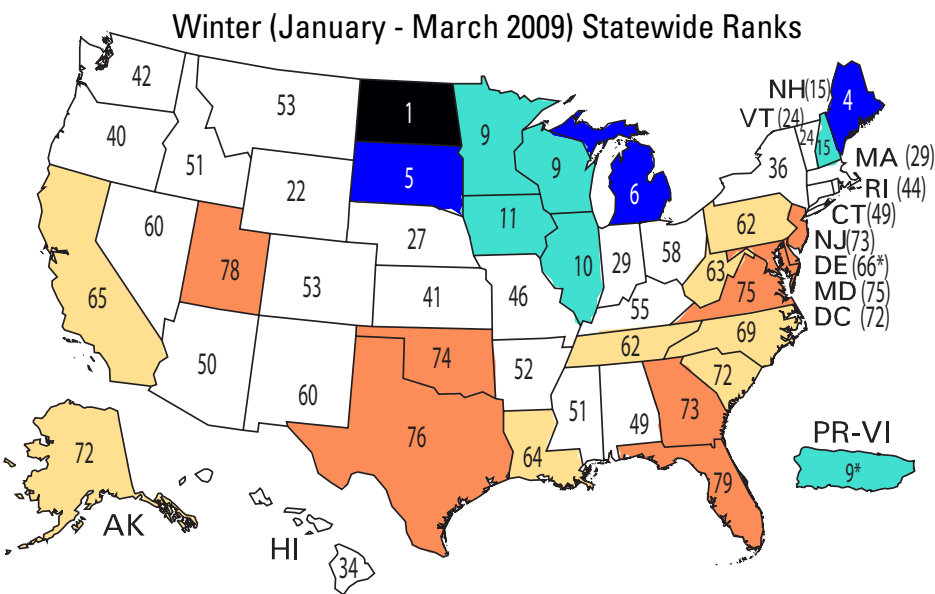
Explanation - Rank						
80	72-79	61-73	21-60	9-20	2-8	1
Lowest	Much below normal	Below normal	Normal	Above normal	Much above normal	Highest

Seasonal Characteristics



Autumn season (October-December) streamflow was in the normal range nationwide (ranking 29th in 80 years). Much above normal flows occurred in North Dakota, Nebraska, and much of New England, while much below normal flows were observed in Alaska, Nevada, and South Carolina.

* Out of 71 years of historical data.
** Out of 66 years of historical data.

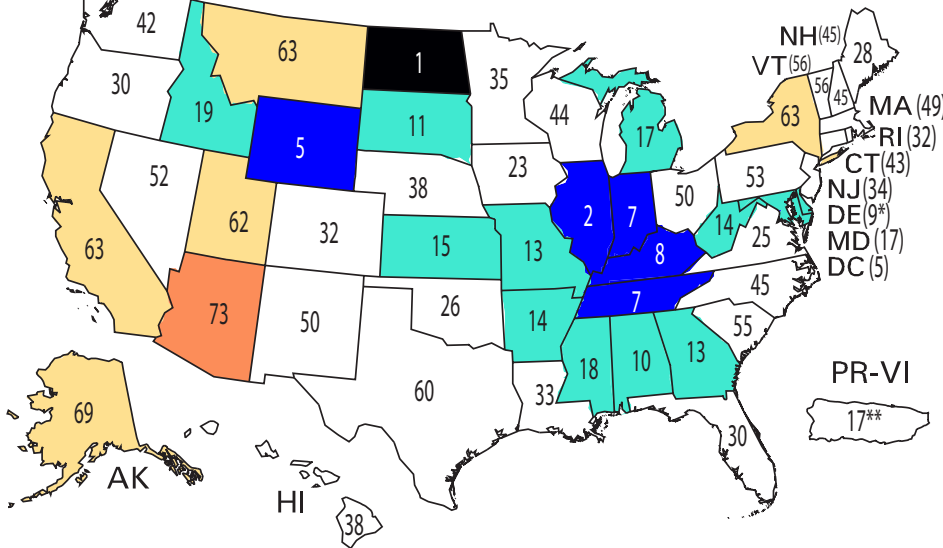


Winter season (January-March) streamflow was above- to much-above normal in many north central States, as well as parts of New England. North Dakota had its highest winter season average streamflow. Below normal to much-below normal streamflow was widespread across the Mid-Atlantic and Gulf Coast States. Nationwide, streamflow ranked 44th out of 80 years.

* Out of 71 years of historical data.
** Out of 66 years of historical data.

Explanation - Rank						
80	72-79	61-73	21-60	9-20	2-8	1
Lowest	Much below normal	Below normal	Normal	Above normal	Much above normal	Highest

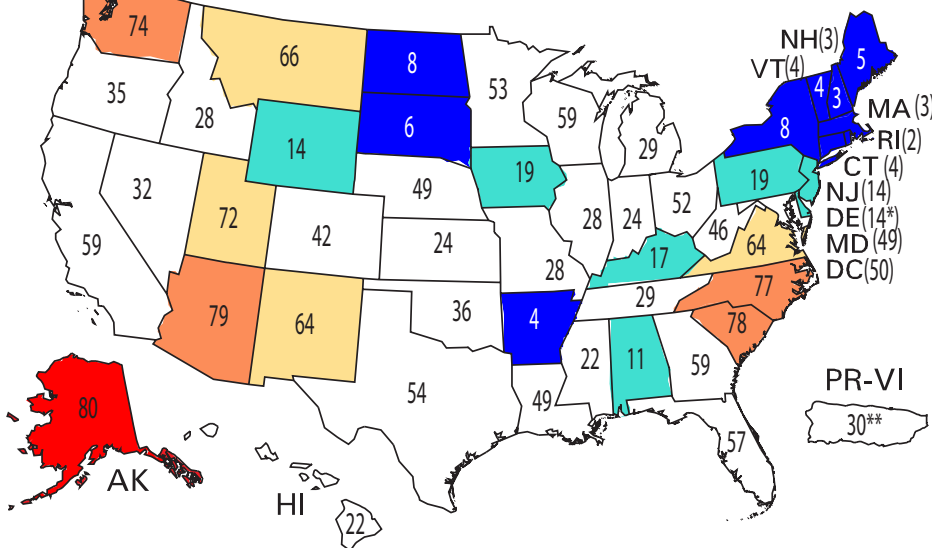
Spring (April - June 2009) Statewide Ranks



Spring season (April-June) streamflow increased in the central Mississippi and Tennessee Valleys, with much-above normal streamflow in Tennessee, Kentucky, Indiana, Illinois, and Wyoming. The record high flows in North Dakota during the winter continued into the spring. Only six States (Alaska, California, Arizona, Utah, Montana, and New York) had below- to much-below normal flows. Thus, on a nationwide basis, the spring season averaged above normal, ranking 8th in 80 years.

* Out of 71 years of historical data.
 ** Out of 66 years of historical data.

Summer (July - September 2009) Statewide Ranks



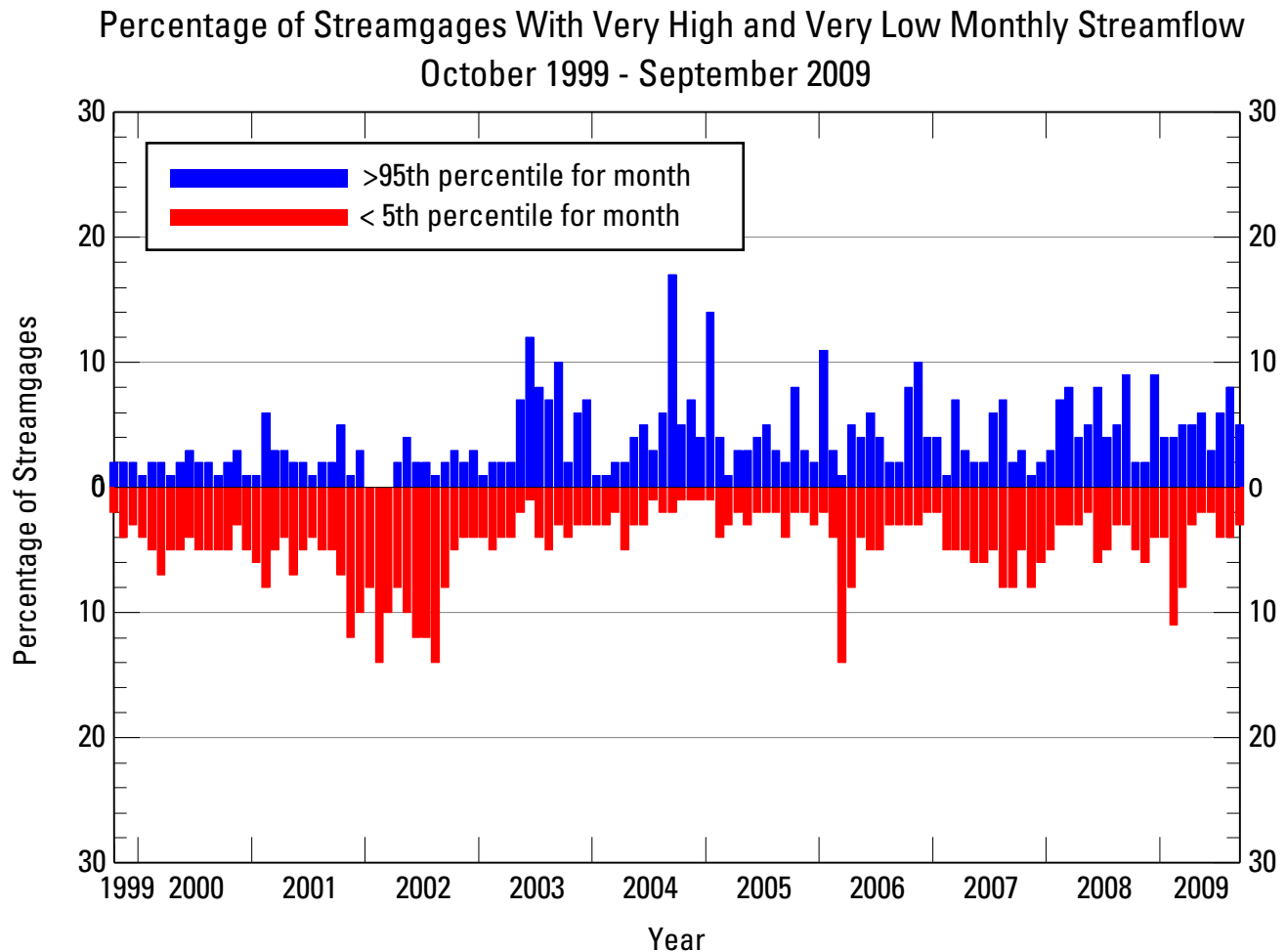
Summer season (July-September) streamflow also averaged above normal for the U.S., ranking 15th out of 80 years. However, a greater range in flows from State to State was observed. Much above normal streamflow prevailed in most of the Northeast, the Dakotas, and in Arkansas, while much below normal flows dominated the Carolinas, Arizona, and Washington State. Streamflow in Alaska continued to be very low, with the State reporting its lowest summer season flow.

* Out of 71 years of historical data.
 ** Out of 66 years of historical data.

Explanation - Rank

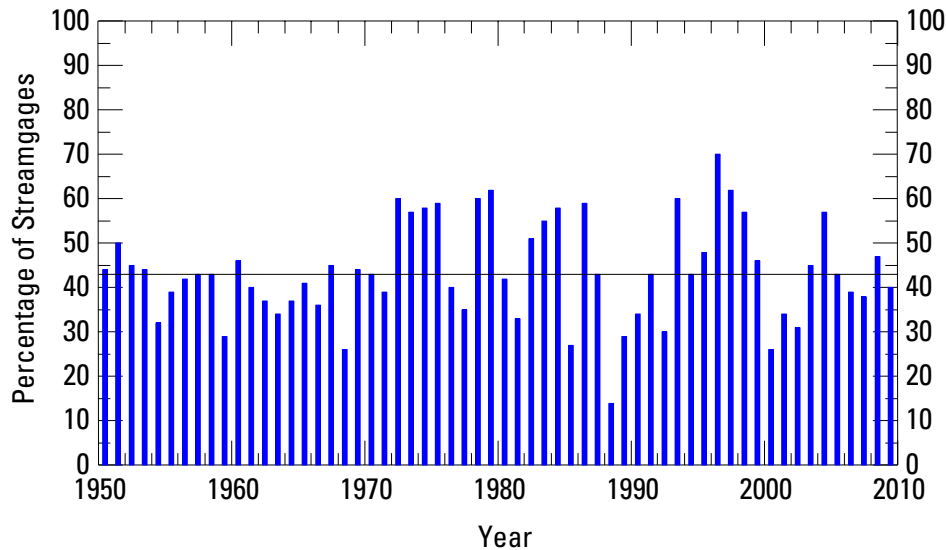
80	72-79	61-73	21-60	9-20	2-8	1
Lowest	Much below normal	Below normal	Normal	Above normal	Much above normal	Highest

High and Low Flows



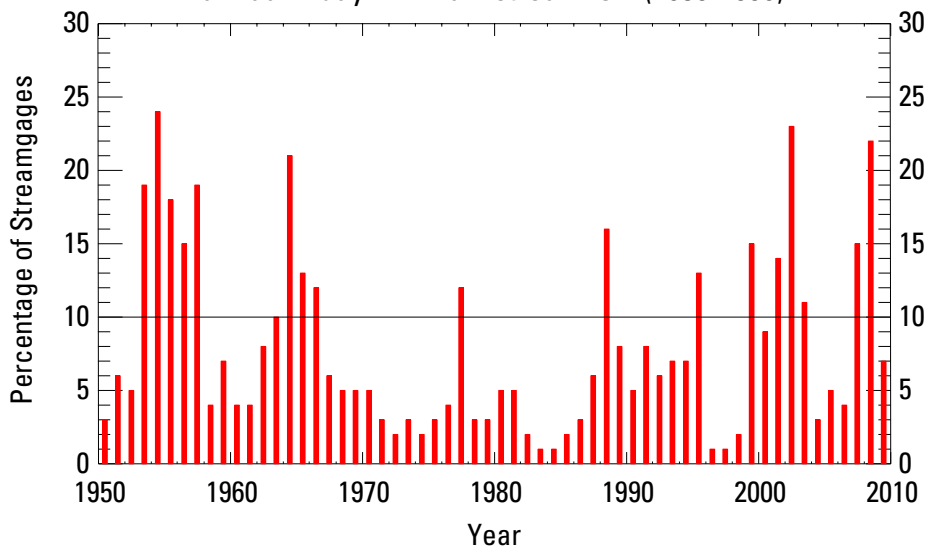
In any given month, on average, it is expected that five percent of the streamgages will experience very high (>95th percentile) and very low (<5th percentile) average streamflow. During water year 2009, four months (December [2008], May, July, and August) had a greater number of streamgages than expected reporting very high streamflow (9, 6, 6, and 8 percent respectively). Similarly, three months (November [2008], February, and March) had a greater number of streamgages reporting very low flows than expected.

Percent of streamgages above bankfull streamflow
1950-2009



The bankfull streamflow is defined as the highest daily mean streamflow value expected to occur, on average, once in every 2.3 years. In 2009, forty percent of USGS streamgages had a daily mean streamflow value above the bankfull level. The expected number to occur in any given year is 43 percent. Since 1950, the largest number of streamgages reporting higher than bankfull streamflow in any one year was 70 percent, which occurred in 1996.

Percent of streamgages below 10th percentile of
annual 7-day minimum streamflow (1950-2009)



The 10th percentile 7-day low flow is defined as the lowest 7-day average streamflow expected to occur, on average, once in every 10 years. In water-year 2009, seven percent of the streamgages reported a 7-day low flow less than the 10th percentile 7-day low flow. The expected number to occur in any given year is ten percent. Since 1950, the largest percentage of streamgages reporting a 7-day low flow less than the 10th percentile 7-day low flow was 24 percent, which occurred in 1954..

Additional Information

The USGS operates a network of approximately 7,600 streamgages nationwide, many in real-time. Current information derived from these stations is available on the web at <http://water.usgs.gov/waterwatch>. Tables of data that summarize historical streamflow conditions by State, beginning in the year 1900, can be accessed at <http://water.usgs.gov/waterwatch/?m=statesum>. These tables are updated every few months to reflect the most current streamflow data.

The streamflow information used to prepare this summary is also used for water management, monitoring floods and droughts, bridge design, and for many recreational activities. To obtain real-time and archived streamflow data and information, visit <http://water.usgs.gov/nwis>. Although the national streamgage network is operated primarily by the USGS, it is funded by a partnership of 850 agencies at the Federal, State, Tribal, and local levels. For more information about the streamgage network, see <http://water.usgs.gov/nsip/>.

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

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