



Lake Lanier Update – Vital Importance of Frequency of Rainfall

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... Both Rainfall Rates as Well as Rainfall Frequency Are Critical Factors for Lake Lanier...

Key Point: For a more substantial increase in inflows into Lake Lanier, a one or two inch rain event (or more) needs to be followed by another inch or two of rain within about four days.

Winter and early spring are the times of the year when the Southeast U.S. experiences the most rainfall. The overall “reliability” of rainfall and recharge is also greatest over this time frame due to organized synoptic winter weather systems.

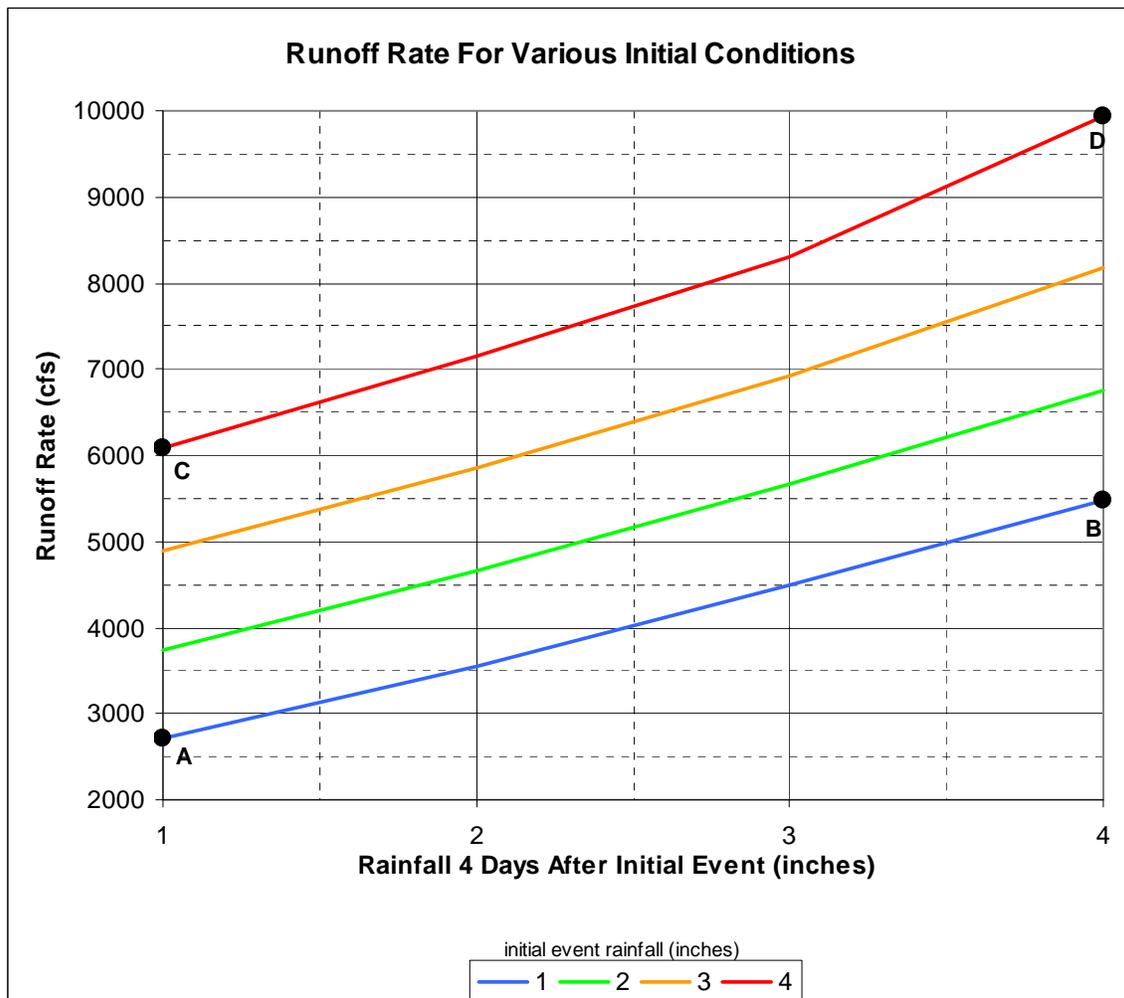
The following chart shows different inflow scenarios for Lake Lanier in Georgia. This chart is based on soil moisture conditions as of February 7th. Let’s take a look at some runoff scenarios. These scenarios were developed using the SERFC’s rainfall-runoff model. It is also based on the current USACE release (outflow) of 630 cfs.

Scenario 1: A moderate rainfall (1 inch) is followed by another moderate rainfall (1 inch) four days later. This is represented by Point A. Note that a one-inch rain today, followed by another inch four days later, will result in an average inflow over the total eight-day runoff period of 2,700 cfs

With a current outflow of 630 cfs, this would result in a reservoir fill rate of 2070 cfs. Looking at this another way, about three times as much water would be going into Lake Lanier than going out, and there would be some modest increase in pool level.

Scenario 2: A moderate rainfall (1 inch) is followed by a heavy rainfall (4 inches) four days later. This is represented by Point B. This would result in an average inflow over the total eight day runoff period of 5,480 cfs.

With a current outflow of 630 cfs, this would result in a reservoir fill rate of 4,850 cfs, or eight times as much water going into the Lake as is being released.



Scenario 3: A heavy rainfall (4 inches) followed by a moderate rainfall (1 inch) four days later. This is represented by Point C. This would result in an average inflow over the total eight-day runoff period of 6,090 cfs.

With a current outflow of 630 cfs, this would result in a reservoir fill rate of 5,460 cfs, or a little over eight times as much inflow as outflow.

Scenario 4: A heavy rainfall (4 inch) followed by another heavy rainfall (4 inches) four days later. This is represented by Point D. This would result in an average inflow over the total eight-day runoff period of 9,930 cfs.

With a current outflow of 630 cfs, this would result in a reservoir fill rate of 9,300 cfs, well over ten times excess inflow.

The following table displays what is graphically displayed in the chart.

		Future Rain 4 Days Later (inches)			
		1	2	3	4
Current Rain (inches)	1	2,700	3,540	4,480	5,480
	2	3,750	4,660	5,660	6,740
	3	4,880	5,860	6,930	8,170
	4	6,090	7,150	8,300	9,930

Summary: In consideration of factors needed to raise the Lake Lanier pool elevation. Not only is the amount of rainfall important but also the frequency between rain events.

- A modest amount of rain (about an inch) without any additional follow-on rain event would only produce a slight, and temporary, increase in inflow and lake pool increase.

- A modest amount of rain followed by an additional rain event within four days would cause a more sizeable increase in inflow and lake pool increase.

- A heavy rain event followed by another heavy rain event within four days would result in a significant increase in inflow and significant increase in the lake pool elevation.

Thus, as we continue through the winter, in consideration of improvement in Lake Lanier, a favorable scenario would be at least one or two inches of rain followed by another one or two inches within a short period of time. Rainfall less than this would only result in small and temporary improvements while rainfall more than this would produce more significant, faster, and longer-lasting improvement.