

## 4.2 Hydrology and Water Use

The Yadkin-Pee Dee basin is the second largest in North Carolina. It drains a total area of 7,213 mi<sup>2</sup> at the North Carolina-South Carolina State line and contains approximately 5,991 linear miles of freshwater streams and rivers (NCDWQ 1998). Approximately 18 percent of North Carolina's population lives within the basin (NCDWQ, River Basin Statistics). The Yadkin River becomes the Pee Dee River at the confluence with the Uwharrie River located in Lake Tillery. The Yadkin-Pee Dee River drains an area of approximately 6,839 mi<sup>2</sup> upstream of the Blewett Falls Development, and the drainage area at Tillery is approximately 4,600 mi<sup>2</sup>. The major tributaries located in the Project area include the Uwharrie, Rocky, and Little Rivers (Figure 4-1).

The Uwharrie River is located on the eastern side of the Yadkin River. The river flows southward from its headwaters near Trinity, North Carolina, in northwestern Randolph County, through the Uwharrie National Forest. The river empties into the Yadkin River in the upper reaches of Lake Tillery, approximately four miles southwest of the town of Uwharrie, North Carolina, in Montgomery County. The drainage area of the Uwharrie River is 373 mi<sup>2</sup>, comprising 5.5 percent of the total drainage area at Blewett Falls Dam.

The Rocky and Little Rivers enter the Pee Dee River between Tillery Dam and the upper reaches of Blewett Falls Lake, located outside of the Project boundary. The Rocky River is located on the western side of the Pee Dee River and flows generally east-southeasterly from its headwaters near the junctures of Iredell, Davidson, and Cabarrus Counties, about 30 miles northeast of Charlotte, North Carolina. The Rocky River and its tributaries continue to drain in an easterly direction until joining the Pee Dee River, approximately four miles south of Tillery Dam. The drainage area for Rocky River is approximately 1,457 mi<sup>2</sup>, comprising 21 percent of the total drainage area at Blewett Falls Dam. The Rocky River is unregulated and tends to be subject to rapid and significant changes in flow.

The Little River is located on the eastern side of the Pee Dee River, and flows southward from its headwaters near Asheboro, North Carolina in Randolph County. The Little River empties into the Pee Dee River in Richmond County, just upstream of Blewett Falls Lake. The drainage area

for the Little River is 354 mi<sup>2</sup>, comprising five percent of the total drainage area at Blewett Falls Dam.

### ***Water Use***

The Yadkin-Pee Dee River is utilized in many ways including power generation, municipal and industrial water supplies, wastewater discharge, irrigation, water-based recreation, and fish and wildlife habitat. However, over time, with the increased population associated with the growth of the “Piedmont Crescent” and the development of shorefront homes and associated infrastructure and businesses in the Uwharrie Lakes region, the use of water for water-based recreation activities and municipal and industrial water supplies has increased.

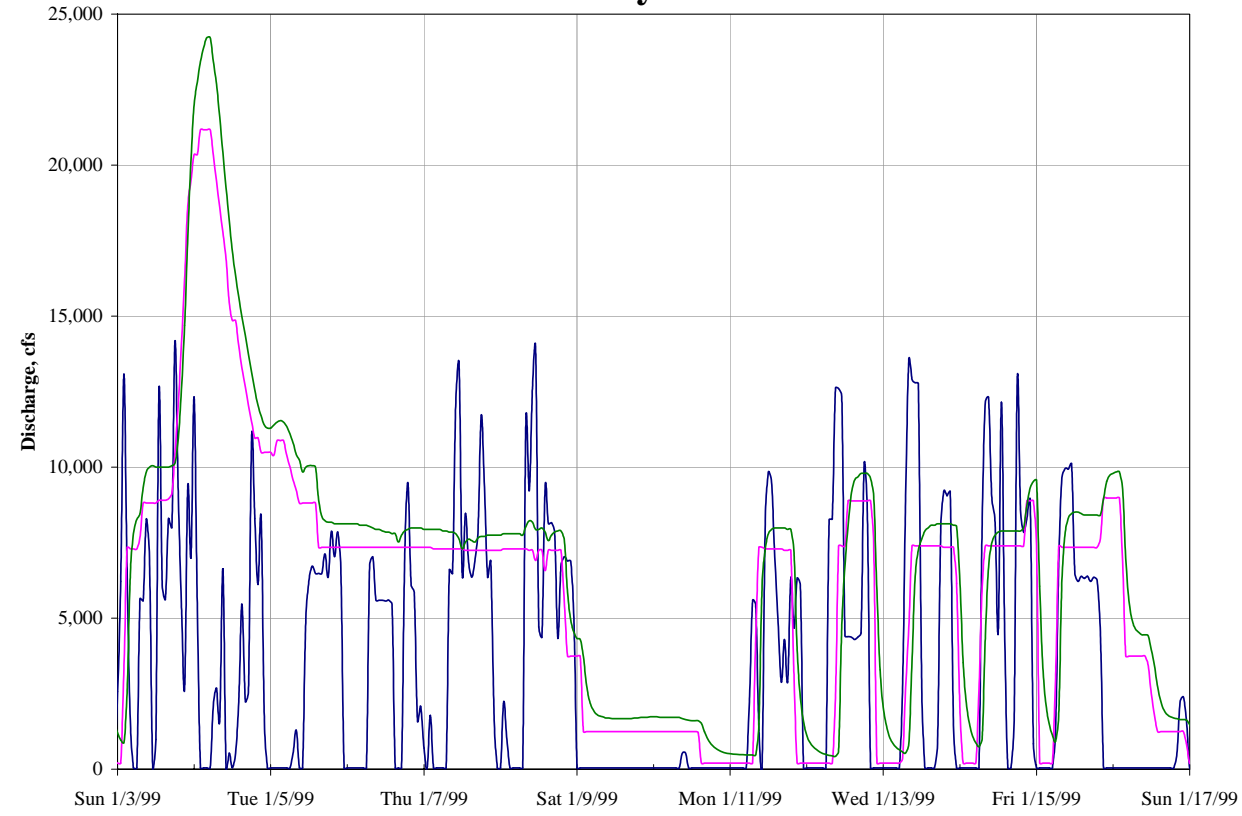
Water use in Tillery and Blewett Falls lakes is primarily for power generation. Water-based recreation is also very popular and is discussed in greater detail in Section 4.8. There are four municipal water intakes within the Project boundaries of Tillery and Blewett Falls Developments. Downstream in South Carolina, municipal and industrial interests utilize the river as a source of water as well as for receiving treated wastewater.

### ***Gaging Stations***

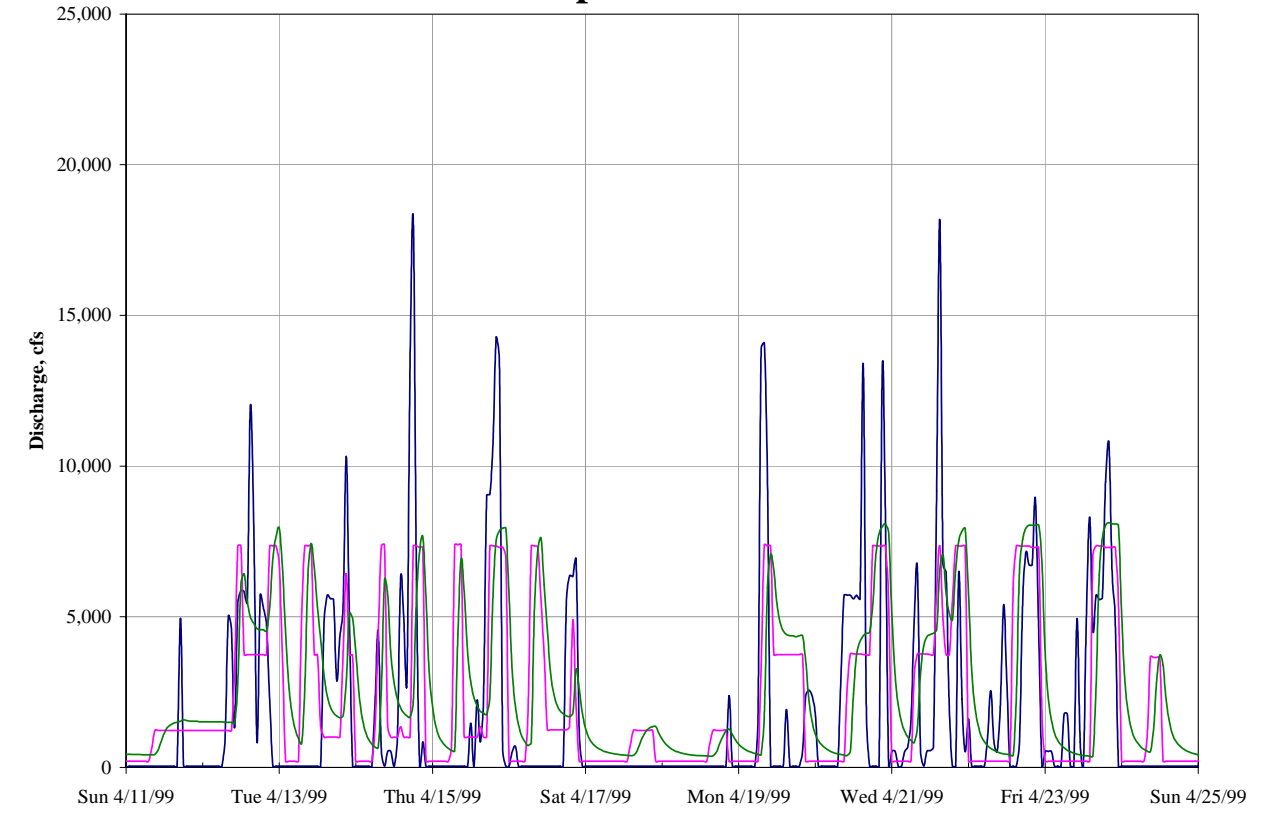
The USGS maintains a number of gaging stations throughout the Yadkin-Pee Dee River watershed. There are two gaging stations that are located in proximity to the Project; these include the Rocky River (No. 02126000) and Rockingham (No. 02129000) gages located in North Carolina. The Rockingham gage is used to measure minimum flows released from Blewett Falls Development.

There are also three USGS gages located on the mainstem of the river downstream of the Rockingham gage: (No. 0213056) near Bennettsville, South Carolina; (No. 02131010) near Pee Dee, South Carolina; and (No. 0213520) located near U.S. Highway 701 near Bucksport, South Carolina. The locations of these USGS gages are shown in Figure 4-1. Flows downstream of the Project are recorded by these gages. Seasonal examples of daily flows observed during 1999 are presented in hydrographs shown in Figures 4-2 and 4-3.

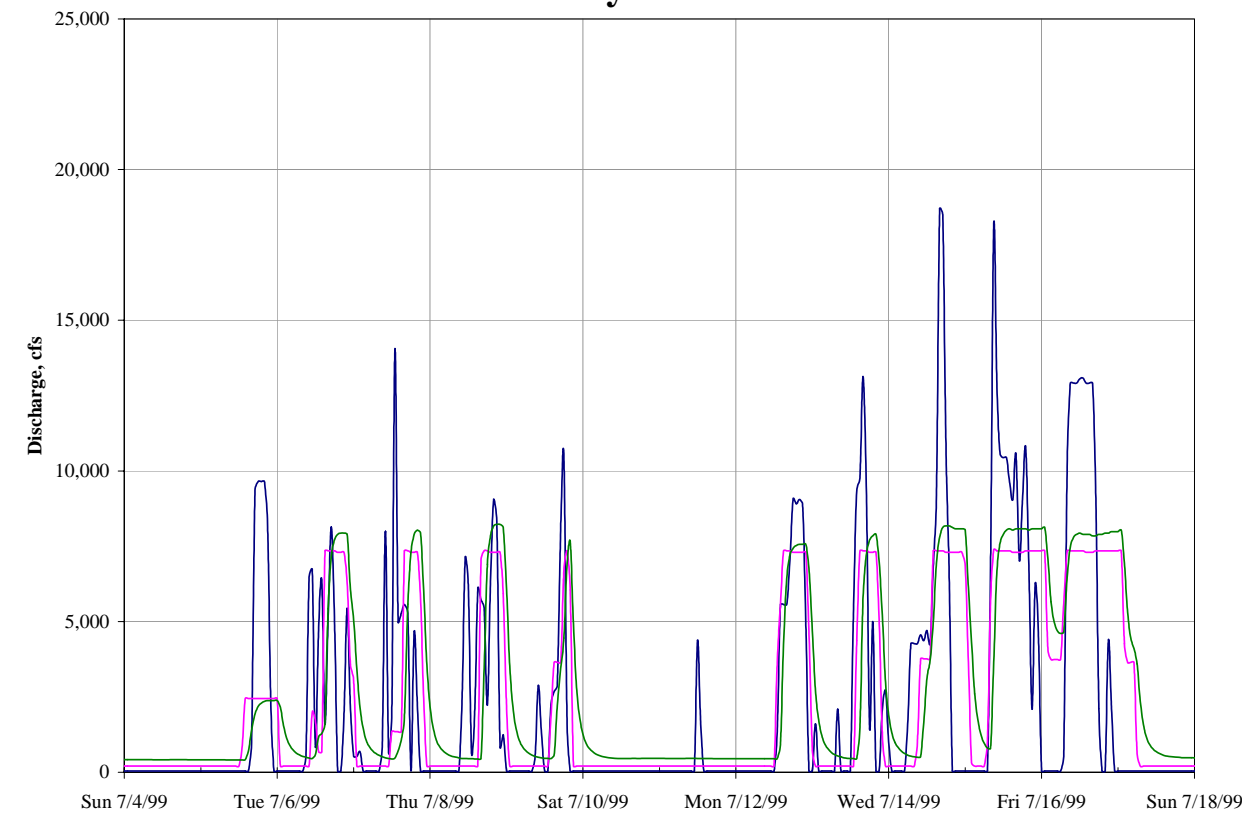
**January 1999**



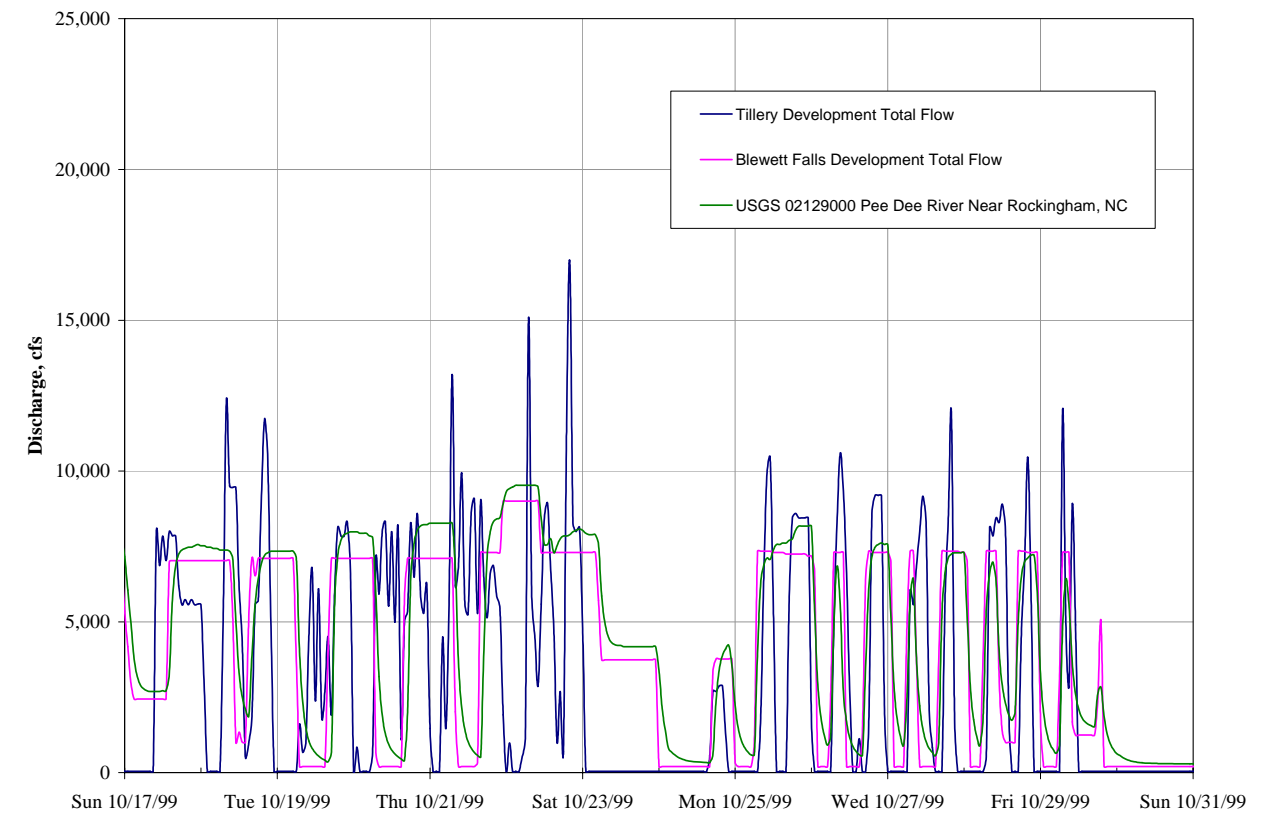
**April 1999**



**July 1999**



**October 1999**

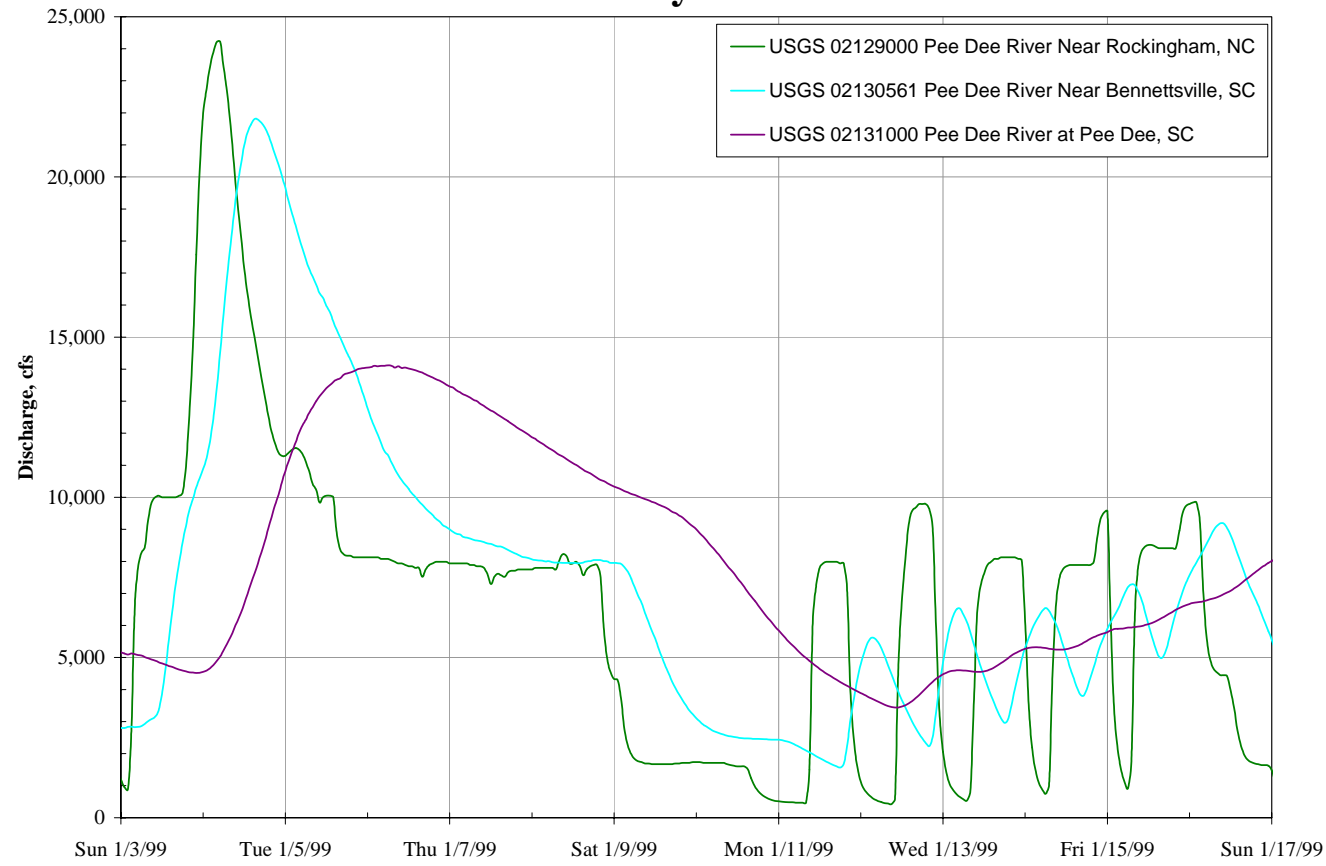


NOTES: USGS discharges based on hourly "Provisional" USGS data.  
 Tillery and Blewett Falls Development flows based on CP&L hourly data plus leakage flow.

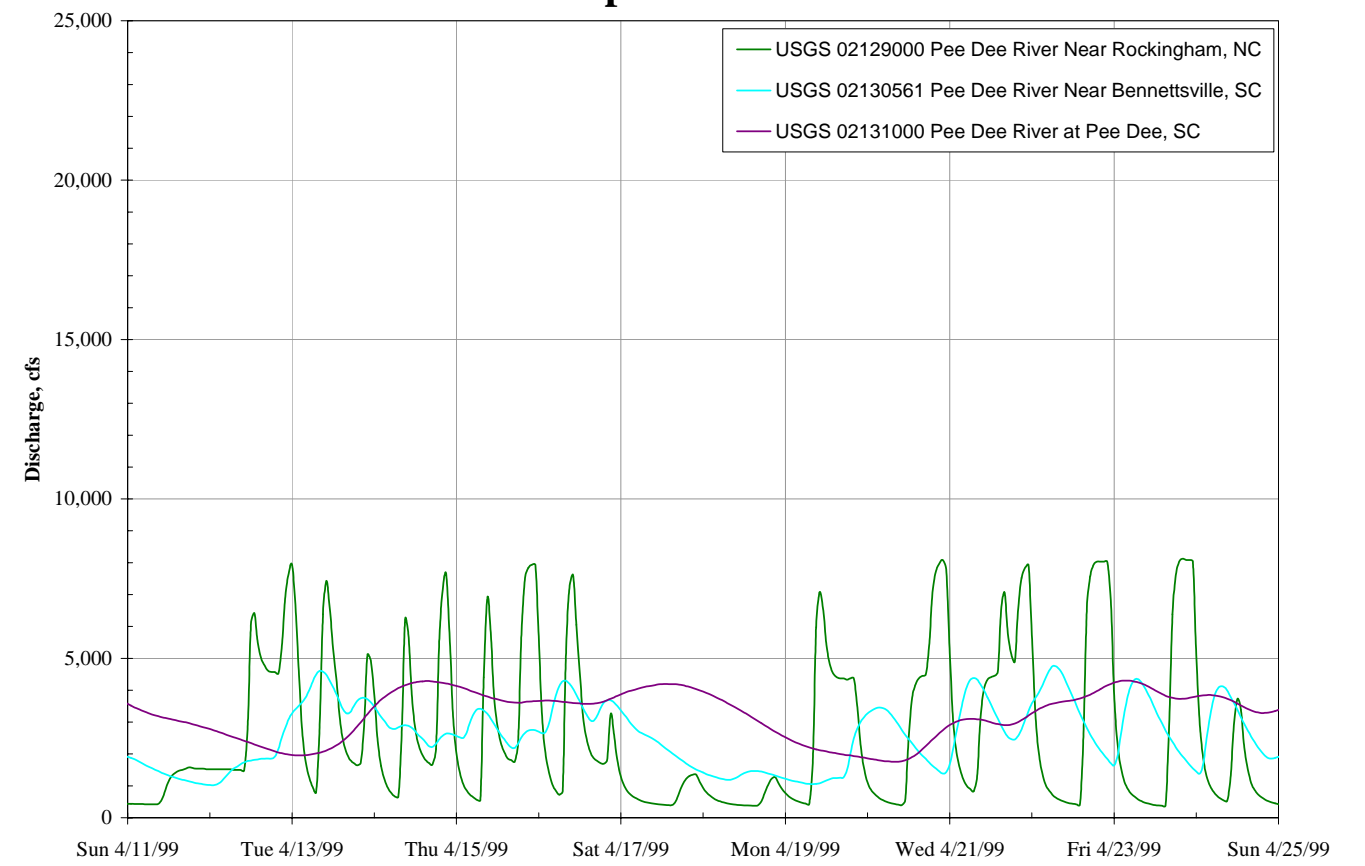


**Figure 4-2**  
**Yadkin-Pee Dee River Discharge Flows**

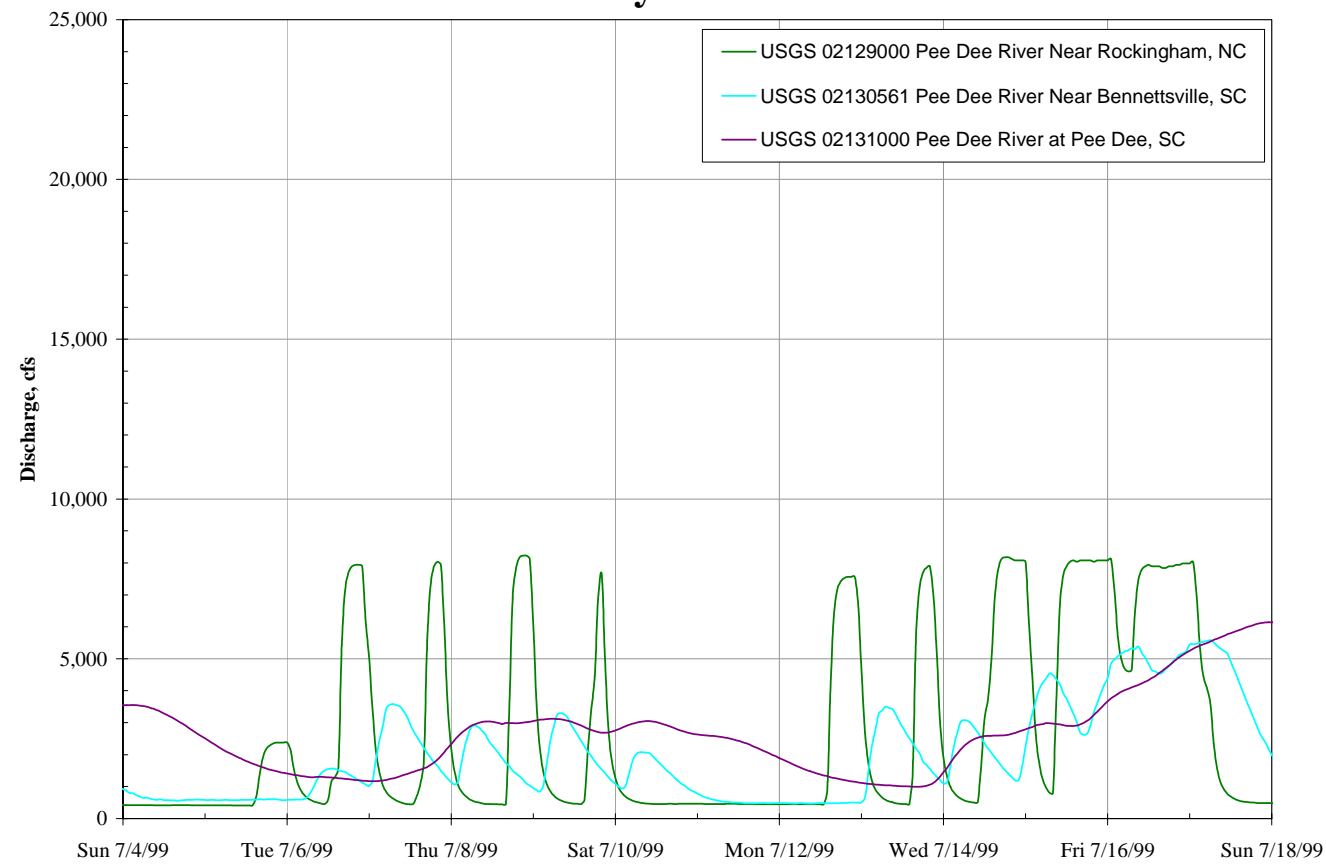
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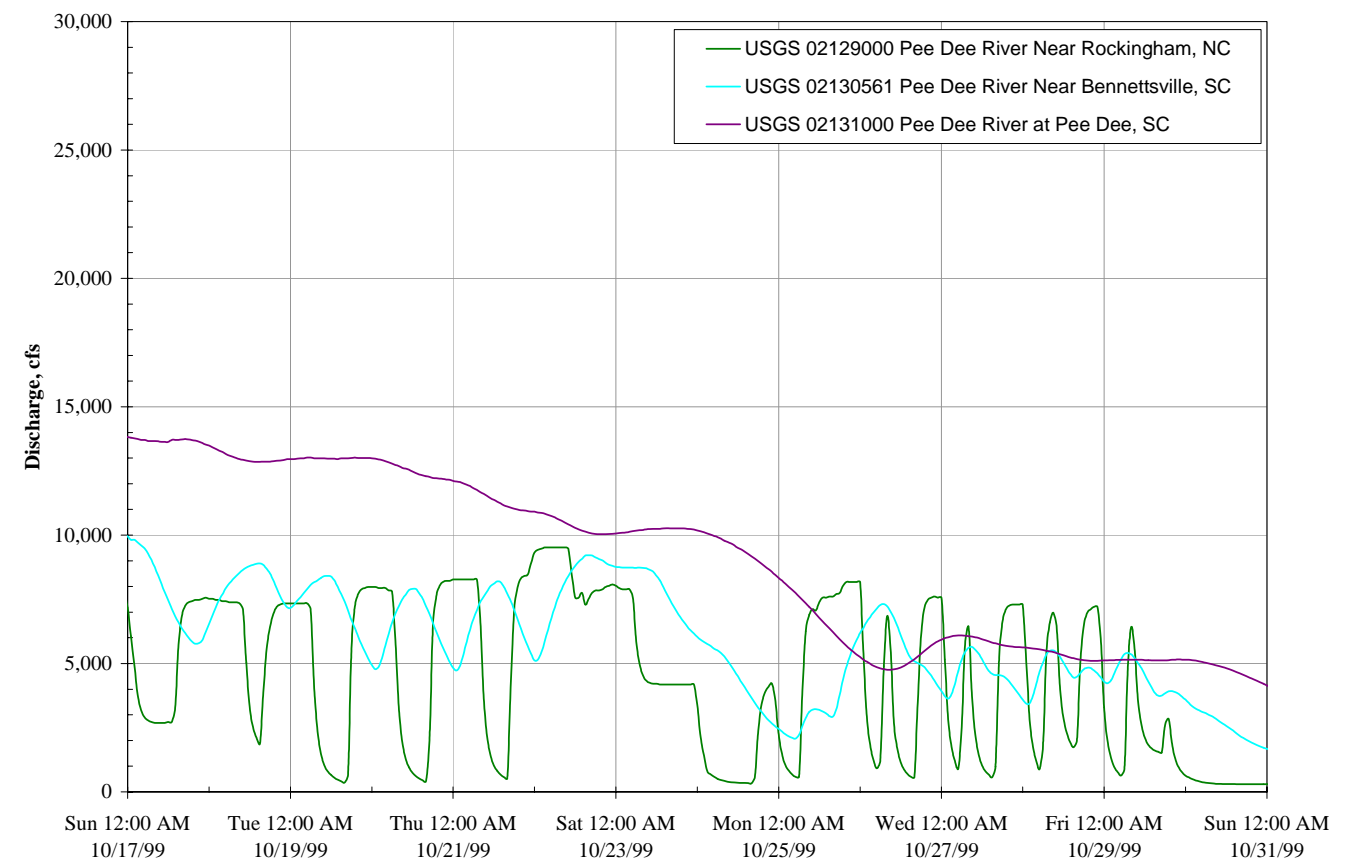
### April 1999



### July 1999



### October 1999



NOTES:  
USGS discharges are based on hourly "Provisional" USGS data.



Figure 4-3  
Yadkin-Pee Dee River Discharge Flows