

**Appendix J:**  
**Technical Approach Used to Generate Maximum Daily Loads &**  
**TMDL Daily Loads and Statistics**

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## J.1 SUMMARY

This appendix documents the technical approach used to define maximum daily loads of iron, aluminum, ammonium, nitrate, and sulfate consistent with the average annual TMDL which, when met, will result in the protection of the water quality standard for pH in the Western Maryland watersheds. The approach builds on the modeling analysis that was conducted to determine the loadings of iron, aluminum, ammonium, nitrate, and sulfate that will protect the water quality standard for pH and can be summarized as follows:

- The approach defines maximum daily loads for each of the source categories.
- The approach builds on the TMDL modeling analysis that was conducted to ensure that compliance with average annual loading targets will result in compliance with water quality standards. These average annual loading targets were converted into allowable *daily* values by using the daily time-series loadings developed from the TMDL modeling analysis.
- The approach converts daily time-series loadings into TMDL values in a manner that is consistent with available EPA guidance on generating daily loads for TMDLs.
- The approach uses policy input related to the expected level of resolution and probability level provided by an advisory group led by EPA Region 3.

## J.2 INTRODUCTION

This appendix documents the development and application of the approach used to define maximum daily loads on the basis of the average annual TMDLs for pH in the Western Maryland watersheds. It is divided into sections discussing

- Basis for approach
- Options considered
- Selected approach
- Application of approach
- Results of approach

## J.3 BASIS FOR APPROACH

The overall approach for development of daily loads was based on the following factors:

- **Daily time-series loadings developed for this TMDL:** This TMDL employs continuous simulation modeling to determine compliance with the applicable water quality standard for pH, producing a time series of daily loads (iron, aluminum, ammonium, nitrate, and sulfate) for the period that was simulated (December 1, 2004–November 30, 2005).
- **Draft EPA guidance on “Developing Daily Loads for Load-based TMDLs:”** This guidance provides options for defining maximum daily loads when using TMDL approaches that generate daily output.<sup>1</sup>

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<sup>1</sup> *Approaches for Developing a Daily Load Expression for TMDLs Computed for Longer Term Averages*. 2006 Draft guidance document. U.S. Environmental Protection Agency, Washington, DC.

The rationale for developing TMDLs with *daily* load expressions was to accept the existing TMDL development methodology but to then develop a method for converting the resulting daily time series of loadings into maximum *daily* values in a manner consistent with EPA guidance.

#### J.4 OPTIONS CONSIDERED

The available guidance for developing daily loads does not specify a single allowable approach; it contains a range of options. Selecting a specific method for translating a time-series of allowable loads into expression of a TMDL requires decisions regarding both the level of resolution (e.g., single daily load for all conditions vs. loads that vary with environmental conditions) and the level of probability (of exceedance) associated with the TMDL.

This section describes the range of candidate options that were considered for use in developing maximum daily loads for the Western Maryland watersheds. The section is first divided into discussions corresponding to the two primary decisions required in selecting an approach: (1) Level of Resolution, and (2) Probability Level. It concludes with a discussion of how various options were applied via the calculation of *sample* maximum daily loads.

##### J.4.1 Level of Resolution

The level of resolution pertains to the amount of detail used in specifying the maximum daily load. The draft EPA guidance on daily loads provides three categories of options for level of resolution, all of which are potentially applicable for the Western Maryland watersheds:

1. **Representative daily load:** In this option, a single daily load (or multiple representative daily loads) is specified that covers all time periods and environmental conditions.
2. **Flow-variable daily load:** This option allows the maximum daily load to vary according to the observed flow condition.
3. **Temporally-variable daily load:** This option allows the maximum daily load to vary according to seasons or times of varying source or waterbody behavior.

##### J.4.2 Probability Level

Essentially all TMDLs have some probability of being exceeded, with the specific probability being either explicitly stated or implicitly assumed. This level of probability reflects, directly or indirectly, two separate phenomena:

1. Water quality criteria consist of components describing acceptable magnitude, duration, and frequency. The frequency component addresses how often conditions can allowably surpass the combined magnitude and duration components.
2. Pollutant loads, especially from wet-weather sources, typically exhibit a large degree of variability over time. It is rarely practical to specify a *never to be exceeded value* for a daily load, because essentially any loading value has some finite probability of being exceeded.

The draft daily load guidance states that the probability component of the maximum daily load should be “based on a representative statistical measure” that is dependent on the specific TMDL

and best professional judgment of the developers. This statistical measure represents how often the maximum daily load is expected/allowed to be exceeded. The primary options for selecting this level of protection would be

1. **The maximum daily load reflects some central tendency:** In this option, the maximum daily load is based on the mean or median value of the range of loads expected to occur. The variability in the actual loads is not addressed.
2. **The maximum daily load reflects a level of protection implicitly provided by the selection of some critical period:** In this option, the maximum daily load is based on the allowable load that is predicted to occur during some critical period examined during the analysis. The developer does not explicitly specify the probability of occurrence.
3. **The maximum daily load is a value that will be exceeded with a pre-defined probability:** In this option, a *reasonable* upper bound percentile is selected for the maximum daily load on the basis of a characterization of the variability of daily loads. For example, selection of the 95<sup>th</sup> percentile value would result in maximum daily load that would be exceeded 5 percent of the time.

## J.5 SELECTED APPROACH

The approach selected for defining a maximum daily load for the Western Maryland watersheds was based on the level of information available.

### Approach for Nonpoint Sources

The level of resolution selected for defining a maximum daily load for the Western Maryland watersheds is for a flow-variable daily load for each loading source. This approach was selected to provide the maximum detail possible, given the nature of the system.

The probability level will be based on the use of a critical condition. This approach was selected because it is directly analogous to the approach used in setting the original TMDL and will maintain the policy decisions made during development of that TMDL. The probability level for the annual TMDL determination was based on the use of a critical period approach. For the annual TMDL, the period of December 1, 2004, through November 30, 2005, was selected as representing a range of wet, average, and dry rainfall conditions. The most direct analogy for developing maximum daily loads will be to use the same critical period approach, with the critical period being defined as the highest single daily loading predicted during the same simulation period originally used in the TMDL. The maximum *daily* load for each contributing source is therefore defined as the highest observed (or predicted) daily load for each loading source over the course of the critical period. These maximum daily loads will be calculated for each of the flow strata considered.

## J.6 APPLICATION OF APPROACH

This section documents the application of the selected approach to define maximum daily loads for the Western Maryland watersheds.

### **Calculation Approach for Nonpoint Sources**

The specific approach used for application to the Western Maryland TMDLs was

1. Obtained the predicted daily loading time series over the simulation period (December 1, 2004–November 30, 2005) from each contributing source for the recommended TMDL scenario that demonstrates compliance with water quality standards.
2. Conducted a flow duration analysis for the Western Maryland watersheds' flow, dividing flows into 10 duration intervals by percentiles (i.e. 0–10%, 10–20%, 20–30%, 30–40%, 40–50%, 50–60%, 60–70%, 70–80%, 80–90%, and 90–100%).
3. Determined the maximum daily load over this period of simulation for each flow duration interval.
4. Used the maximum daily load obtained in Step 3 as the basis of the maximum daily load.

### **J.7 RESULTS OF APPROACH**

Figures J-1 through J-125 and Tables J-1 through J-125 present the pollutant loadings by flow percentile for each of the impaired waterbody segments in the western Maryland watersheds.

UT to Jennings Run (WM-33/UJN0005) plots and tables

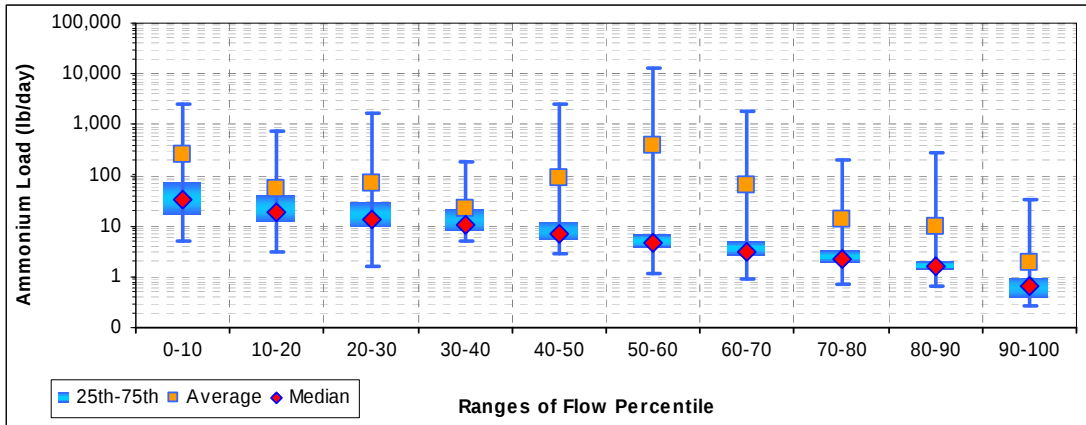


Figure J-1. Ammonium loads by flow percentile for UT to Jennings Run (UJN0005/WM-33)

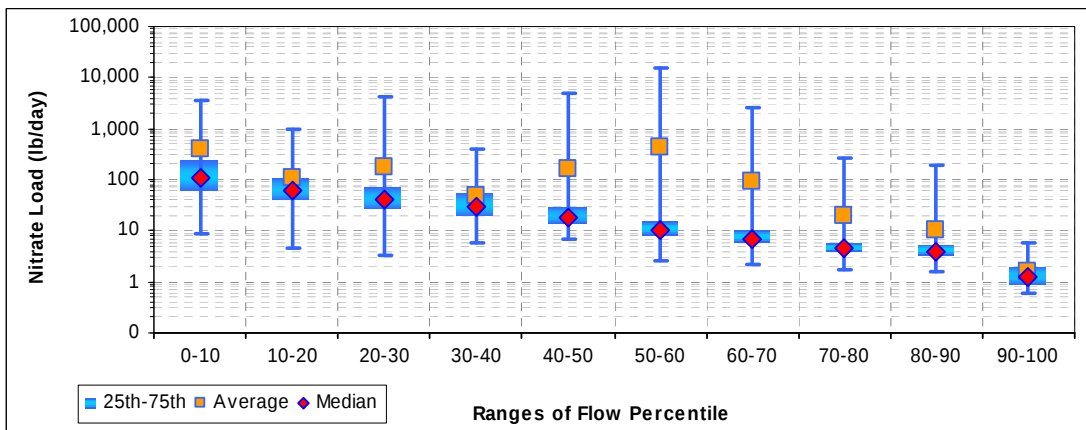


Figure J-2. Nitrate loads by flow percentile for UT to Jennings Run (UJN0005/WM-33)

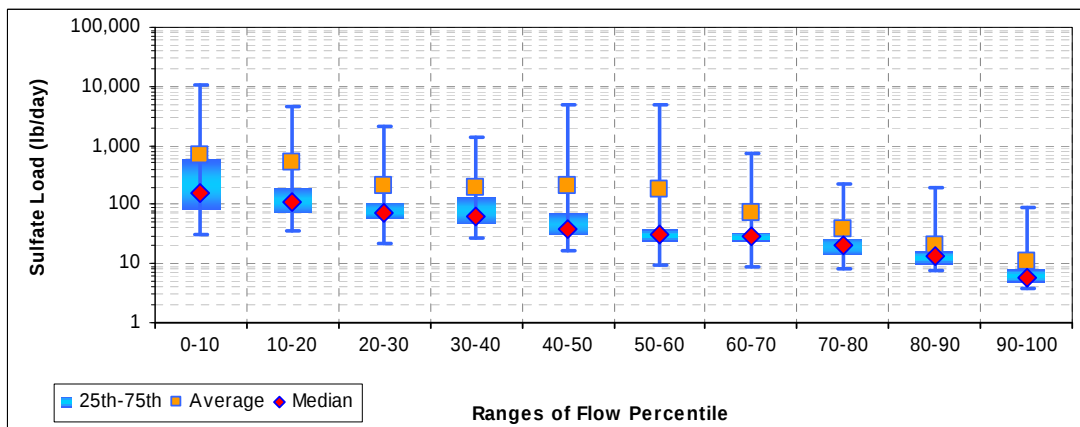


Figure J-3. Sulfate loads by flow percentile for UT to Jennings Run (UJN0005/WM-33)

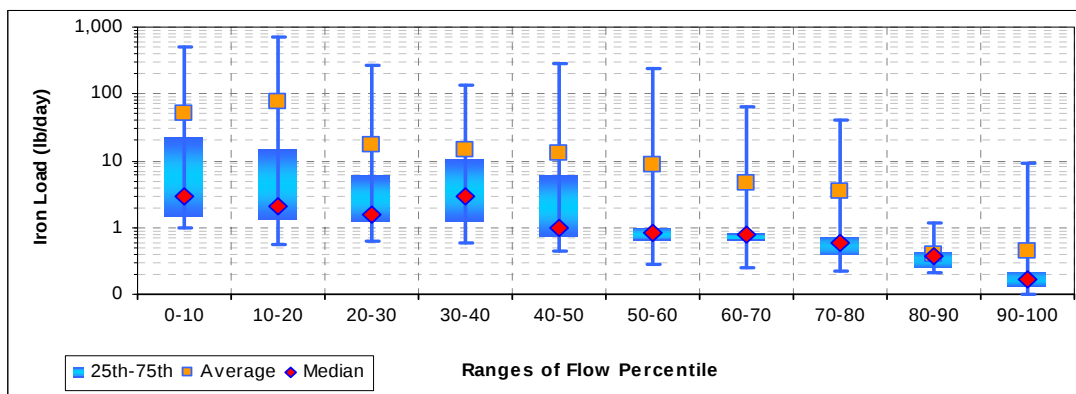


Figure J-4. Iron loads by flow percentile for UT to Jennings Run (UJN0005/WM-33)

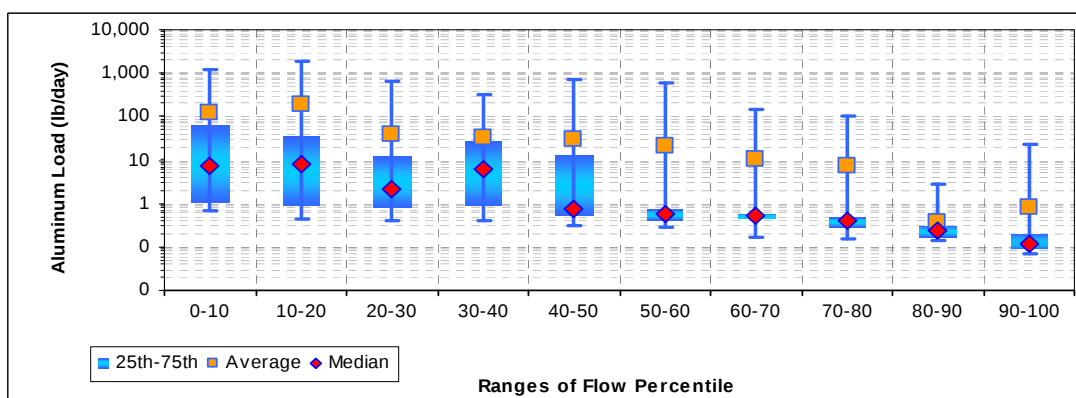


Figure J-5. Aluminum loads by flow percentile for UT to Jennings Run (UJN0005/WM-33)

Table J-1. Ammonium loads (lb/d) by flow percentile for UT to Jennings Run (UJN0005/WM-33)

|         | 0-10    | 10-20 | 20-30   | 30-40 | 40-50   | 50-60    | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|---------|-------|---------|----------|---------|-------|-------|--------|
| Minimum | 5.2     | 3.0   | 1.6     | 4.9   | 2.9     | 1.2      | 0.9     | 0.7   | 0.7   | 0.3    |
| Average | 254.1   | 52.6  | 69.6    | 22.4  | 86.9    | 382.3    | 65.0    | 13.1  | 9.7   | 1.9    |
| Maximum | 2,469.3 | 731.9 | 1,678.5 | 182.0 | 2,497.8 | 13,314.3 | 1,887.8 | 206.8 | 273.4 | 33.7   |
| Median  | 33.2    | 19.4  | 13.5    | 10.3  | 6.8     | 4.7      | 3.1     | 2.2   | 1.6   | 0.7    |
| 25th    | 17.9    | 12.9  | 10.1    | 8.1   | 5.7     | 3.5      | 2.7     | 1.9   | 1.3   | 0.4    |
| 75th    | 72.2    | 41.4  | 29.6    | 22.5  | 12.4    | 6.9      | 5.1     | 3.4   | 2.0   | 1.0    |

Table J-2. Nitrate loads (lbs/d) by flow percentile for UT to Jennings Run (UJN0005/WM-33)

|         | 0-10    | 10-20 | 20-30   | 30-40 | 40-50   | 50-60    | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|---------|-------|---------|----------|---------|-------|-------|--------|
| Minimum | 9.0     | 4.4   | 3.3     | 5.7   | 6.7     | 2.5      | 2.3     | 1.7   | 1.6   | 0.6    |
| Average | 384.9   | 106.1 | 172.2   | 49.5  | 161.4   | 449.7    | 90.1    | 19.7  | 10.3  | 1.6    |
| Maximum | 3,512.8 | 934.8 | 4,234.1 | 384.7 | 4,836.2 | 15,285.7 | 2,628.4 | 264.7 | 186.3 | 5.7    |
| Median  | 106.5   | 61.6  | 40.5    | 30.1  | 18.1    | 10.3     | 6.9     | 4.6   | 3.9   | 1.3    |
| 25th    | 63.6    | 40.7  | 28.2    | 20.3  | 13.7    | 7.8      | 5.6     | 4.0   | 3.2   | 0.9    |
| 75th    | 239.9   | 112.0 | 69.4    | 54.8  | 30.7    | 15.1     | 10.6    | 5.8   | 5.4   | 2.0    |

Table J-3. Sulfate loads (lbs/d) by flow percentile for UT to Jennings Run (UJN0005/WM-33)

|         | 0-10   | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 31     | 35    | 22    | 27    | 16    | 9     | 9     | 8     | 8     | 4      |
| Average | 703    | 530   | 209   | 192   | 210   | 175   | 75    | 38    | 20    | 11     |
| Maximum | 10,448 | 4,568 | 2,092 | 1,390 | 5,027 | 4,824 | 751   | 217   | 199   | 92     |
| Median  | 161    | 110   | 72    | 65    | 39    | 31    | 28    | 21    | 14    | 6      |
| 25th    | 85     | 70    | 58    | 48    | 30    | 24    | 24    | 15    | 9     | 5      |
| 75th    | 600    | 191   | 114   | 140   | 73    | 39    | 34    | 26    | 17    | 8      |

Table J-4. Iron loads (lbs/d) by flow percentile for UT to Jennings Run (UJN0005/WM-33)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 1.0   | 0.5   | 0.6   | 0.6   | 0.4   | 0.3   | 0.2   | 0.2   | 0.2   | 0.1    |
| Average | 50.9  | 74.3  | 17.2  | 14.4  | 13.0  | 8.6   | 4.7   | 3.5   | 0.4   | 0.4    |
| Maximum | 510.4 | 700.9 | 274.6 | 135.8 | 285.7 | 240.6 | 62.7  | 40.9  | 1.2   | 9.1    |
| Median  | 2.9   | 2.0   | 1.6   | 2.9   | 1.0   | 0.8   | 0.8   | 0.6   | 0.4   | 0.2    |
| 25th    | 1.5   | 1.3   | 1.2   | 1.2   | 0.7   | 0.6   | 0.6   | 0.4   | 0.2   | 0.1    |
| 75th    | 22.5  | 15.0  | 6.3   | 10.8  | 6.1   | 1.0   | 0.8   | 0.7   | 0.5   | 0.2    |

Table J-5. Aluminum loads (lbs/d) by flow percentile for UT to Jennings Run (UJN0005/WM-33)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 0.7     | 0.4     | 0.4   | 0.4   | 0.3   | 0.3   | 0.2   | 0.2   | 0.1   | 0.1    |
| Average | 120.8   | 182.9   | 39.5  | 33.5  | 30.4  | 20.6  | 10.5  | 7.6   | 0.4   | 0.8    |
| Maximum | 1,184.0 | 1,802.0 | 633.4 | 329.1 | 696.3 | 615.7 | 151.2 | 98.7  | 2.8   | 24.1   |
| Median  | 7.6     | 7.8     | 2.1   | 6.0   | 0.7   | 0.6   | 0.5   | 0.4   | 0.2   | 0.1    |
| 25th    | 1.1     | 0.9     | 0.8   | 0.9   | 0.5   | 0.4   | 0.4   | 0.3   | 0.2   | 0.1    |
| 75th    | 66.3    | 35.9    | 13.0  | 27.6  | 13.5  | 0.7   | 0.6   | 0.5   | 0.3   | 0.2    |

UT to Jennings Run (WM-34/UJH0015) plots and tables

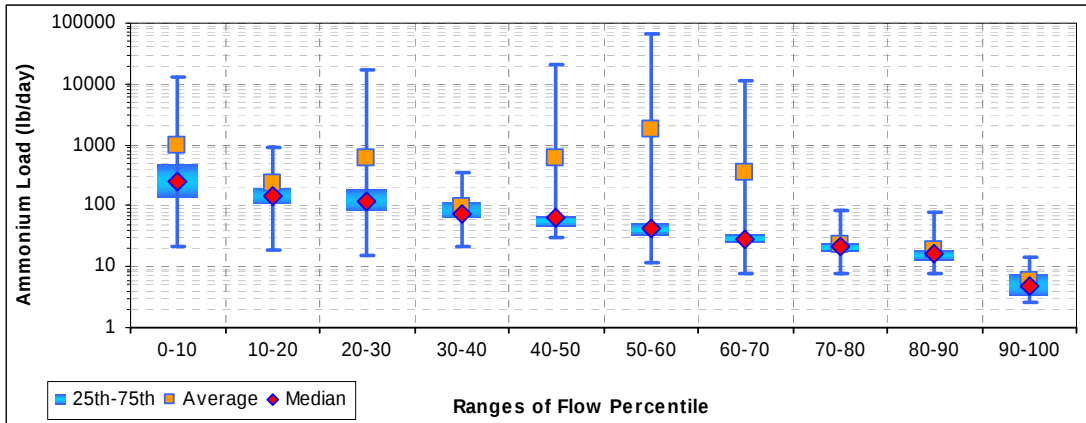


Figure J-6. Ammonium loads by flow percentile for UT to Jennings Run (UJH0015/WM-34)

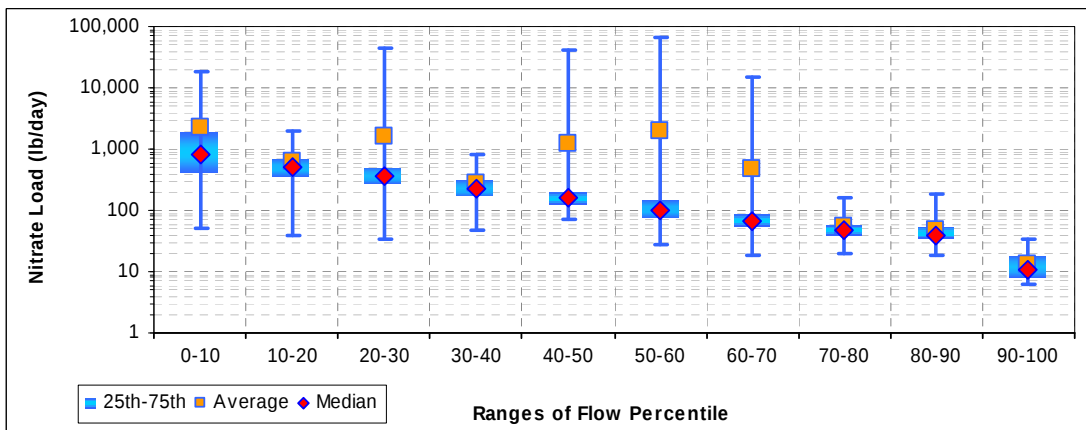


Figure J-7. Nitrate loads by flow percentile for UT to Jennings Run (UJH0015/WM-34)

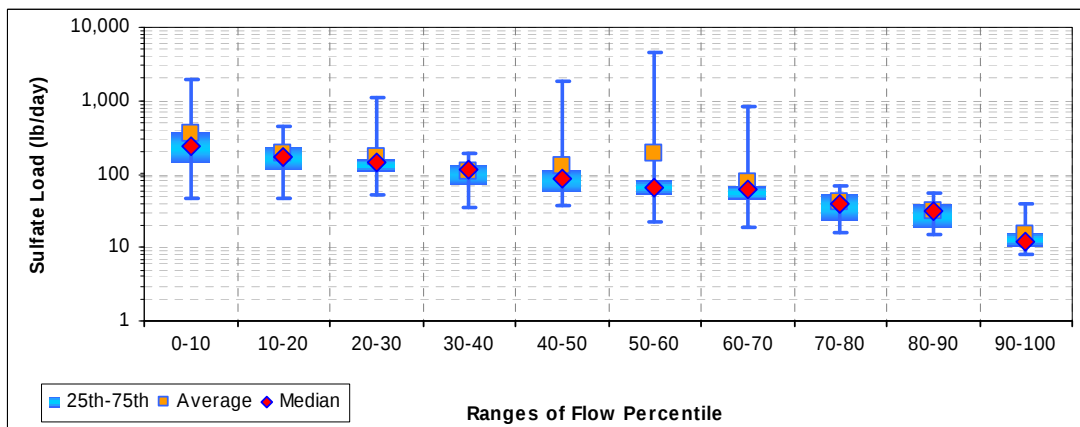


Figure J-8. Sulfate loads by flow percentile for UT to Jennings Run (UJH0015/WM-34)

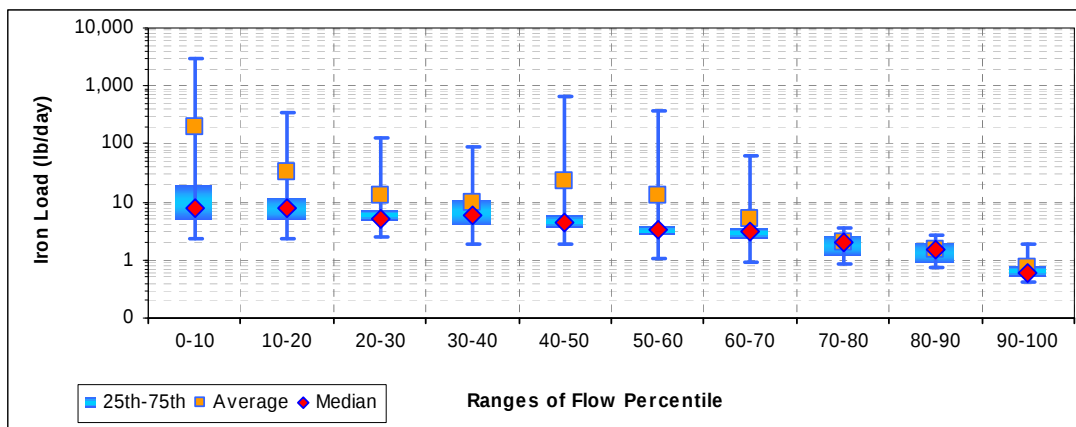


Figure J-9. Iron loads by flow percentile for UT to Jennings Run (UJH0015/WM-34)

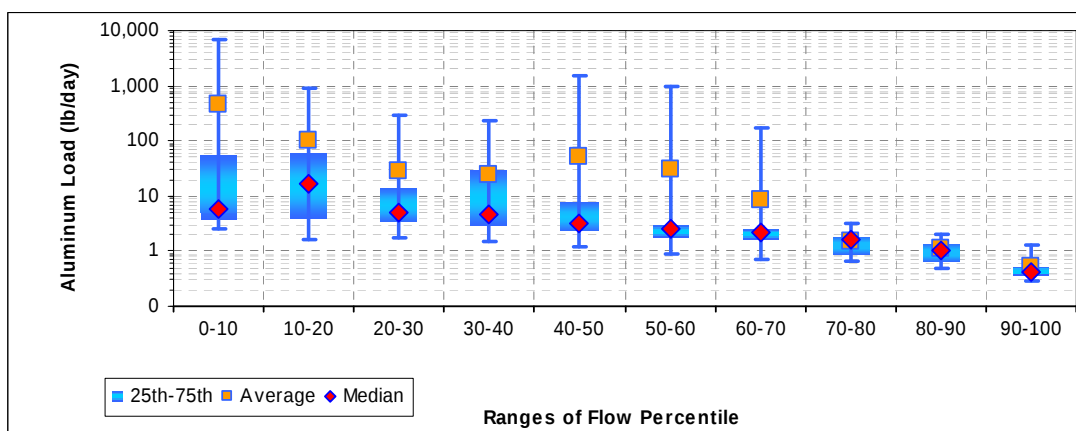


Figure J-10. Aluminum loads by flow percentile for UT to Jennings Run (UJH0015/WM-34)

# FINAL

Table J-6. Ammonium loads (lb/d) by flow percentile for UT to Jennings Run (UJH0015/WM-34)

|         | 0-10     | 10-20 | 20-30    | 30-40 | 40-50    | 50-60    | 60-70    | 70-80 | 80-90 | 90-100 |
|---------|----------|-------|----------|-------|----------|----------|----------|-------|-------|--------|
| Minimum | 21.9     | 18.2  | 15.2     | 21.7  | 29.9     | 11.2     | 7.6      | 8.0   | 7.5   | 2.7    |
| Average | 962.1    | 225.5 | 619.2    | 96.9  | 609.6    | 1,840.8  | 341.9    | 22.6  | 18.3  | 5.9    |
| Maximum | 13,134.3 | 899.0 | 17,001.6 | 338.7 | 20,354.0 | 64,506.5 | 11,288.8 | 82.7  | 76.2  | 13.8   |
| Median  | 250.2    | 146.0 | 114.7    | 75.5  | 62.4     | 41.2     | 28.5     | 21.3  | 16.1  | 4.6    |
| 25th    | 137.0    | 110.0 | 84.6     | 62.3  | 46.1     | 32.1     | 24.4     | 17.4  | 12.7  | 3.3    |
| 75th    | 477.3    | 200.9 | 184.5    | 118.1 | 70.1     | 52.4     | 34.5     | 25.1  | 19.0  | 7.5    |

Table J-7. Nitrate loads (lbs/d) by flow percentile for UT to Jennings Run (UJH0015/WM-34)

|         | 0-10     | 10-20   | 20-30    | 30-40 | 40-50    | 50-60    | 60-70    | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|----------|-------|----------|----------|----------|-------|-------|--------|
| Minimum | 51.4     | 39.7    | 32.8     | 48.2  | 71.1     | 28.2     | 18.1     | 20.3  | 18.7  | 6.0    |
| Average | 2,222.7  | 612.6   | 1,576.0  | 268.5 | 1,259.9  | 1,970.5  | 487.9    | 52.7  | 49.0  | 13.5   |
| Maximum | 18,355.0 | 1,915.5 | 43,161.7 | 809.4 | 40,722.8 | 66,637.2 | 15,083.9 | 162.3 | 186.2 | 34.3   |
| Median  | 832.8    | 491.7   | 371.5    | 219.7 | 164.2    | 99.1     | 67.9     | 48.9  | 39.3  | 10.7   |
| 25th    | 412.4    | 351.7   | 281.0    | 177.6 | 124.5    | 78.1     | 52.7     | 39.7  | 33.8  | 8.3    |
| 75th    | 1,925.6  | 718.7   | 519.0    | 312.1 | 198.9    | 147.4    | 87.3     | 59.2  | 52.6  | 18.1   |

Table J-8. Sulfate loads (lbs/d) by flow percentile for UT to Jennings Run (UJH0015/WM-34)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 47    | 47    | 52    | 36    | 37    | 22    | 19    | 16    | 15    | 8      |
| Average | 356   | 188   | 171   | 106   | 132   | 188   | 76    | 41    | 31    | 15     |
| Maximum | 1,972 | 457   | 1,083 | 192   | 1,865 | 4,451 | 815   | 71    | 55    | 39     |
| Median  | 234   | 173   | 148   | 115   | 88    | 65    | 62    | 39    | 32    | 12     |
| 25th    | 148   | 115   | 112   | 75    | 58    | 53    | 45    | 24    | 19    | 10     |
| 75th    | 387   | 239   | 166   | 133   | 113   | 80    | 69    | 55    | 40    | 16     |

Table J-9. Iron loads (lbs/d) by flow percentile for UT to Jennings Run (UJH0015/WM-34)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 2.3     | 2.3   | 2.5   | 1.8   | 1.8   | 1.1   | 0.9   | 0.9   | 0.7   | 0.4    |
| Average | 194.2   | 33.8  | 12.8  | 10.0  | 23.0  | 13.2  | 5.1   | 2.0   | 1.5   | 0.7    |
| Maximum | 2,960.2 | 348.1 | 128.8 | 90.4  | 648.4 | 361.2 | 64.1  | 3.5   | 2.7   | 1.9    |
| Median  | 7.9     | 7.8   | 5.3   | 6.0   | 4.4   | 3.3   | 3.1   | 2.0   | 1.5   | 0.6    |
| 25th    | 5.1     | 5.3   | 4.7   | 4.2   | 3.5   | 2.6   | 2.3   | 1.2   | 0.9   | 0.5    |
| 75th    | 20.5    | 11.6  | 7.4   | 11.3  | 5.9   | 3.9   | 3.5   | 2.8   | 2.0   | 0.8    |

Table J-10. Aluminum loads (lbs/d) by flow percentile for UT to Jennings Run (UJH0015/WM-34)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50   | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|---------|-------|-------|-------|-------|--------|
| Minimum | 2.5     | 1.6   | 1.7   | 1.5   | 1.2     | 0.9   | 0.7   | 0.7   | 0.5   | 0.3    |
| Average | 453.2   | 104.1 | 29.0  | 23.5  | 51.8    | 29.9  | 8.2   | 1.5   | 1.1   | 0.5    |
| Maximum | 6,985.9 | 925.7 | 293.6 | 238.6 | 1,567.9 | 986.7 | 171.3 | 3.3   | 2.1   | 1.3    |
| Median  | 6.0     | 16.9  | 4.9   | 4.7   | 3.3     | 2.5   | 2.2   | 1.6   | 1.0   | 0.4    |
| 25th    | 3.8     | 3.9   | 3.5   | 3.0   | 2.4     | 1.8   | 1.6   | 0.9   | 0.6   | 0.4    |
| 75th    | 54.1    | 59.6  | 13.8  | 29.7  | 7.6     | 3.0   | 2.5   | 1.9   | 1.4   | 0.5    |

UT to Jennings Run (WM-37/UJF0002) plots and tables

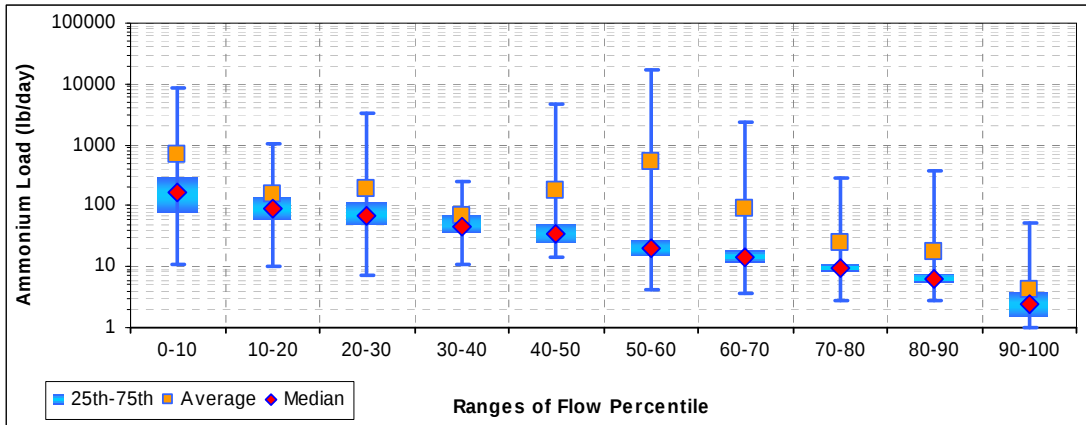


Figure J-11. Ammonium loads by flow percentile for UT to Jennings Run (UJF0002/WM-37)

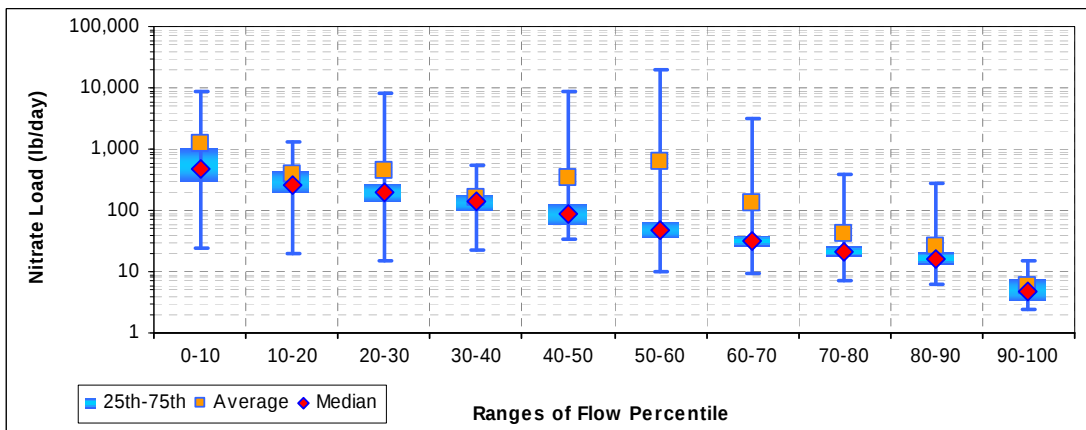


Figure J-12. Nitrate loads by flow percentile for UT to Jennings Run (UJF0002/WM-37)

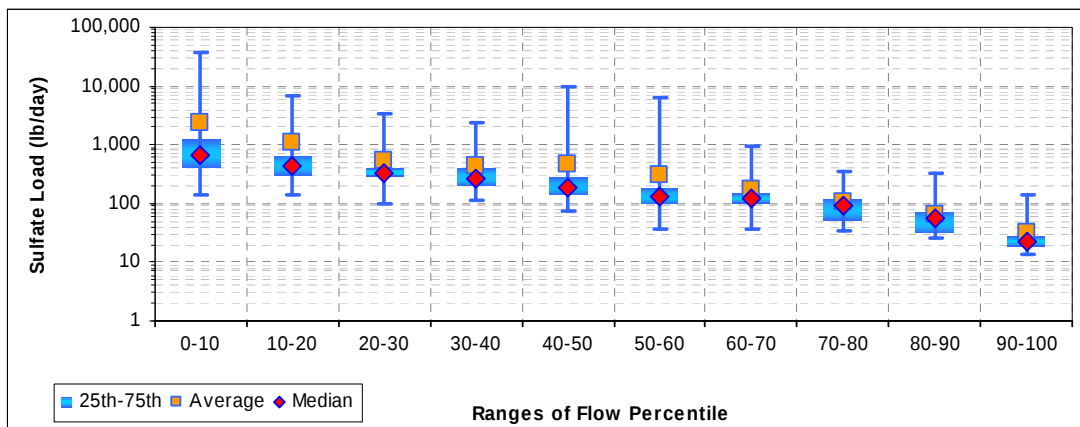


Figure J-13. Sulfate loads by flow percentile for UT to Jennings Run (UJF0002/WM-37)

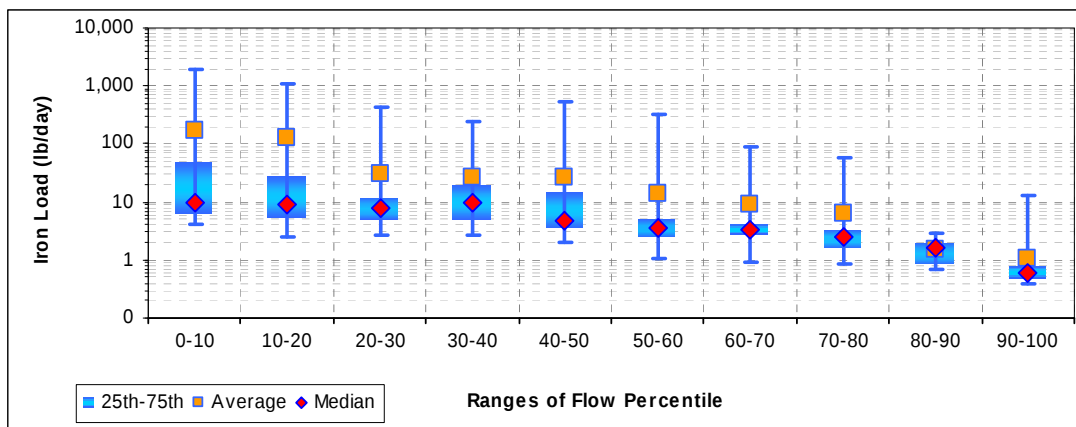


Figure J-14. Iron loads by flow percentile for UT to Jennings Run (UJF0002/WM-37)

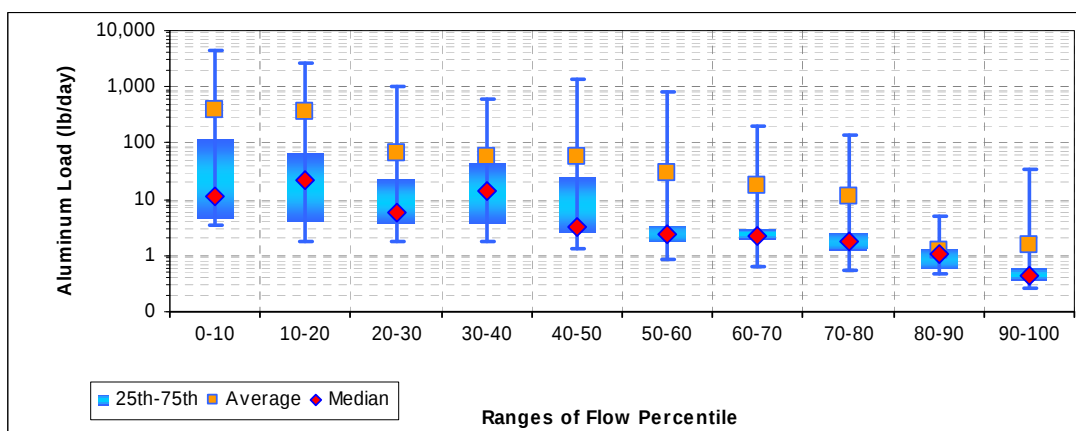


Figure J-15. Aluminum loads by flow percentile for UT to Jennings Run (UJF0002/WM-37)

# FINAL

Table J-11. Ammonium loads (lb/d) by flow percentile for UT to Jennings Run (UJF0002/WM-37)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50   | 50-60    | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|---------|----------|---------|-------|-------|--------|
| Minimum | 11.2    | 10.4    | 7.1     | 11.0  | 14.7    | 4.2      | 3.7     | 2.9   | 2.7   | 1.0    |
| Average | 682.7   | 158.8   | 184.1   | 66.2  | 175.5   | 517.1    | 90.0    | 24.0  | 18.0  | 4.3    |
| Maximum | 8,869.6 | 1,008.5 | 3,219.2 | 248.2 | 4,680.8 | 17,519.3 | 2,311.3 | 295.3 | 386.2 | 52.7   |
| Median  | 171.1   | 87.5    | 69.2    | 46.7  | 33.7    | 20.1     | 13.8    | 9.3   | 6.3   | 2.5    |
| 25th    | 80.5    | 58.7    | 48.4    | 36.9  | 24.4    | 14.8     | 11.5    | 8.1   | 5.5   | 1.5    |
| 75th    | 303.0   | 144.9   | 115.4   | 75.0  | 51.5    | 28.2     | 18.7    | 11.0  | 7.9   | 3.8    |

Table J-12. Nitrate loads (lbs/d) by flow percentile for UT to Jennings Run (UJF0002/WM-37)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50   | 50-60    | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|---------|----------|---------|-------|-------|--------|
| Minimum | 24.2    | 19.2    | 14.5    | 22.0  | 34.4    | 10.0     | 9.2     | 6.9   | 6.4   | 2.4    |
| Average | 1,199.4 | 376.9   | 457.8   | 163.1 | 341.9   | 623.8    | 130.9   | 40.7  | 26.2  | 5.7    |
| Maximum | 8,463.5 | 1,293.1 | 8,135.1 | 525.7 | 9,006.8 | 20,064.7 | 3,161.7 | 380.8 | 270.9 | 14.9   |
| Median  | 475.1   | 262.8   | 198.9   | 136.9 | 86.3    | 46.8     | 31.1    | 20.4  | 16.1  | 4.8    |
| 25th    | 300.2   | 198.5   | 141.0   | 100.5 | 56.7    | 36.9     | 25.9    | 16.8  | 13.0  | 3.5    |
| 75th    | 1,035.2 | 428.9   | 277.6   | 185.1 | 131.4   | 67.5     | 38.4    | 25.3  | 20.9  | 7.5    |

Table J-13. Sulfate loads (lbs/d) by flow percentile for UT to Jennings Run (UJF0002/WM-37)

|         | 0-10   | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 143    | 139   | 97    | 114   | 73    | 37    | 36    | 33    | 26    | 14     |
| Average | 2,448  | 1,075 | 526   | 441   | 479   | 315   | 170   | 103   | 64    | 32     |
| Maximum | 38,229 | 6,860 | 3,450 | 2,299 | 9,589 | 6,361 | 964   | 349   | 322   | 137    |
| Median  | 663    | 444   | 320   | 274   | 180   | 135   | 124   | 92    | 57    | 22     |
| 25th    | 403    | 303   | 284   | 202   | 140   | 101   | 101   | 51    | 32    | 18     |
| 75th    | 1,232  | 648   | 394   | 395   | 287   | 185   | 154   | 119   | 73    | 28     |

Table J-14. Iron loads (lbs/d) by flow percentile for UT to Jennings Run (UJF0002/WM-37)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 4.1     | 2.5     | 2.7   | 2.6   | 2.0   | 1.1   | 0.9   | 0.8   | 0.7   | 0.4    |
| Average | 166.6   | 124.8   | 30.8  | 26.3  | 25.5  | 13.7  | 9.3   | 6.2   | 1.5   | 1.1    |
| Maximum | 1,984.8 | 1,102.1 | 437.7 | 245.6 | 543.3 | 317.2 | 86.1  | 57.9  | 2.8   | 13.4   |
| Median  | 9.8     | 9.3     | 7.9   | 9.4   | 4.6   | 3.7   | 3.4   | 2.5   | 1.6   | 0.6    |
| 25th    | 6.2     | 5.6     | 5.2   | 5.1   | 3.6   | 2.6   | 2.8   | 1.6   | 0.9   | 0.5    |
| 75th    | 50.8    | 28.5    | 12.3  | 20.2  | 14.9  | 5.1   | 4.1   | 3.3   | 2.0   | 0.8    |

Table J-15. Aluminum loads (lbs/d) by flow percentile for UT to Jennings Run (UJF0002/WM-37)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50   | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|---------|-------|-------|-------|-------|--------|
| Minimum | 3.3     | 1.8     | 1.8     | 1.8   | 1.3     | 0.9   | 0.6   | 0.6   | 0.5   | 0.3    |
| Average | 391.2   | 361.6   | 66.3    | 57.5  | 55.9    | 29.0  | 18.0  | 11.6  | 1.2   | 1.5    |
| Maximum | 4,607.2 | 2,615.7 | 1,004.5 | 597.2 | 1,323.2 | 811.2 | 206.7 | 138.4 | 4.9   | 35.0   |
| Median  | 11.1    | 22.0    | 5.7     | 13.7  | 3.1     | 2.5   | 2.3   | 1.8   | 1.1   | 0.4    |
| 25th    | 4.6     | 3.9     | 3.7     | 3.6   | 2.5     | 1.7   | 1.9   | 1.2   | 0.6   | 0.4    |
| 75th    | 118.5   | 66.4    | 23.8    | 45.3  | 26.1    | 3.6   | 3.0   | 2.5   | 1.4   | 0.6    |

**Jennings Run (WM-39/JEN0092) plots and tables**

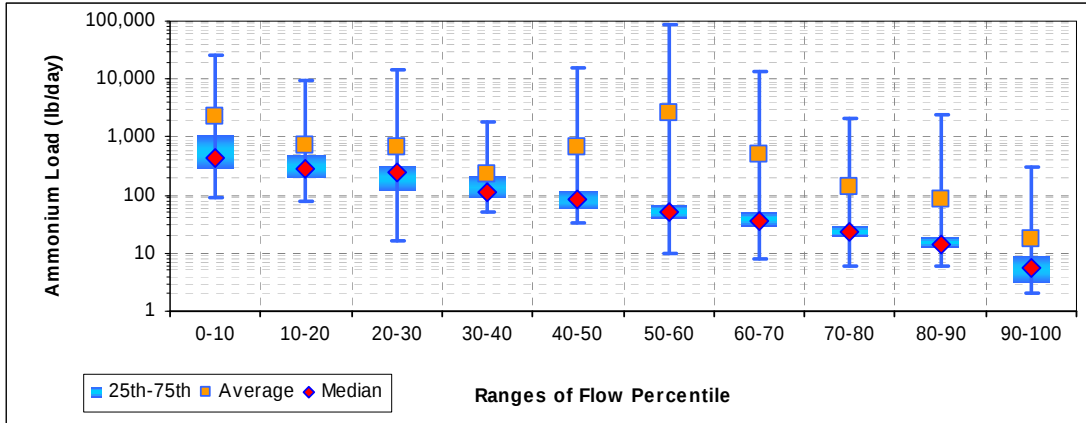


Figure J-16. Ammonium loads by flow percentile for Jennings Run (JEN0092/WM-39)

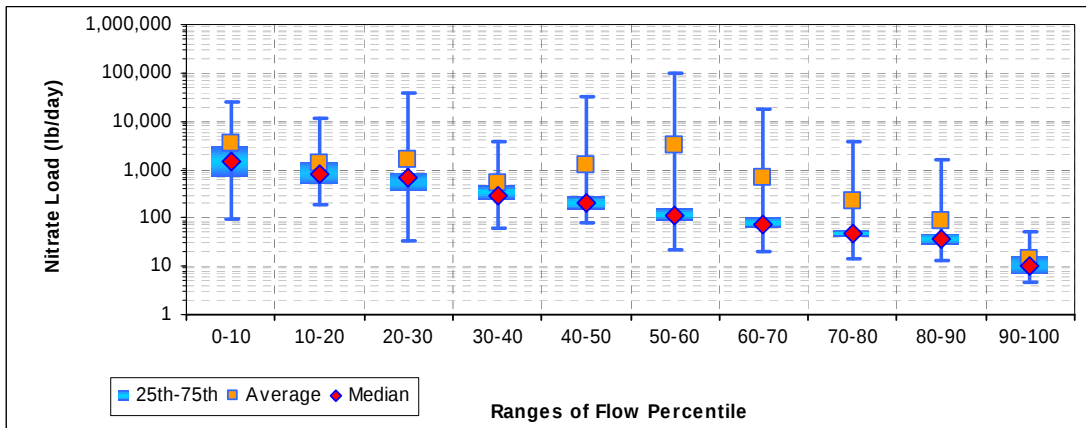


Figure J-17. Nitrate loads by flow percentile for Jennings Run (JEN0092/WM-39)

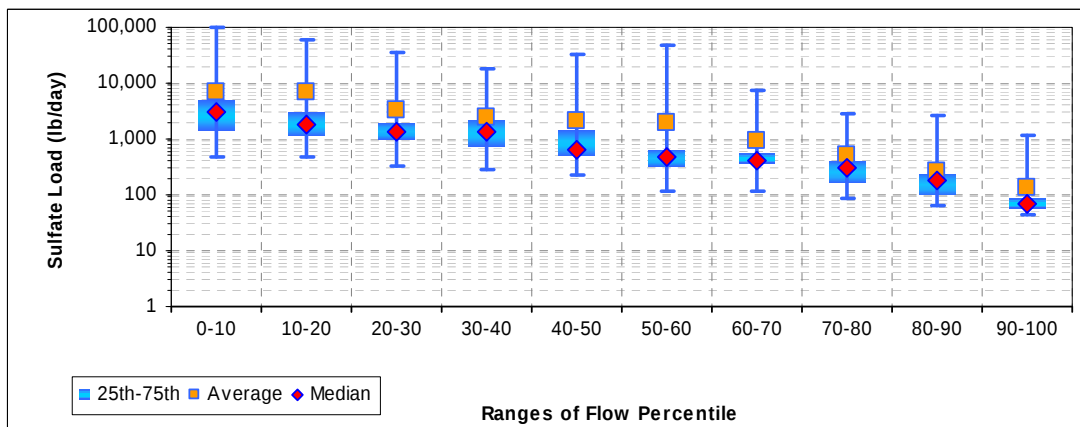


Figure J-18. Sulfate loads by flow percentile for Jennings Run (JEN0092/WM-39)

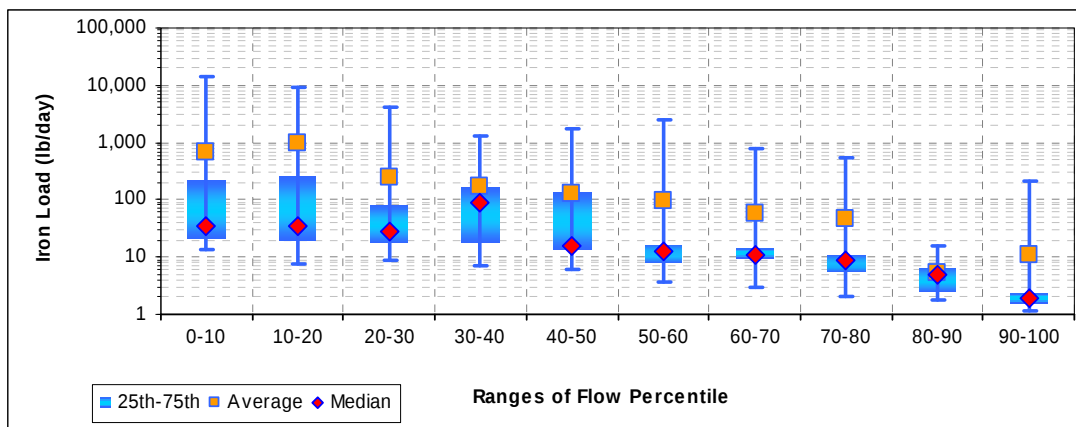


Figure J-19. Iron loads by flow percentile for Jennings Run (JEN0092/WM-39)

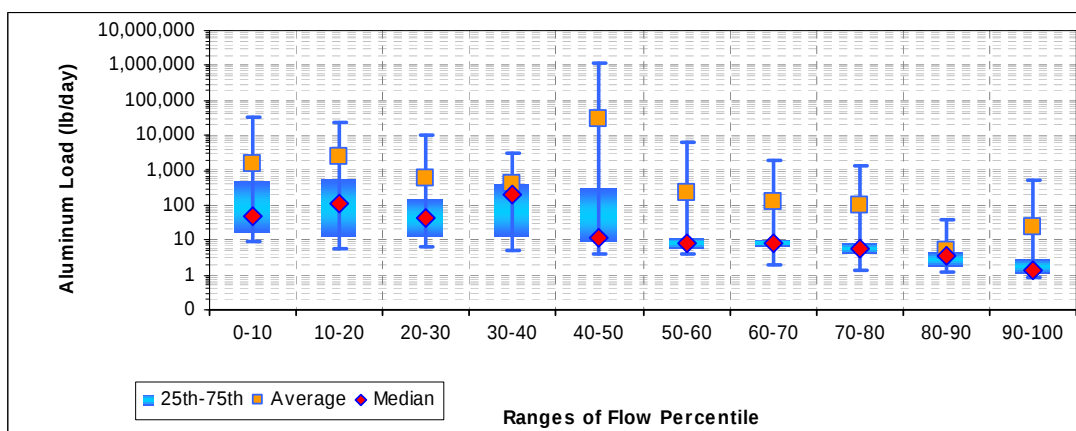


Figure J-20. Aluminum loads by flow percentile for Jennings Run (JEN0092/WM-39)

Table J-16. Ammonium loads (lb/d) by flow percentile for Jennings Run (JEN0092/WM-39)

|         | 0-10     | 10-20   | 20-30    | 30-40   | 40-50    | 50-60    | 60-70    | 70-80   | 80-90   | 90-100 |
|---------|----------|---------|----------|---------|----------|----------|----------|---------|---------|--------|
| Minimum | 87.7     | 75.9    | 16.3     | 49.8    | 34.1     | 10.1     | 7.8      | 6.1     | 5.8     | 2.1    |
| Average | 2,231.4  | 695.2   | 688.6    | 232.3   | 665.7    | 2,641.2  | 489.6    | 138.0   | 84.3    | 17.0   |
| Maximum | 26,186.0 | 9,236.7 | 14,661.9 | 1,787.6 | 15,219.1 | 89,186.6 | 13,188.0 | 2,130.1 | 2,385.7 | 301.1  |
| Median  | 443.9    | 286.6   | 248.4    | 110.2   | 84.0     | 49.5     | 35.9     | 22.7    | 14.4    | 5.6    |
| 25th    | 277.3    | 192.1   | 123.4    | 90.5    | 59.9     | 38.1     | 29.0     | 19.4    | 11.9    | 3.1    |
| 75th    | 1,087.7  | 486.3   | 330.1    | 207.7   | 117.0    | 67.2     | 51.2     | 28.5    | 18.9    | 8.9    |

Table J-17. Nitrate loads (lbs/d) by flow percentile for Jennings Run (JEN0092/WM-39)

|         | 0-10     | 10-20    | 20-30    | 30-40   | 40-50    | 50-60     | 60-70    | 70-80   | 80-90   | 90-100 |
|---------|----------|----------|----------|---------|----------|-----------|----------|---------|---------|--------|
| Minimum | 91.9     | 192.7    | 32.6     | 63.2    | 77.9     | 21.8      | 19.4     | 14.6    | 13.5    | 4.9    |
| Average | 3,599.0  | 1,387.6  | 1,668.3  | 530.6   | 1,238.5  | 3,140.9   | 674.8    | 214.6   | 87.8    | 13.7   |
| Maximum | 25,923.7 | 11,964.8 | 37,023.8 | 3,663.2 | 31,807.1 | 101,576.7 | 18,363.0 | 3,758.4 | 1,621.2 | 52.2   |
| Median  | 1,508.7  | 840.4    | 674.1    | 283.7   | 209.7    | 109.6     | 74.4     | 49.2    | 35.2    | 10.1   |
| 25th    | 771.9    | 537.5    | 366.6    | 242.2   | 145.0    | 86.1      | 58.9     | 39.4    | 29.2    | 7.3    |
| 75th    | 3,117.3  | 1,453.0  | 875.8    | 500.2   | 297.9    | 156.2     | 102.7    | 57.1    | 47.3    | 17.4   |

Table J-18. Sulfate loads (lbs/d) by flow percentile for Jennings Run (JEN0092/WM-39)

|         | 0-10   | 10-20  | 20-30  | 30-40  | 40-50  | 50-60  | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|--------|--------|--------|--------|-------|-------|-------|--------|
| Minimum | 491    | 465    | 326    | 291    | 222    | 116    | 113   | 86    | 63    | 43     |
| Average | 7,120  | 7,066  | 3,232  | 2,527  | 2,025  | 1,928  | 943   | 520   | 265   | 137    |
| Maximum | 99,088 | 59,564 | 34,486 | 18,727 | 32,783 | 48,469 | 7,387 | 2,843 | 2,619 | 1,191  |
| Median  | 3,077  | 1,841  | 1,320  | 1,302  | 631    | 466    | 416   | 312   | 180   | 67     |
| 25th    | 1,455  | 1,192  | 1,001  | 752    | 500    | 332    | 345   | 167   | 101   | 56     |
| 75th    | 5,292  | 3,103  | 1,918  | 2,290  | 1,474  | 655    | 543   | 420   | 242   | 87     |

Table J-19. Iron loads (lbs/d) by flow percentile for Jennings Run (JEN0092/WM-39)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50   | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|---------|---------|-------|-------|-------|--------|
| Minimum | 13.1     | 7.7     | 9.0     | 7.3     | 6.1     | 3.6     | 2.9   | 2.0   | 1.7   | 1.2    |
| Average | 670.4    | 950.1   | 248.8   | 170.4   | 130.7   | 93.4    | 57.9  | 45.6  | 5.2   | 11.0   |
| Maximum | 14,624.9 | 9,053.3 | 4,202.8 | 1,324.8 | 1,685.4 | 2,416.0 | 784.1 | 531.6 | 15.9  | 207.3  |
| Median  | 34.2     | 35.8    | 28.0    | 89.0    | 15.7    | 12.6    | 11.2  | 8.8   | 5.0   | 1.9    |
| 25th    | 20.9     | 19.9    | 17.9    | 18.2    | 13.2    | 8.1     | 9.1   | 5.8   | 2.6   | 1.6    |
| 75th    | 232.4    | 260.4   | 82.0    | 172.9   | 138.3   | 17.2    | 14.3  | 11.1  | 6.7   | 2.4    |

Table J-20. Aluminum loads (lbs/d) by flow percentile for Jennings Run (JEN0092/WM-39)

|         | 0-10     | 10-20    | 20-30   | 30-40   | 40-50       | 50-60   | 60-70   | 70-80   | 80-90 | 90-100 |
|---------|----------|----------|---------|---------|-------------|---------|---------|---------|-------|--------|
| Minimum | 9.7      | 5.7      | 6.1     | 4.9     | 4.1         | 3.8     | 2.0     | 1.4     | 1.2   | 0.8    |
| Average | 1,585.6  | 2,343.0  | 565.0   | 391.2   | 30,489.5    | 214.6   | 126.1   | 99.1    | 4.8   | 23.8   |
| Maximum | 34,625.5 | 24,139.5 | 9,638.1 | 3,208.6 | 1,121,242.6 | 6,087.7 | 1,890.0 | 1,283.6 | 36.2  | 501.9  |
| Median  | 48.8     | 105.7    | 40.9    | 189.4   | 11.4        | 8.5     | 7.7     | 6.0     | 3.3   | 1.4    |
| 25th    | 16.0     | 13.8     | 13.3    | 12.3    | 8.9         | 5.5     | 6.4     | 4.0     | 1.8   | 1.1    |
| 75th    | 546.2    | 607.8    | 166.3   | 404.2   | 312.8       | 12.2    | 10.1    | 8.4     | 4.5   | 2.8    |

## UT to Jennings Run (WM-41/UJH0011) plots and tables

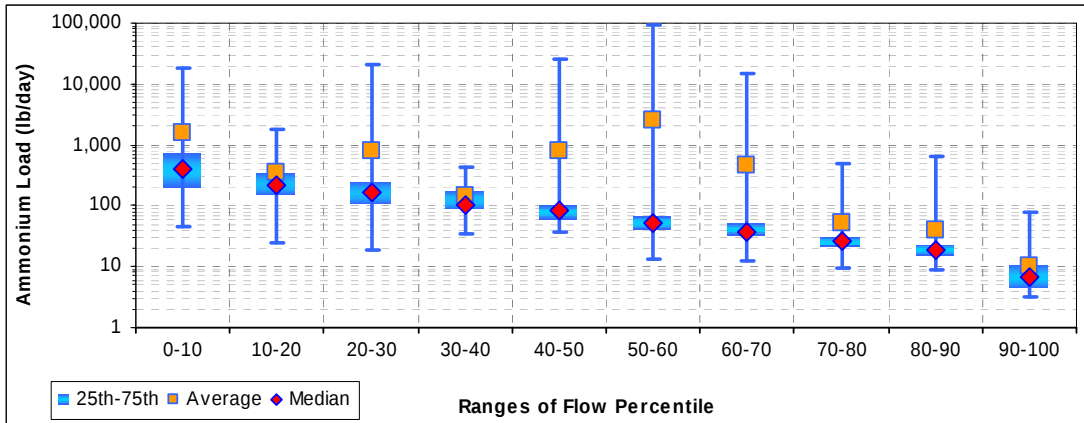


Figure J-21. Ammonium loads by flow percentile for UT to Jennings Run (UJH0011/WM-41)

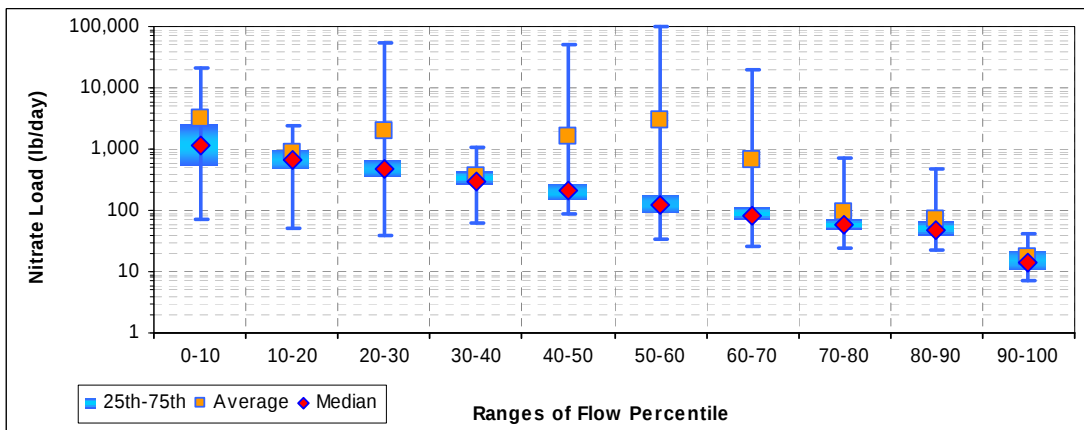


Figure J-22. Nitrate loads by flow percentile for UT to Jennings Run (UJH0011/WM-41)

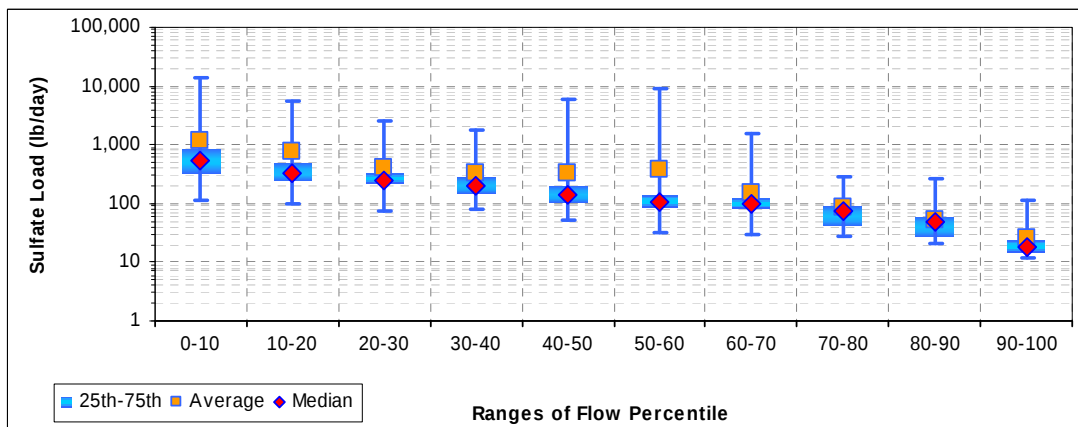


Figure J-23. Sulfate loads by flow percentile for UT to Jennings Run (UJH0011/WM-41)

\*\* These plots include upstream loads from UT to Jennings Run (WM-34/UJH0015).

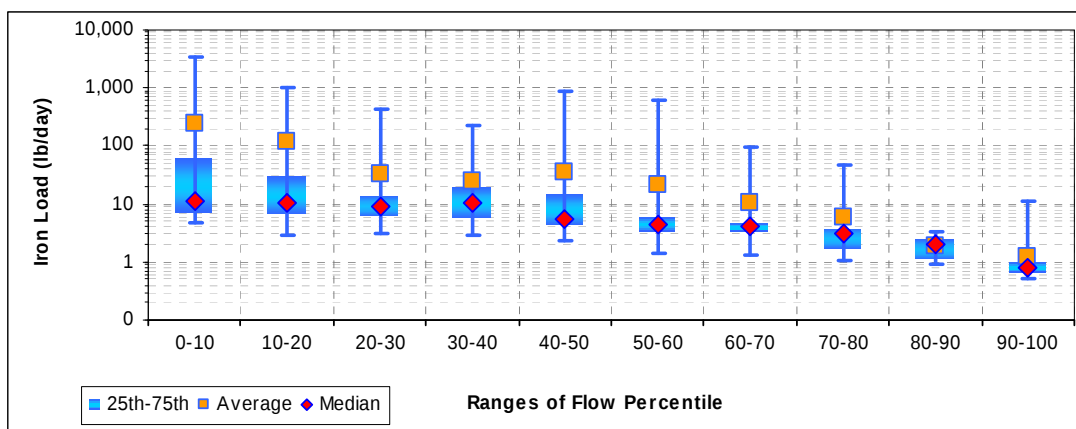


Figure J-24. Iron loads by flow percentile for UT to Jennings Run (UJH0011/WM-41)

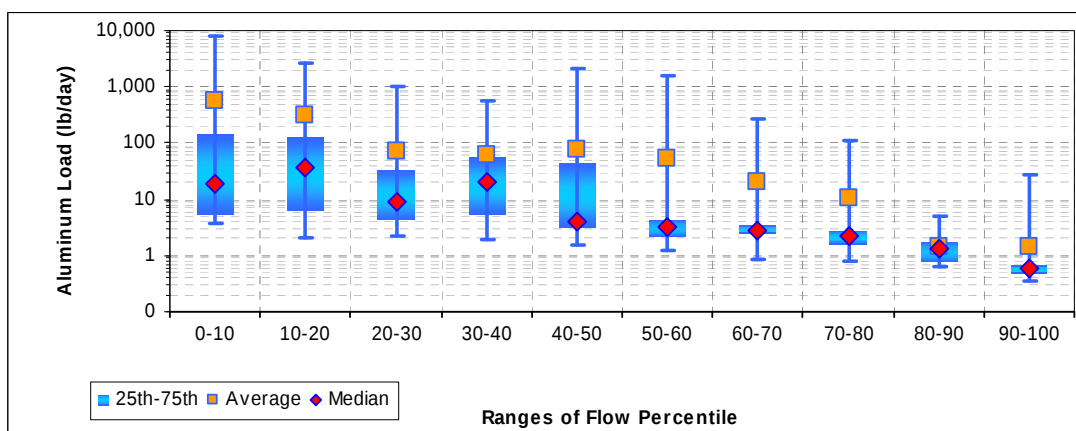


Figure J-25. Aluminum loads by flow percentile for UT to Jennings Run (UJH0011/WM-41)

\*\* These plots include upstream loads from UT to Jennings Run (WM-34/UJH0015).

Table J-21. Ammonium loads (lb/d) by flow percentile for UT to Jennings Run (UJH0011/WM-41)

|         | 0-10     | 10-20   | 20-30    | 30-40 | 40-50    | 50-60    | 60-70    | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|----------|-------|----------|----------|----------|-------|-------|--------|
| Minimum | 45.3     | 25.3    | 18.8     | 33.5  | 36.6     | 13.6     | 12.1     | 9.4   | 8.8   | 3.2    |
| Average | 1,550.2  | 347.6   | 781.4    | 145.1 | 772.9    | 2,607.7  | 467.0    | 51.4  | 39.5  | 9.9    |
| Maximum | 18,651.7 | 1,766.2 | 20,914.9 | 426.0 | 24,814.0 | 90,965.1 | 14,785.6 | 498.7 | 635.9 | 80.9   |
| Median  | 399.6    | 211.3   | 161.8    | 105.1 | 83.2     | 50.6     | 36.8     | 26.5  | 19.3  | 7.0    |
| 25th    | 204.7    | 152.8   | 110.8    | 88.6  | 61.3     | 39.8     | 31.7     | 22.1  | 15.7  | 4.6    |
| 75th    | 723.6    | 342.4   | 251.4    | 178.1 | 101.1    | 66.7     | 50.9     | 30.6  | 23.4  | 10.9   |

Table J-22. Nitrate loads (lbs/d) by flow percentile for UT to Jennings Run (UJH0011/WM-41)

|         | 0-10     | 10-20   | 20-30    | 30-40   | 40-50    | 50-60    | 60-70    | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|----------|---------|----------|----------|----------|-------|-------|--------|
| Minimum | 71.6     | 50.2    | 40.0     | 61.3    | 86.6     | 33.2     | 26.4     | 23.7  | 21.8  | 7.2    |
| Average | 3,068.3  | 860.7   | 1,974.4  | 373.7   | 1,569.3  | 2,876.4  | 657.7    | 95.5  | 70.5  | 16.7   |
| Maximum | 21,448.3 | 2,413.8 | 53,021.5 | 1,084.9 | 49,715.3 | 96,961.2 | 19,842.8 | 708.3 | 468.5 | 41.5   |
| Median  | 1,126.4  | 660.1   | 488.4    | 291.6   | 216.1    | 120.4    | 84.1     | 59.0  | 48.2  | 13.6   |
| 25th    | 554.0    | 490.3   | 350.8    | 256.8   | 151.9    | 95.7     | 72.1     | 47.8  | 40.0  | 10.6   |
| 75th    | 2,618.7  | 1,029.1 | 672.0    | 455.2   | 283.7    | 183.1    | 112.9    | 72.6  | 68.3  | 21.9   |

Table J-23. Sulfate loads (lbs/d) by flow percentile for UT to Jennings Run (UJH0011/WM-41)

|         | 0-10   | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 110    | 101   | 77    | 82    | 53    | 31    | 30    | 28    | 21    | 12     |
| Average | 1,152  | 791   | 412   | 324   | 320   | 366   | 156   | 83    | 52    | 26     |
| Maximum | 13,417 | 5,391 | 2,520 | 1,745 | 5,760 | 9,247 | 1,532 | 282   | 262   | 112    |
| Median  | 535    | 332   | 243   | 198   | 141   | 107   | 97    | 72    | 47    | 19     |
| 25th    | 326    | 242   | 218   | 154   | 108   | 83    | 80    | 43    | 27    | 15     |
| 75th    | 870    | 514   | 324   | 284   | 207   | 137   | 119   | 91    | 60    | 24     |

Table J-24. Iron loads (lbs/d) by flow percentile for UT to Jennings Run (UJH0011/WM-41)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 4.8     | 2.8     | 3.2   | 2.9   | 2.3   | 1.4   | 1.3   | 1.1   | 0.9   | 0.5    |
| Average | 245.3   | 117.5   | 31.9  | 25.4  | 34.4  | 22.0  | 10.2  | 5.9   | 1.9   | 1.2    |
| Maximum | 3,317.8 | 1,039.4 | 438.5 | 229.8 | 852.4 | 600.4 | 98.6  | 47.7  | 3.4   | 10.8   |
| Median  | 11.0    | 10.7    | 9.1   | 10.3  | 5.5   | 4.5   | 4.1   | 3.1   | 2.0   | 0.8    |
| 25th    | 7.3     | 6.8     | 6.4   | 5.8   | 4.5   | 3.3   | 3.4   | 1.8   | 1.2   | 0.6    |
| 75th    | 60.2    | 30.0    | 14.0  | 20.2  | 15.1  | 5.9   | 4.6   | 3.9   | 2.5   | 1.0    |

Table J-25. Aluminum loads (lbs/d) by flow percentile for UT to Jennings Run (UJH0011/WM-41)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50   | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|---------|---------|-------|-------|-------|--------|
| Minimum | 3.7     | 2.0     | 2.1     | 1.9   | 1.5     | 1.2     | 0.9   | 0.8   | 0.6   | 0.3    |
| Average | 574.6   | 322.9   | 73.0    | 59.6  | 78.3    | 51.7    | 19.8  | 10.1  | 1.5   | 1.5    |
| Maximum | 7,849.3 | 2,719.2 | 1,007.2 | 579.9 | 2,067.4 | 1,626.3 | 261.6 | 113.3 | 5.1   | 27.9   |
| Median  | 18.8    | 36.6    | 9.2     | 20.2  | 4.1     | 3.2     | 2.8   | 2.2   | 1.3   | 0.6    |
| 25th    | 5.3     | 6.3     | 4.5     | 5.3   | 3.1     | 2.3     | 2.3   | 1.5   | 0.8   | 0.5    |
| 75th    | 150.2   | 125.0   | 34.2    | 55.5  | 45.1    | 4.2     | 3.5   | 2.8   | 1.7   | 0.7    |

\*\* These tables include upstream loads from UT to Jennings Run (WM-34/UJH0015).

## Three Forks Run (WM-42/TFR0021) plots and tables

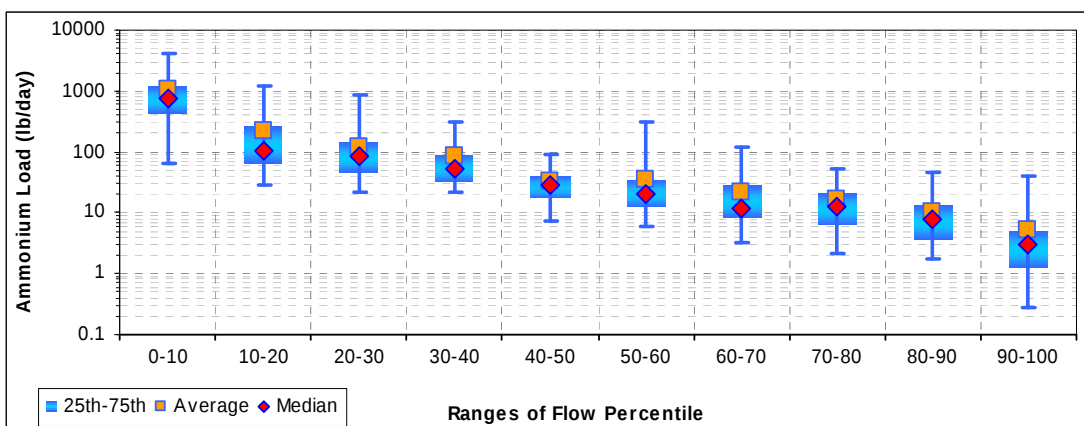


Figure J-. Ammonium loads by flow percentile for Three Forks Run (TFR0021/WM-42)

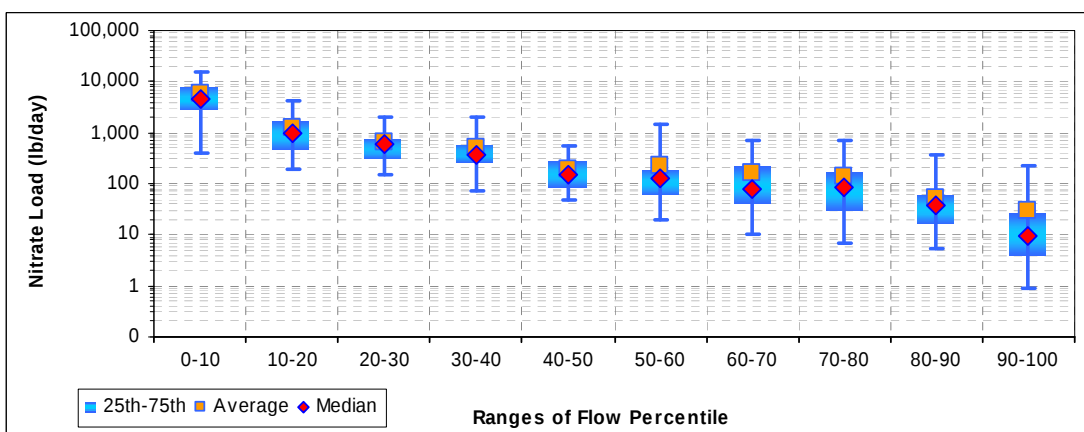


Figure J-1. Nitrate loads by flow percentile for Three Forks Run (TFR0021/WM-42)

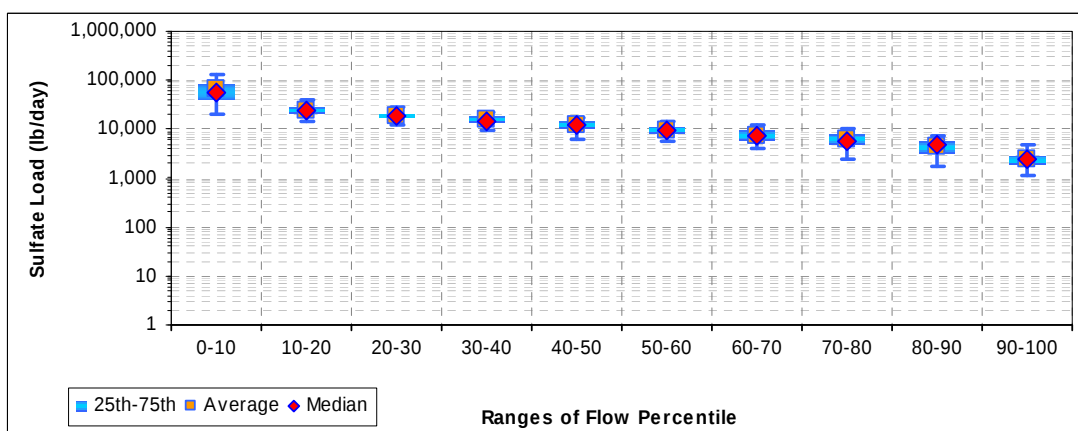


Figure J-2. Sulfate loads by flow percentile for Three Forks Run (TFR0021/WM-42)

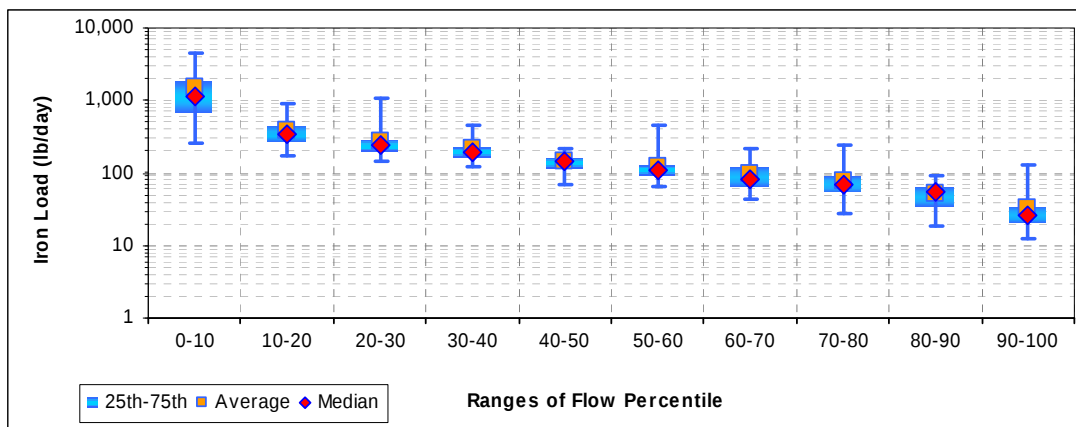


Figure J-3. Iron loads by flow percentile for Three Forks Run (TFR0021/WM-42)

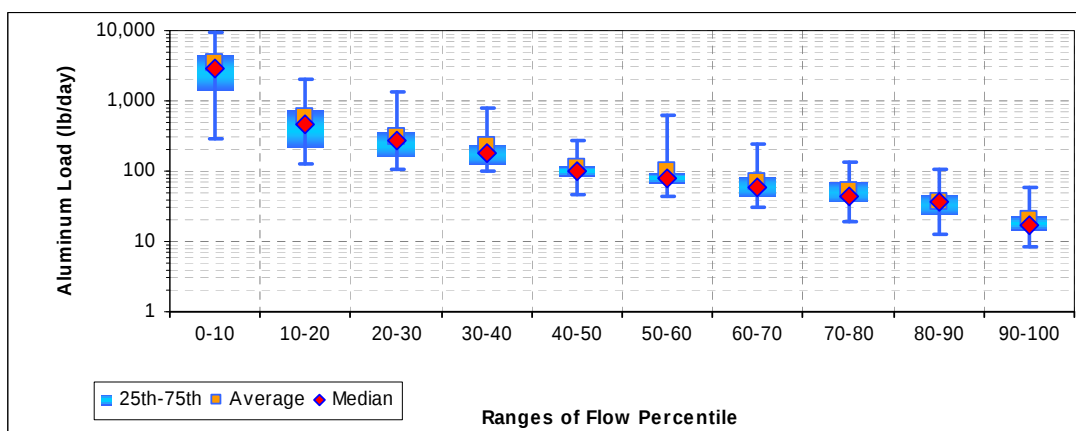


Figure J-4. Aluminum loads by flow percentile for Three Forks Run (TFR0021/WM-42)

# FINAL

Table J-. Ammonium loads (lb/d) by flow percentile for Three Forks Run (TFR0021/WM-42)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 62.6    | 29.3    | 21.1  | 21.0  | 7.4   | 6.1   | 3.2   | 2.2   | 1.7   | 0.3    |
| Average | 1,026.1 | 219.5   | 116.8 | 82.1  | 32.8  | 33.9  | 22.5  | 17.0  | 10.0  | 5.2    |
| Maximum | 4,127.0 | 1,184.8 | 844.8 | 308.3 | 90.8  | 311.7 | 120.4 | 52.7  | 45.7  | 40.9   |
| Median  | 750.5   | 104.6   | 82.5  | 54.5  | 28.6  | 20.9  | 12.1  | 12.4  | 8.1   | 3.0    |
| 25th    | 433.6   | 64.6    | 45.3  | 31.8  | 17.6  | 12.5  | 8.6   | 6.6   | 3.6   | 1.2    |
| 75th    | 1,207.9 | 270.5   | 149.8 | 93.5  | 41.1  | 34.5  | 28.6  | 22.2  | 13.8  | 5.2    |

Table J-1. Nitrate loads (lbs/d) by flow percentile for Three Forks Run (TFR0021/WM-42)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|---------|-------|-------|-------|--------|
| Minimum | 392.7    | 199.5   | 146.3   | 75.2    | 47.5  | 19.1    | 10.0  | 6.6   | 5.4   | 0.9    |
| Average | 5,691.7  | 1,254.4 | 637.7   | 521.8   | 195.5 | 222.1   | 160.4 | 142.0 | 53.3  | 29.8   |
| Maximum | 15,059.9 | 4,263.6 | 2,022.0 | 2,090.1 | 571.3 | 1,435.3 | 680.4 | 703.2 | 372.3 | 233.7  |
| Median  | 4,487.9  | 973.8   | 590.5   | 367.2   | 150.0 | 128.7   | 76.9  | 85.0  | 37.3  | 9.4    |
| 25th    | 2,866.4  | 483.5   | 321.1   | 258.3   | 83.9  | 60.1    | 41.0  | 30.1  | 16.1  | 3.8    |
| 75th    | 7,870.9  | 1,703.4 | 772.5   | 582.0   | 277.2 | 194.5   | 222.3 | 176.5 | 59.5  | 26.2   |

Table J-2. Sulfate loads (lbs/d) by flow percentile for Three Forks Run (TFR0021/WM-42)

|         | 0-10    | 10-20  | 20-30  | 30-40  | 40-50  | 50-60  | 60-70  | 70-80 | 80-90 | 90-100 |
|---------|---------|--------|--------|--------|--------|--------|--------|-------|-------|--------|
| Minimum | 20,216  | 14,607 | 12,353 | 9,815  | 6,168  | 5,626  | 3,982  | 2,443 | 1,672 | 1,103  |
| Average | 64,027  | 24,409 | 18,432 | 15,763 | 12,426 | 9,532  | 7,570  | 6,146 | 4,460 | 2,464  |
| Maximum | 134,310 | 39,421 | 27,915 | 22,334 | 17,393 | 14,406 | 11,902 | 9,921 | 7,544 | 4,771  |
| Median  | 57,530  | 23,974 | 18,075 | 15,060 | 12,362 | 9,250  | 7,474  | 5,606 | 4,664 | 2,344  |
| 25th    | 39,366  | 20,153 | 16,524 | 13,578 | 10,607 | 7,789  | 5,675  | 4,823 | 3,136 | 1,929  |
| 75th    | 88,132  | 27,577 | 20,396 | 18,451 | 14,135 | 10,845 | 9,335  | 7,805 | 5,702 | 2,895  |

Table J-3. Iron loads (lbs/d) by flow percentile for Three Forks Run (TFR0021/WM-42)

|         | 0-10    | 10-20 | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 252.3   | 170.1 | 145.1   | 123.4 | 67.4  | 65.5  | 44.1  | 27.4  | 18.3  | 12.1   |
| Average | 1,471.4 | 394.0 | 270.3   | 213.0 | 142.0 | 119.6 | 97.0  | 76.8  | 51.6  | 33.4   |
| Maximum | 4,448.3 | 912.8 | 1,054.0 | 448.7 | 212.7 | 457.8 | 212.9 | 245.4 | 91.5  | 128.5  |
| Median  | 1,144.7 | 343.7 | 240.7   | 191.7 | 144.2 | 108.5 | 83.3  | 69.4  | 54.8  | 26.5   |
| 25th    | 662.2   | 268.1 | 195.4   | 162.6 | 117.5 | 90.8  | 65.0  | 55.9  | 35.4  | 21.0   |
| 75th    | 1,937.9 | 467.1 | 283.6   | 233.2 | 159.8 | 129.3 | 120.5 | 90.0  | 66.4  | 34.6   |

Table J-4. Aluminum loads (lbs/d) by flow percentile for Three Forks Run (TFR0021/WM-42)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 282.4   | 127.3   | 103.9   | 97.5  | 47.0  | 43.4  | 30.8  | 18.7  | 12.7  | 8.4    |
| Average | 3,495.4 | 587.0   | 306.9   | 222.8 | 113.8 | 99.6  | 72.1  | 53.6  | 36.8  | 20.9   |
| Maximum | 9,450.1 | 2,022.1 | 1,369.2 | 791.2 | 268.9 | 630.2 | 244.3 | 135.7 | 104.4 | 57.3   |
| Median  | 2,860.8 | 467.1   | 265.5   | 176.2 | 101.2 | 79.3  | 58.6  | 44.3  | 37.3  | 17.5   |
| 25th    | 1,402.5 | 209.8   | 164.5   | 124.3 | 85.9  | 64.7  | 43.8  | 36.5  | 24.7  | 14.7   |
| 75th    | 4,533.0 | 756.9   | 357.0   | 239.7 | 120.6 | 92.0  | 81.7  | 69.1  | 46.3  | 23.3   |

### Wolfden Run (WM-43/WOL0004) plots and tables

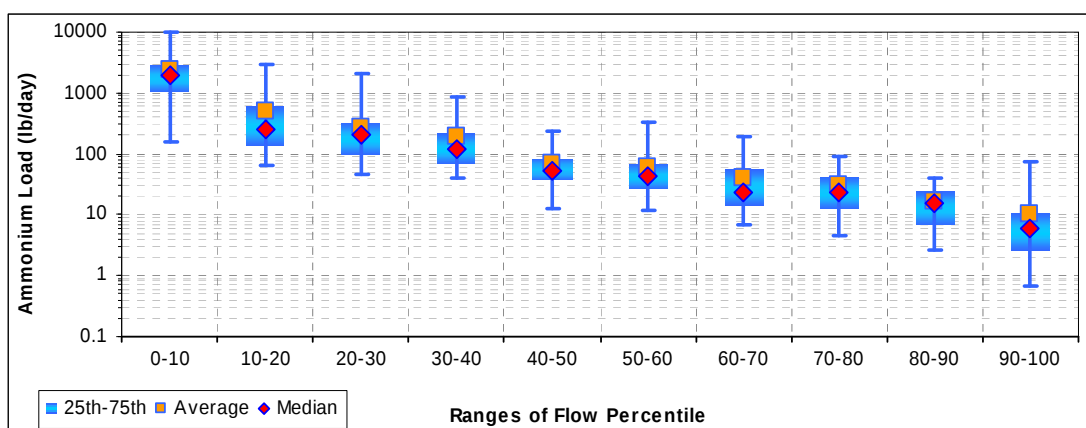


Figure J-31. Ammonium loads by flow percentile for Wolfden Run (WOL0004/WM-43)

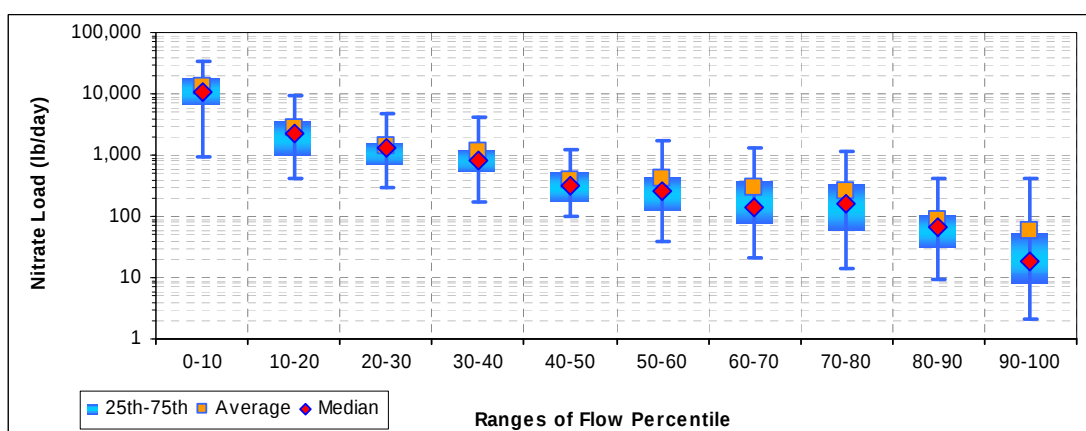


Figure J-32. Nitrate loads by flow percentile for Wolfden Run (WOL0004/WM-43)

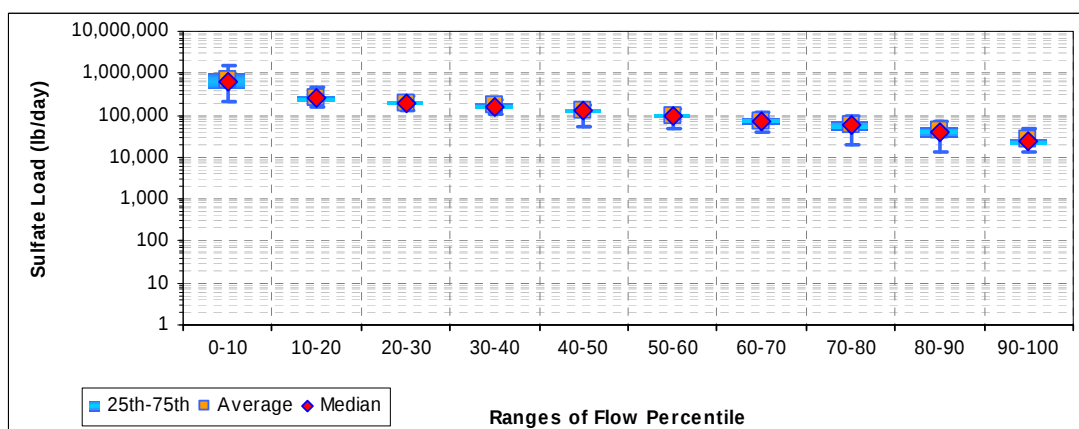


Figure J-33. Sulfate loads by flow percentile for Wolfden Run (WOL0004/WM-43)

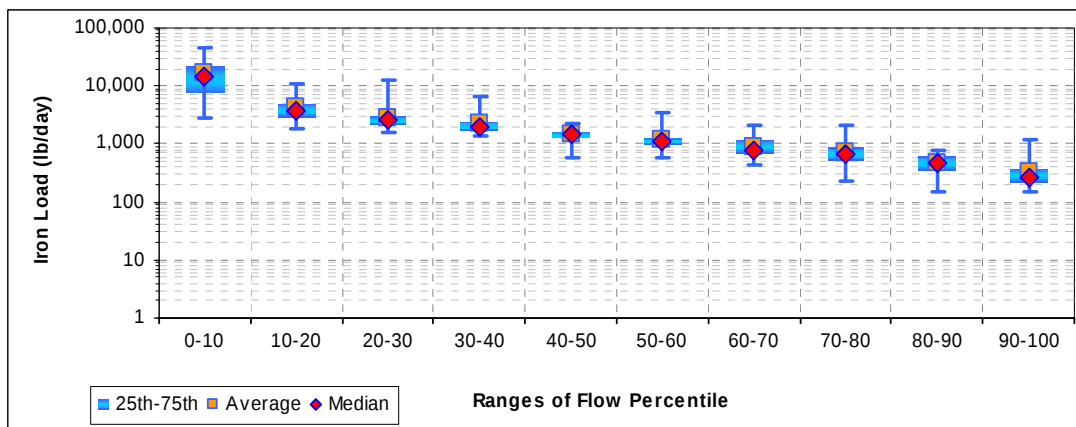


Figure J-34. Iron loads by flow percentile for Wolfden Run (WOL0004/WM-43)

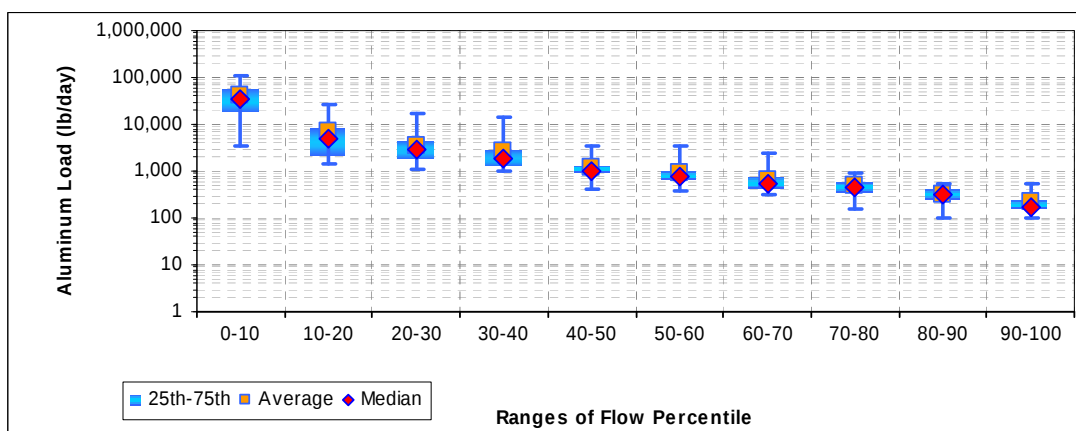


Figure J-35. Aluminum loads by flow percentile for Wolfden Run (WOL0004/WM-43)

Table J-31. Ammonium loads (lb/d) by flow percentile for Wolfden Run (WOL0004/WM-43)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 160.9   | 64.1    | 44.5    | 41.2  | 12.8  | 12.2  | 6.7   | 4.5   | 2.7   | 0.7    |
| Average | 2,467.6 | 508.5   | 265.6   | 193.6 | 68.9  | 62.1  | 40.9  | 30.4  | 16.6  | 10.2   |
| Maximum | 9,829.3 | 3,009.4 | 2,038.1 | 888.3 | 234.7 | 335.2 | 190.8 | 93.4  | 41.2  | 75.1   |
| Median  | 1,887.9 | 255.6   | 200.0   | 121.5 | 53.3  | 41.8  | 22.9  | 23.4  | 15.3  | 5.9    |
| 25th    | 1,090.0 | 136.5   | 94.9    | 69.7  | 36.6  | 26.1  | 14.9  | 12.8  | 6.9   | 2.6    |
| 75th    | 2,917.6 | 605.8   | 326.0   | 215.5 | 87.2  | 70.0  | 56.0  | 43.2  | 24.7  | 11.0   |

Table J-32. Nitrate loads (lbs/d) by flow percentile for Wolfden Run (WOL0004/WM-43)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50   | 50-60   | 60-70   | 70-80   | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|---------|---------|---------|---------|-------|--------|
| Minimum | 910.0    | 421.1   | 303.4   | 168.3   | 100.7   | 38.2    | 20.5    | 13.8    | 9.7   | 2.1    |
| Average | 13,265.4 | 2,741.3 | 1,366.4 | 1,148.6 | 398.8   | 402.5   | 291.8   | 251.8   | 89.7  | 56.9   |
| Maximum | 33,200.0 | 9,451.3 | 4,798.7 | 4,198.2 | 1,187.3 | 1,767.3 | 1,344.6 | 1,127.6 | 418.9 | 423.6  |
| Median  | 10,925.4 | 2,184.4 | 1,348.2 | 816.4   | 322.3   | 251.0   | 144.1   | 163.6   | 66.8  | 18.7   |
| 25th    | 6,854.7  | 1,015.3 | 721.9   | 535.6   | 173.4   | 123.0   | 75.6    | 57.3    | 30.8  | 8.0    |
| 75th    | 18,286.5 | 3,525.2 | 1,661.4 | 1,216.2 | 556.9   | 433.9   | 395.3   | 335.0   | 104.8 | 54.3   |

Table J-33. Sulfate loads (lbs/d) by flow percentile for Wolfden Run (WOL0004/WM-43)

|         | 0-10      | 10-20   | 20-30   | 30-40   | 40-50   | 50-60   | 60-70   | 70-80  | 80-90  | 90-100 |
|---------|-----------|---------|---------|---------|---------|---------|---------|--------|--------|--------|
| Minimum | 218,526   | 155,956 | 134,394 | 102,160 | 53,508  | 48,554  | 40,374  | 20,294 | 13,373 | 13,154 |
| Average | 705,896   | 258,069 | 190,770 | 166,341 | 126,028 | 94,668  | 71,857  | 58,353 | 41,628 | 25,390 |
| Maximum | 1,534,005 | 446,224 | 281,279 | 236,514 | 181,290 | 138,243 | 117,617 | 96,859 | 74,283 | 49,253 |
| Median  | 629,957   | 250,249 | 191,533 | 157,217 | 123,497 | 93,463  | 70,252  | 57,210 | 40,577 | 23,309 |
| 25th    | 437,638   | 218,620 | 173,973 | 138,410 | 111,430 | 83,056  | 55,703  | 42,423 | 29,501 | 19,604 |
| 75th    | 991,945   | 296,138 | 212,670 | 195,119 | 141,832 | 108,104 | 87,231  | 73,336 | 54,420 | 27,606 |

Table J-34. Iron loads (lbs/d) by flow percentile for Wolfden Run (WOL0004/WM-43)

|         | 0-10     | 10-20    | 20-30    | 30-40   | 40-50   | 50-60   | 60-70   | 70-80   | 80-90 | 90-100  |
|---------|----------|----------|----------|---------|---------|---------|---------|---------|-------|---------|
| Minimum | 2,856.1  | 1,812.4  | 1,531.0  | 1,350.8 | 585.4   | 568.3   | 441.9   | 228.9   | 146.3 | 144.3   |
| Average | 16,974.3 | 4,254.0  | 2,865.0  | 2,295.5 | 1,441.3 | 1,168.5 | 915.8   | 725.6   | 477.9 | 337.2   |
| Maximum | 46,683.5 | 11,188.6 | 12,177.9 | 6,409.8 | 2,246.2 | 3,498.3 | 2,032.4 | 2,108.5 | 799.9 | 1,175.8 |
| Median  | 14,040.5 | 3,606.8  | 2,600.4  | 1,997.6 | 1,479.9 | 1,070.5 | 778.5   | 653.4   | 470.1 | 259.6   |
| 25th    | 7,635.6  | 2,863.7  | 2,142.8  | 1,689.2 | 1,235.9 | 959.1   | 647.1   | 492.9   | 339.9 | 214.5   |
| 75th    | 22,628.1 | 4,969.7  | 2,977.4  | 2,457.4 | 1,577.2 | 1,285.8 | 1,148.6 | 871.8   | 615.2 | 380.4   |

Table J-35. Aluminum loads (lbs/d) by flow percentile for Wolfden Run (WOL0004/WM-43)

|         | 0-10      | 10-20    | 20-30    | 30-40    | 40-50   | 50-60   | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|-----------|----------|----------|----------|---------|---------|---------|-------|-------|--------|
| Minimum | 3,512.3   | 1,411.9  | 1,113.6  | 985.4    | 408.7   | 375.0   | 308.1   | 155.5 | 102.0 | 100.6  |
| Average | 42,394.3  | 6,784.9  | 3,479.4  | 2,687.8  | 1,178.5 | 923.4   | 667.0   | 497.4 | 324.6 | 212.9  |
| Maximum | 110,506.4 | 27,040.2 | 16,416.1 | 14,241.5 | 3,320.8 | 3,508.7 | 2,386.4 | 876.3 | 557.8 | 521.6  |
| Median  | 35,951.9  | 4,934.9  | 2,890.0  | 1,927.6  | 1,033.9 | 763.3   | 538.3   | 441.0 | 319.6 | 177.6  |
| 25th    | 17,967.7  | 2,303.5  | 1,798.8  | 1,347.5  | 893.0   | 659.5   | 426.7   | 343.7 | 237.0 | 149.5  |
| 75th    | 58,050.9  | 8,464.3  | 4,593.4  | 2,923.1  | 1,276.6 | 992.8   | 744.3   | 609.6 | 426.4 | 245.4  |

**Elklick Run (WM-45/EKL0003) plots and tables**

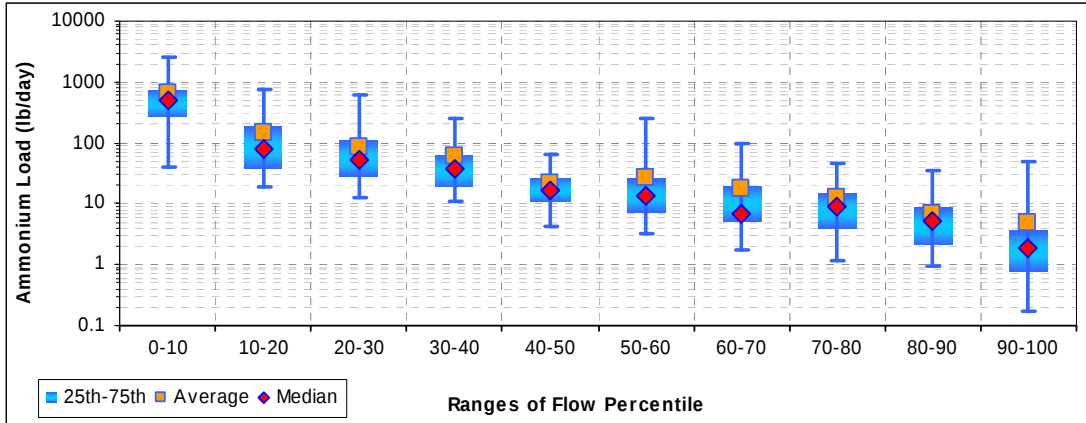


Figure J-36. Ammonium loads by flow percentile for Elklick Run (EKL0003/WM-45)

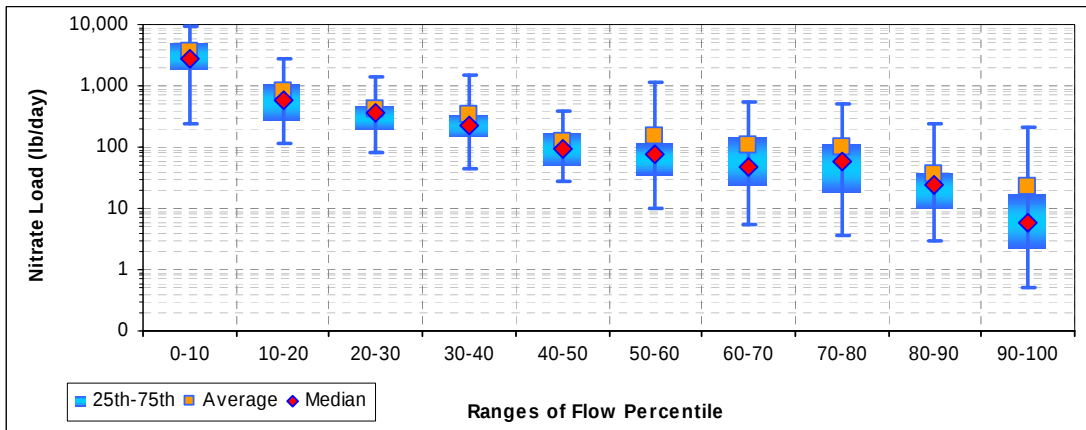


Figure J-37. Nitrate loads by flow percentile for Elklick Run (EKL0003/WM-45)

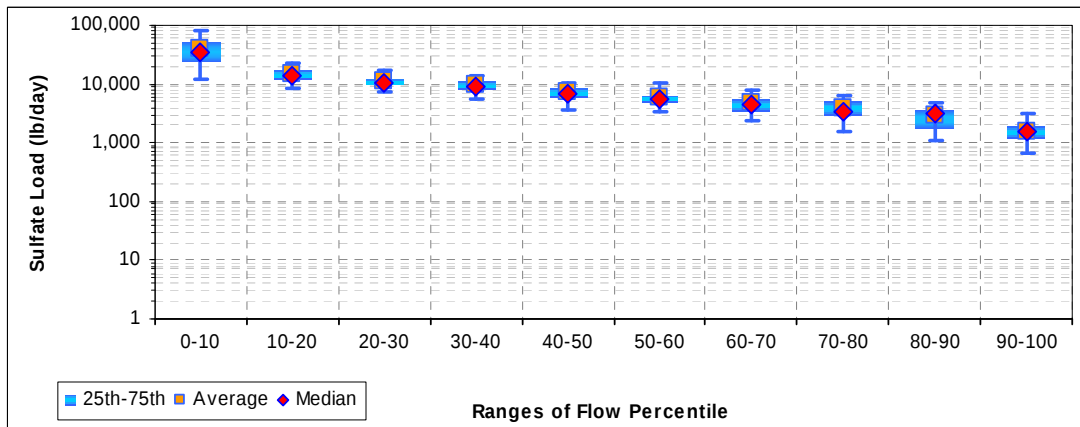


Figure J-38. Sulfate loads by flow percentile for Elklick Run (EKL0003/WM-45)

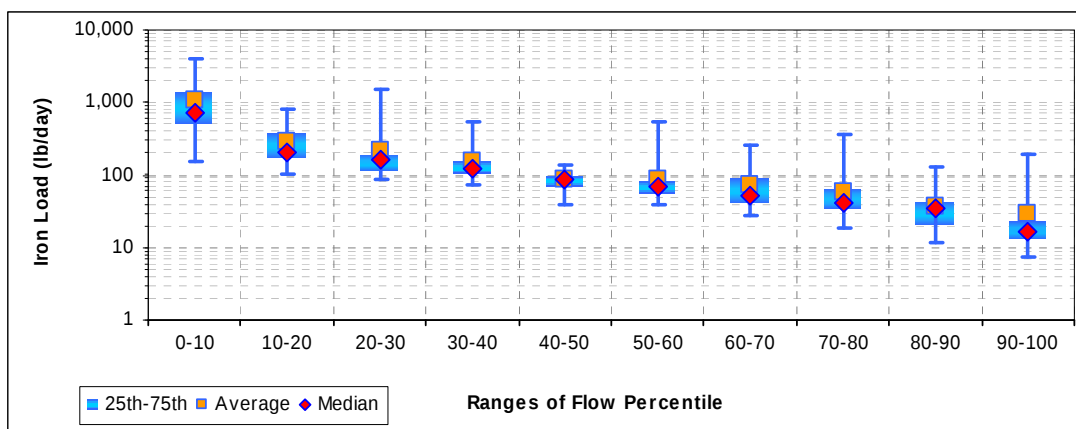


Figure J-39. Iron loads by flow percentile for Elklick Run (EKL0003/WM-45)

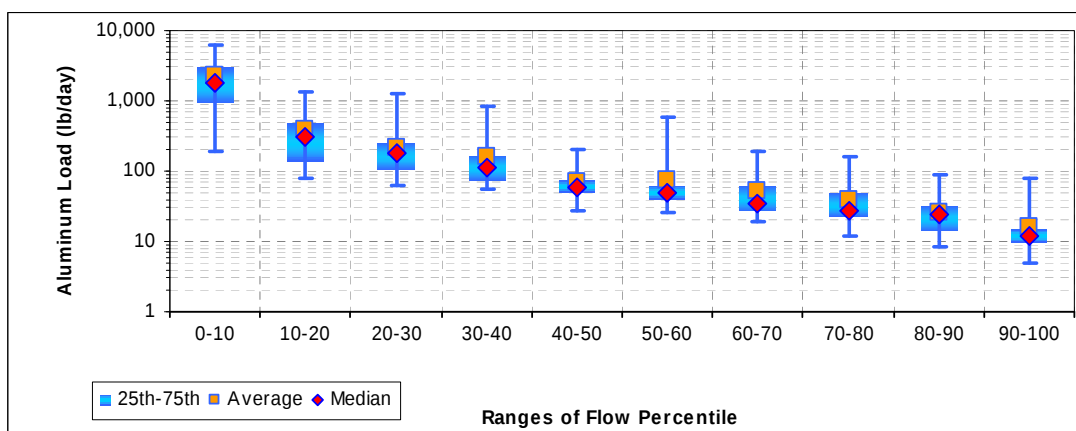


Figure J-40. Aluminum loads by flow percentile for Elklick Run (EKL0003/WM-45)

Table J-36. Ammonium loads (lb/d) by flow percentile for Elklick Run (EKL0003/WM-45)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 41.4    | 18.5  | 12.2  | 11.1  | 4.3   | 3.3   | 1.8   | 1.2   | 1.0   | 0.2    |
| Average | 659.6   | 145.0 | 82.9  | 58.8  | 21.2  | 26.2  | 17.6  | 13.0  | 7.0   | 4.9    |
| Maximum | 2,627.3 | 756.7 | 616.2 | 251.1 | 65.2  | 261.1 | 94.2  | 46.6  | 34.4  | 49.7   |
| Median  | 504.8   | 81.9  | 54.3  | 36.9  | 17.1  | 13.6  | 7.0   | 8.8   | 5.2   | 1.9    |
| 25th    | 275.5   | 38.8  | 28.3  | 19.6  | 11.4  | 7.4   | 5.1   | 3.9   | 2.2   | 0.8    |
| 75th    | 773.5   | 188.3 | 110.2 | 66.3  | 26.2  | 26.7  | 20.9  | 15.8  | 9.2   | 3.7    |

Table J-37. Nitrate loads (lbs/d) by flow percentile for Elklick Run (EKL0003/WM-45)

|         | 0-10    | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|---------|-------|---------|-------|-------|-------|--------|
| Minimum | 243.0   | 116.9   | 82.3    | 44.6    | 28.3  | 10.3    | 5.4   | 3.6   | 3.0   | 0.5    |
| Average | 3,576.8 | 790.3   | 413.2   | 341.4   | 120.7 | 152.6   | 110.2 | 97.6  | 35.5  | 22.1   |
| Maximum | 9,252.4 | 2,738.3 | 1,397.6 | 1,509.7 | 375.3 | 1,116.9 | 527.3 | 496.4 | 243.0 | 205.2  |
| Median  | 2,784.8 | 592.3   | 372.2   | 230.9   | 90.7  | 75.6    | 46.7  | 56.5  | 23.7  | 5.9    |
| 25th    | 1,799.2 | 282.2   | 196.7   | 148.5   | 50.8  | 34.6    | 23.5  | 17.8  | 10.0  | 2.3    |
| 75th    | 5,083.7 | 1,058.7 | 480.0   | 350.0   | 170.0 | 117.8   | 145.5 | 117.1 | 38.8  | 17.0   |

Table J-38. Sulfate loads (lbs/d) by flow percentile for Elklick Run (EKL0003/WM-45)

|         | 0-10   | 10-20  | 20-30  | 30-40  | 40-50  | 50-60  | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|--------|--------|--------|--------|-------|-------|-------|--------|
| Minimum | 11,676 | 8,367  | 7,267  | 5,603  | 3,641  | 3,340  | 2,429 | 1,522 | 1,067 | 659    |
| Average | 38,675 | 14,578 | 10,963 | 9,404  | 7,202  | 5,782  | 4,679 | 3,897 | 2,863 | 1,582  |
| Maximum | 83,745 | 23,060 | 17,715 | 13,559 | 10,247 | 10,685 | 7,914 | 6,541 | 4,868 | 3,089  |
| Median  | 34,126 | 14,332 | 10,731 | 8,772  | 7,029  | 5,504  | 4,357 | 3,391 | 3,073 | 1,507  |
| 25th    | 23,724 | 12,125 | 9,464  | 7,771  | 5,985  | 4,754  | 3,399 | 2,827 | 1,812 | 1,203  |
| 75th    | 54,251 | 16,591 | 12,097 | 11,355 | 8,331  | 6,359  | 5,646 | 5,269 | 3,733 | 1,867  |

Table J-39. Iron loads (lbs/d) by flow percentile for Elklick Run (EKL0003/WM-45)

|         | 0-10    | 10-20 | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 152.8   | 103.0 | 84.6    | 74.2  | 39.8  | 39.4  | 26.9  | 18.0  | 11.7  | 7.2    |
| Average | 1,047.9 | 292.6 | 211.1   | 154.1 | 85.8  | 87.0  | 74.9  | 59.7  | 36.7  | 28.8   |
| Maximum | 4,004.4 | 802.0 | 1,529.5 | 534.6 | 134.3 | 553.4 | 259.7 | 362.5 | 132.0 | 187.7  |
| Median  | 739.7   | 209.4 | 159.3   | 122.5 | 85.6  | 67.2  | 51.1  | 42.1  | 35.4  | 16.7   |
| 25th    | 508.6   | 173.8 | 118.3   | 102.3 | 67.8  | 54.1  | 41.0  | 33.8  | 21.1  | 13.4   |
| 75th    | 1,406.2 | 375.1 | 195.2   | 156.1 | 97.8  | 83.6  | 90.5  | 63.4  | 44.9  | 22.9   |

Table J-40. Aluminum loads (lbs/d) by flow percentile for Elklick Run (EKL0003/WM-45)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 189.4   | 76.8    | 60.8    | 56.6  | 27.8  | 26.3  | 18.8  | 11.8  | 8.1   | 5.0    |
| Average | 2,303.5 | 396.6   | 219.7   | 160.5 | 71.7  | 74.5  | 53.0  | 39.5  | 25.4  | 16.0   |
| Maximum | 6,207.5 | 1,375.5 | 1,268.0 | 814.9 | 206.7 | 591.7 | 191.8 | 160.0 | 89.7  | 76.7   |
| Median  | 1,836.1 | 303.7   | 178.6   | 111.1 | 58.7  | 48.0  | 33.9  | 27.0  | 24.3  | 11.6   |
| 25th    | 947.4   | 136.2   | 108.1   | 75.1  | 48.1  | 38.1  | 27.4  | 22.7  | 14.7  | 9.4    |
| 75th    | 3,094.0 | 492.6   | 254.8   | 166.7 | 76.3  | 62.1  | 61.7  | 48.1  | 31.7  | 15.0   |

**Right Prong Three Forks Run (WM-48/RTF0005) plots and tables**

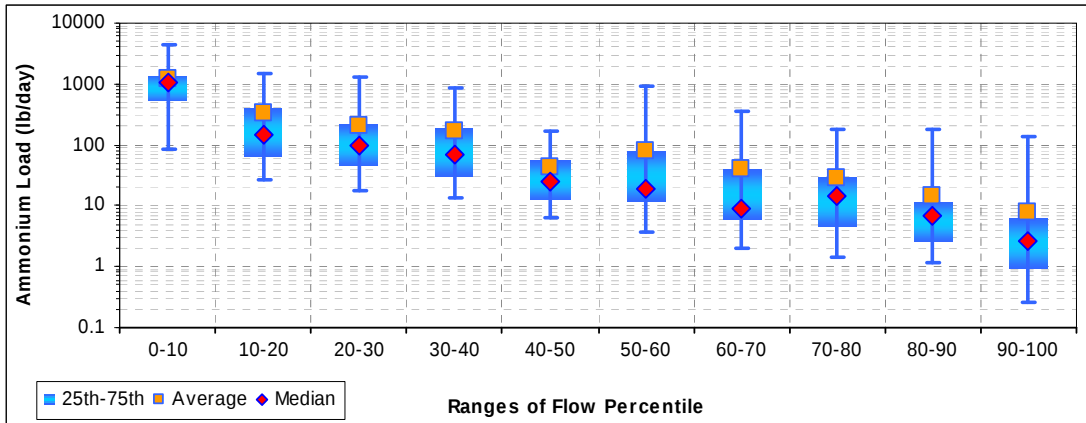


Figure J-41. Ammonium loads by flow percentile for Right Prong Three Forks Run (RTF0005/WM-48)

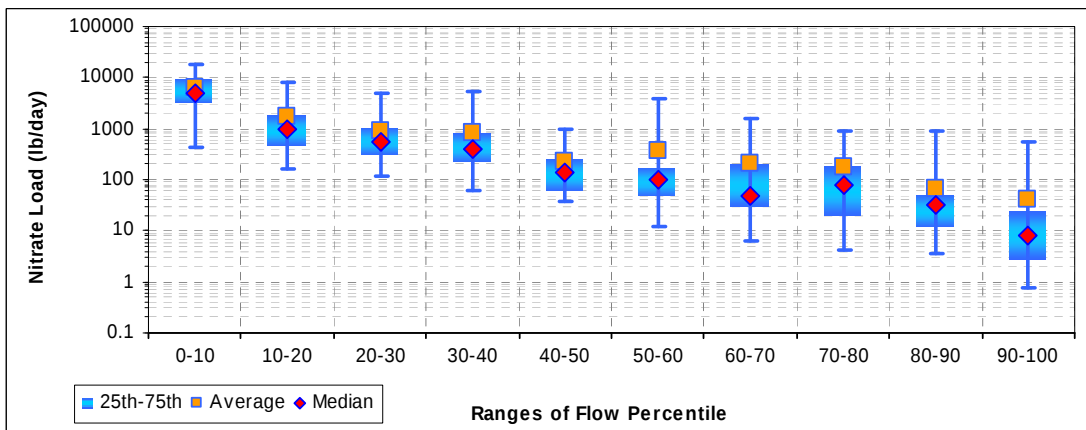


Figure J-42. Nitrate loads by flow percentile for Right Prong Three Forks Run (RTF0005/WM-48)

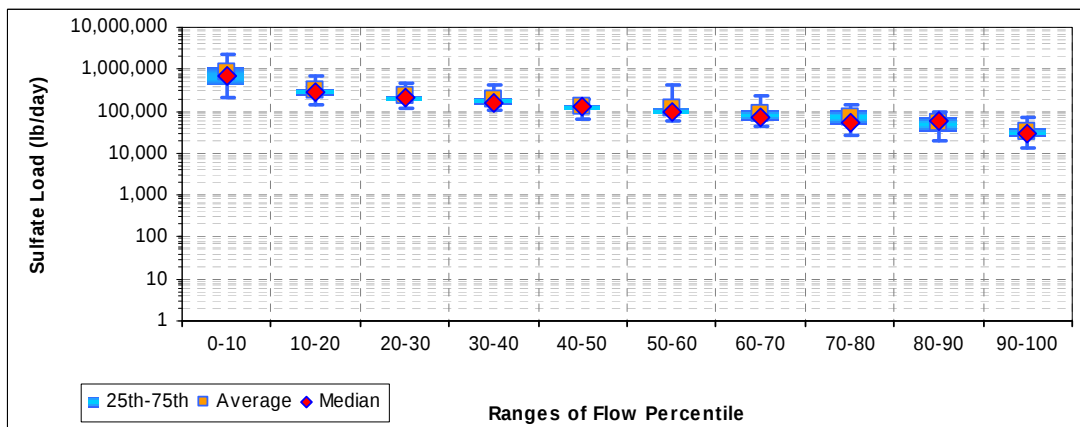


Figure J-43. Sulfate loads by flow percentile for Right Prong Three Forks Run (RTF0005/WM-48)

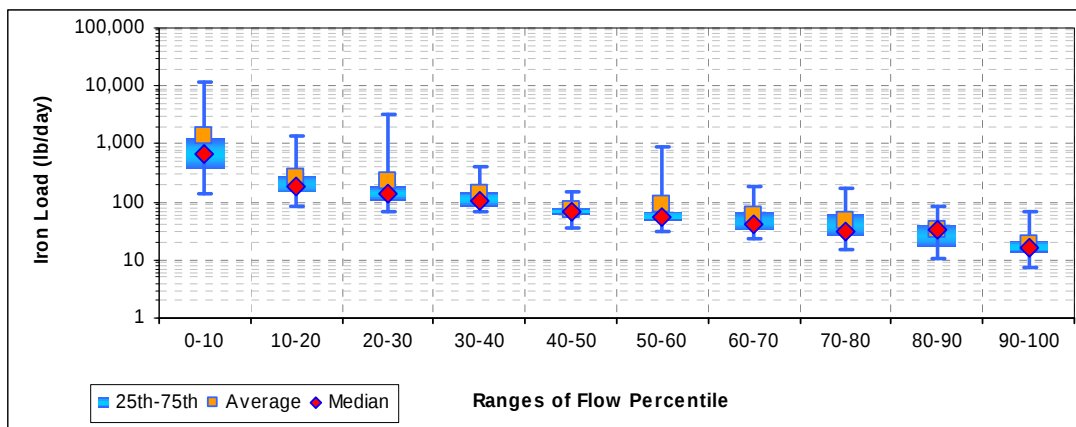


Figure J-44. Iron loads by flow percentile for Right Prong Three Forks Run (RTF0005/WM-48)

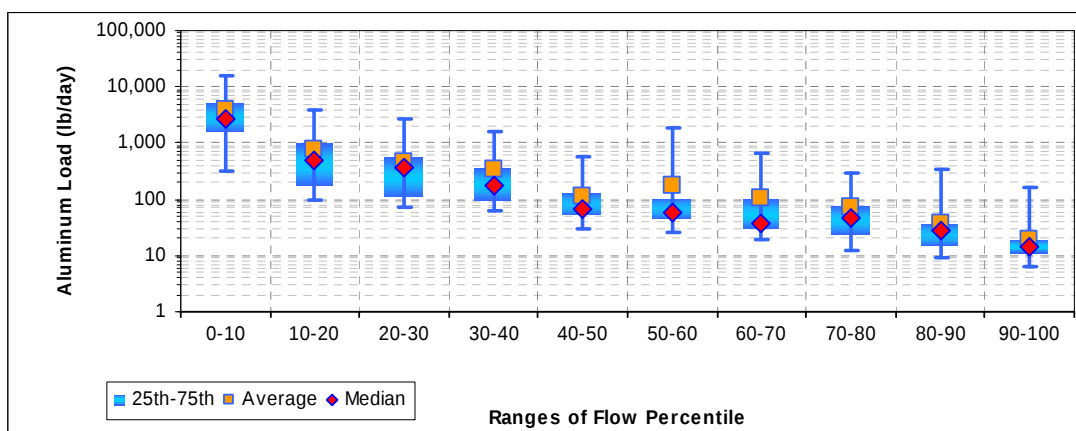


Figure J-45. Aluminum loads by flow percentile for Right Prong Three Forks Run (RTF0005/WM-48)

Table J-41. Ammonium loads (lb/d) by flow percentile for Right Prong Three Forks Run (RTF0005/WM-48)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 83.4    | 27.1    | 17.6    | 13.2  | 6.3   | 3.7   | 2.1   | 1.4   | 1.2   | 0.3    |
| Average | 1,223.2 | 326.4   | 201.4   | 165.0 | 43.6  | 80.4  | 38.9  | 28.1  | 14.1  | 7.9    |
| Maximum | 4,495.3 | 1,438.0 | 1,314.4 | 886.0 | 167.1 | 951.8 | 344.7 | 181.0 | 180.5 | 137.9  |
| Median  | 1,027.1 | 148.8   | 99.3    | 69.1  | 25.4  | 19.2  | 9.1   | 14.6  | 6.9   | 2.6    |
| 25th    | 523.3   | 63.1    | 46.8    | 30.4  | 12.3  | 11.8  | 5.9   | 4.5   | 2.7   | 0.9    |
| 75th    | 1,355.8 | 394.7   | 217.2   | 194.0 | 57.4  | 81.3  | 39.7  | 29.9  | 12.1  | 6.3    |

Table J-42. Nitrate loads (lbs/d) by flow percentile for Right Prong Three Forks Run (RTF0005/WM-48)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50   | 50-60   | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|---------|---------|---------|-------|-------|--------|
| Minimum | 430.1    | 161.1   | 116.5   | 63.0    | 36.7    | 11.6    | 6.3     | 4.3   | 3.6   | 0.8    |
| Average | 6,441.9  | 1,686.3 | 899.5   | 822.8   | 218.4   | 357.3   | 209.0   | 174.1 | 68.7  | 39.3   |
| Maximum | 17,767.7 | 7,790.8 | 4,970.1 | 5,476.0 | 1,012.4 | 3,725.4 | 1,529.9 | 894.6 | 918.9 | 536.3  |
| Median  | 4,766.4  | 947.4   | 549.5   | 384.8   | 132.9   | 96.4    | 49.8    | 78.6  | 33.1  | 8.0    |
| 25th    | 3,215.2  | 459.0   | 319.7   | 233.3   | 60.3    | 46.4    | 29.6    | 20.4  | 11.7  | 2.8    |
| 75th    | 9,163.0  | 1,891.4 | 1,051.1 | 835.5   | 264.4   | 183.9   | 211.0   | 198.3 | 52.5  | 25.2   |

Table J-43. Sulfate loads (lbs/d) by flow percentile for Right Prong Three Forks Run (RTF0005/WM-48)

|         | 0-10      | 10-20   | 20-30   | 30-40   | 40-50   | 50-60   | 60-70   | 70-80   | 80-90  | 90-100 |
|---------|-----------|---------|---------|---------|---------|---------|---------|---------|--------|--------|
| Minimum | 217,682   | 149,485 | 119,627 | 103,671 | 64,739  | 56,740  | 41,713  | 27,397  | 20,082 | 13,607 |
| Average | 856,166   | 310,054 | 223,015 | 192,748 | 127,030 | 116,254 | 89,834  | 74,608  | 55,087 | 31,983 |
| Maximum | 2,283,418 | 720,559 | 476,875 | 426,188 | 198,881 | 425,919 | 228,587 | 143,470 | 95,540 | 69,970 |
| Median  | 720,767   | 278,340 | 206,073 | 164,371 | 123,992 | 97,252  | 72,825  | 54,506  | 58,798 | 28,104 |
| 25th    | 431,455   | 226,608 | 165,978 | 144,841 | 107,628 | 82,716  | 60,006  | 48,054  | 32,501 | 23,445 |
| 75th    | 1,180,352 | 334,427 | 243,584 | 213,455 | 143,287 | 113,340 | 100,996 | 110,512 | 74,141 | 38,381 |

Table J-44. Iron loads (lbs/d) by flow percentile for Right Prong Three Forks Run (RTF0005/WM-48)

|         | 0-10     | 10-20   | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 140.0    | 84.2    | 67.7    | 69.1  | 35.0  | 30.6  | 22.5  | 14.9  | 10.8  | 7.3    |
| Average | 1,332.4  | 273.4   | 233.5   | 136.3 | 74.9  | 90.3  | 57.9  | 47.5  | 32.1  | 18.8   |
| Maximum | 12,111.0 | 1,334.0 | 3,165.0 | 409.7 | 153.6 | 896.8 | 181.7 | 177.8 | 82.6  | 70.4   |
| Median  | 667.5    | 183.2   | 134.9   | 101.6 | 68.8  | 54.8  | 40.5  | 31.6  | 32.8  | 16.0   |
| 25th    | 368.0    | 144.4   | 104.4   | 84.3  | 59.0  | 47.5  | 33.9  | 27.0  | 17.9  | 12.7   |
| 75th    | 1,273.7  | 282.7   | 184.9   | 149.0 | 80.2  | 69.9  | 65.9  | 64.1  | 42.4  | 21.4   |

Table J-45. Aluminum loads (lbs/d) by flow percentile for Right Prong Three Forks Run (RTF0005/WM-48)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|---------|-------|-------|-------|--------|
| Minimum | 311.4    | 97.2    | 70.6    | 62.6    | 30.6  | 26.4    | 19.3  | 12.7  | 9.3   | 6.3    |
| Average | 3,888.1  | 788.0   | 465.9   | 350.8   | 116.4 | 180.5   | 104.2 | 70.4  | 37.5  | 19.7   |
| Maximum | 15,889.8 | 3,804.9 | 2,737.4 | 1,614.2 | 553.3 | 1,921.5 | 657.7 | 293.8 | 344.8 | 165.8  |
| Median  | 2,761.9  | 475.1   | 365.8   | 175.1   | 68.7  | 57.4    | 37.1  | 47.4  | 28.0  | 13.8   |
| 25th    | 1,561.8  | 176.1   | 114.8   | 97.0    | 54.5  | 46.3    | 29.4  | 23.3  | 15.3  | 10.9   |
| 75th    | 5,228.4  | 1,052.8 | 550.6   | 379.4   | 132.9 | 102.5   | 107.0 | 76.2  | 37.5  | 19.8   |

### North Prong Lostland Run (WM-50/NPL0001) plots and tables

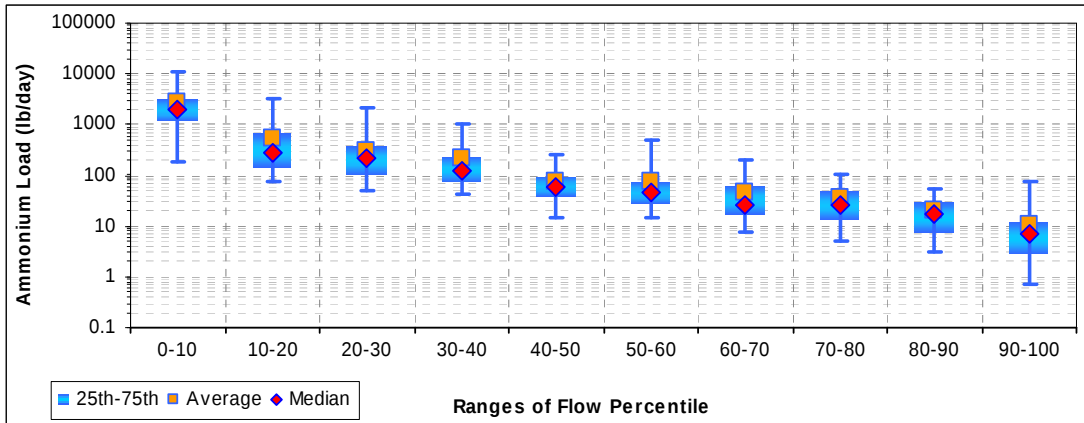


Figure J-46. Ammonium loads by flow percentile for North Prong Lostland Run (NPL0001/WM-50)

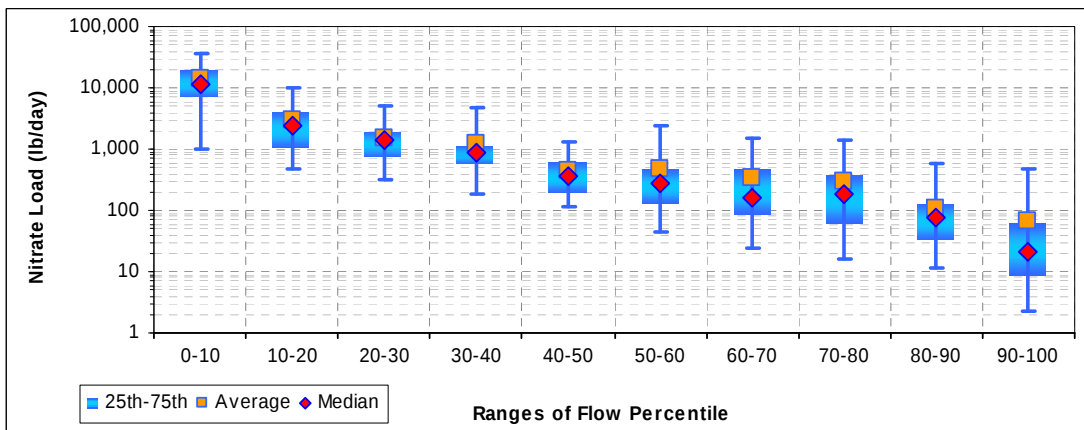


Figure J-47. Nitrate loads by flow percentile for North Prong Lostland Run (NPL0001/WM-50)

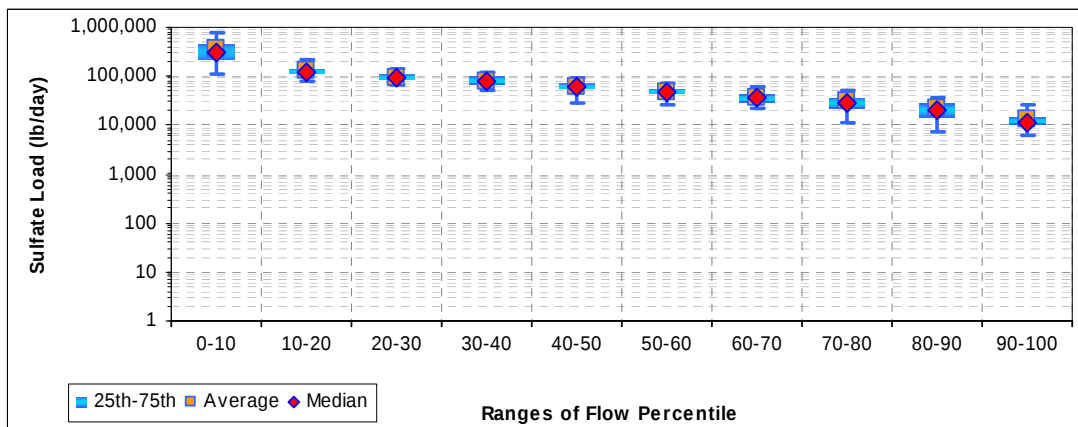


Figure J-48. Sulfate loads by flow percentile for North Prong Lostland Run (NPL0001/WM-50)

\*\* These plots include upstream loads from North Prong Lostland Run (WM-64/NPL0018).

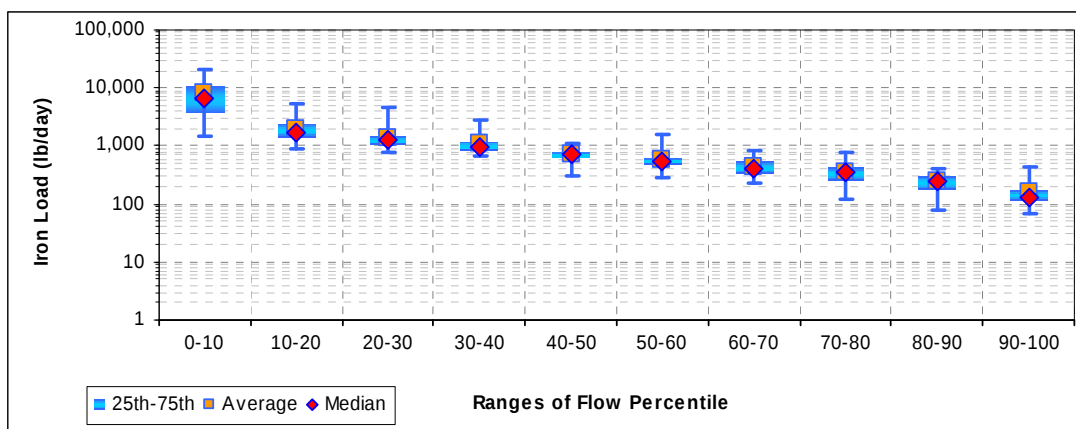


Figure J-49. Iron loads by flow percentile for North Prog Lostland Run (NPL0001/WM-50)

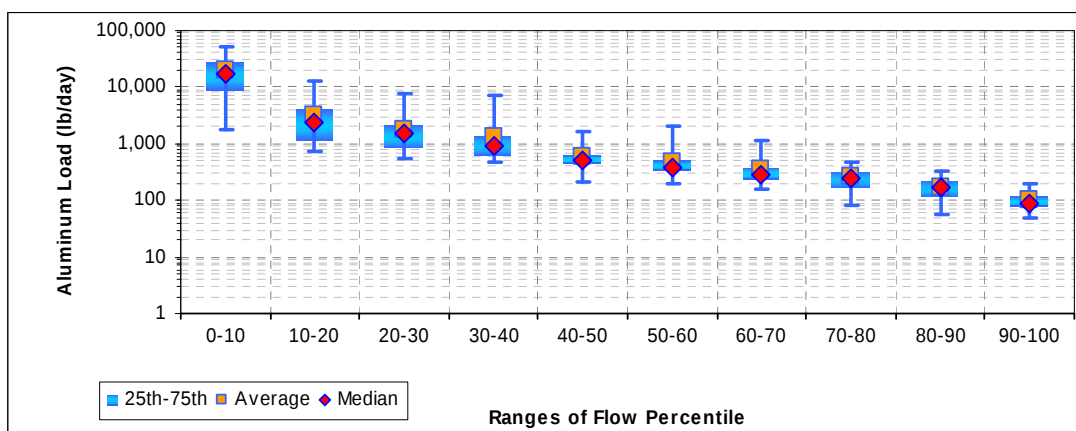


Figure J-50. Aluminum loads by flow percentile for North Prog Lostland Run (NPL0001/WM-50)

\*\* These plots include upstream loads from North Prog Lostland Run (WM-64/NPL0018).

Table J-46. Ammonium loads (lb/d) by flow percentile for North Prog Lostland Run (NPL0001/WM-50)

|         | 0-10     | 10-20   | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 182.4    | 72.1    | 49.7    | 43.9  | 14.6  | 14.1  | 7.7   | 5.1   | 3.2   | 0.7    |
| Average | 2,653.7  | 548.5   | 291.0   | 209.7 | 76.2  | 73.5  | 46.4  | 35.1  | 20.2  | 10.7   |
| Maximum | 10,699.0 | 3,199.8 | 2,154.5 | 996.0 | 256.9 | 473.6 | 208.4 | 104.1 | 56.0  | 72.3   |
| Median  | 2,044.2  | 268.1   | 211.7   | 126.2 | 56.8  | 46.2  | 25.3  | 26.3  | 17.6  | 6.8    |
| 25th    | 1,173.5  | 148.4   | 103.8   | 74.5  | 38.1  | 28.9  | 17.0  | 13.9  | 7.7   | 2.9    |
| 75th    | 3,110.6  | 656.7   | 374.6   | 239.4 | 96.3  | 76.8  | 62.3  | 48.9  | 30.5  | 12.3   |

Table J-47. Nitrate loads (lbs/d) by flow percentile for North Prog Lostland Run (NPL0001/WM-50)

|         | 0-10     | 10-20    | 20-30   | 30-40   | 40-50   | 50-60   | 60-70   | 70-80   | 80-90 | 90-100 |
|---------|----------|----------|---------|---------|---------|---------|---------|---------|-------|--------|
| Minimum | 1,030.1  | 466.6    | 325.5   | 178.7   | 114.1   | 44.2    | 23.6    | 15.8    | 11.5  | 2.2    |
| Average | 14,261.3 | 2,960.2  | 1,510.7 | 1,240.6 | 441.7   | 465.5   | 335.7   | 294.8   | 108.1 | 65.1   |
| Maximum | 35,724.0 | 10,241.5 | 5,054.9 | 4,737.4 | 1,320.8 | 2,377.3 | 1,478.2 | 1,366.0 | 597.1 | 475.5  |
| Median  | 11,818.0 | 2,345.4  | 1,384.7 | 848.3   | 351.7   | 283.1   | 159.7   | 186.6   | 77.6  | 21.7   |
| 25th    | 7,329.7  | 1,087.7  | 780.7   | 566.8   | 192.6   | 135.4   | 86.8    | 63.4    | 34.7  | 8.8    |
| 75th    | 19,925.3 | 4,176.8  | 1,970.2 | 1,180.6 | 627.8   | 467.0   | 465.1   | 390.4   | 128.4 | 61.3   |

Table J-48. Sulfate loads (lbs/d) by flow percentile for North Prog Lostland Run (NPL0001/WM-50)

|         | 0-10    | 10-20   | 20-30   | 30-40   | 40-50  | 50-60  | 60-70  | 70-80  | 80-90  | 90-100 |
|---------|---------|---------|---------|---------|--------|--------|--------|--------|--------|--------|
| Minimum | 109,498 | 78,041  | 66,218  | 51,315  | 27,732 | 25,221 | 21,357 | 10,761 | 7,208  | 6,332  |
| Average | 346,930 | 127,407 | 95,361  | 81,902  | 62,738 | 47,913 | 36,795 | 30,046 | 21,632 | 12,789 |
| Maximum | 748,762 | 217,045 | 142,357 | 117,742 | 90,021 | 70,293 | 59,994 | 49,653 | 37,974 | 25,053 |
| Median  | 307,309 | 123,000 | 96,309  | 76,211  | 61,814 | 46,481 | 35,459 | 28,214 | 21,126 | 11,599 |
| 25th    | 215,993 | 108,328 | 85,514  | 67,899  | 55,725 | 42,313 | 28,659 | 21,681 | 15,023 | 9,950  |
| 75th    | 485,952 | 146,109 | 107,358 | 97,423  | 70,690 | 54,932 | 44,515 | 37,548 | 28,826 | 14,071 |

Table J-49. Iron loads (lbs/d) by flow percentile for North Prog Lostland Run (NPL0001/WM-50)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50   | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|---------|---------|-------|-------|-------|--------|
| Minimum | 1,451.2  | 902.4   | 766.8   | 676.3   | 303.5   | 287.1   | 233.8 | 119.8 | 78.9  | 69.5   |
| Average | 8,085.3  | 2,017.3 | 1,367.0 | 1,090.6 | 715.2   | 575.0   | 447.0 | 355.8 | 243.3 | 157.2  |
| Maximum | 21,017.5 | 5,152.8 | 4,629.3 | 2,900.0 | 1,116.3 | 1,544.6 | 825.3 | 756.5 | 409.0 | 426.8  |
| Median  | 6,764.1  | 1,758.6 | 1,293.8 | 985.9   | 707.6   | 537.8   | 393.3 | 342.6 | 252.1 | 130.6  |
| 25th    | 3,627.5  | 1,396.1 | 1,062.7 | 822.9   | 634.0   | 471.3   | 319.0 | 251.8 | 173.8 | 110.3  |
| 75th    | 10,833.5 | 2,355.7 | 1,493.3 | 1,211.7 | 790.7   | 630.2   | 559.9 | 448.3 | 312.7 | 173.2  |

Table J-50. Aluminum loads (lbs/d) by flow percentile for North Prog Lostland Run (NPL0001/WM-50)

|         | 0-10     | 10-20    | 20-30   | 30-40   | 40-50   | 50-60   | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|----------|----------|---------|---------|---------|---------|---------|-------|-------|--------|
| Minimum | 1,819.3  | 723.6    | 563.5   | 466.0   | 211.8   | 193.8   | 163.0   | 82.3  | 55.0  | 48.4   |
| Average | 20,551.9 | 3,300.9  | 1,731.6 | 1,305.4 | 591.7   | 479.1   | 341.7   | 255.1 | 171.7 | 103.3  |
| Maximum | 53,399.6 | 12,768.1 | 7,506.4 | 6,981.1 | 1,630.8 | 2,085.8 | 1,131.1 | 475.7 | 325.6 | 197.9  |
| Median  | 17,463.2 | 2,462.6  | 1,583.1 | 938.3   | 508.1   | 385.4   | 273.9   | 241.9 | 166.8 | 88.3   |
| 25th    | 8,750.8  | 1,133.3  | 861.6   | 645.1   | 436.2   | 338.6   | 220.9   | 175.6 | 121.2 | 75.8   |
| 75th    | 28,028.7 | 4,417.8  | 2,252.9 | 1,382.0 | 655.0   | 507.8   | 375.9   | 331.5 | 221.1 | 120.8  |

\*\* These tables include upstream loads from North Prog Lostland Run (WM-64/NPL0018).

### South Prong Lostland Run (WM-51/SPL0016) plots and tables

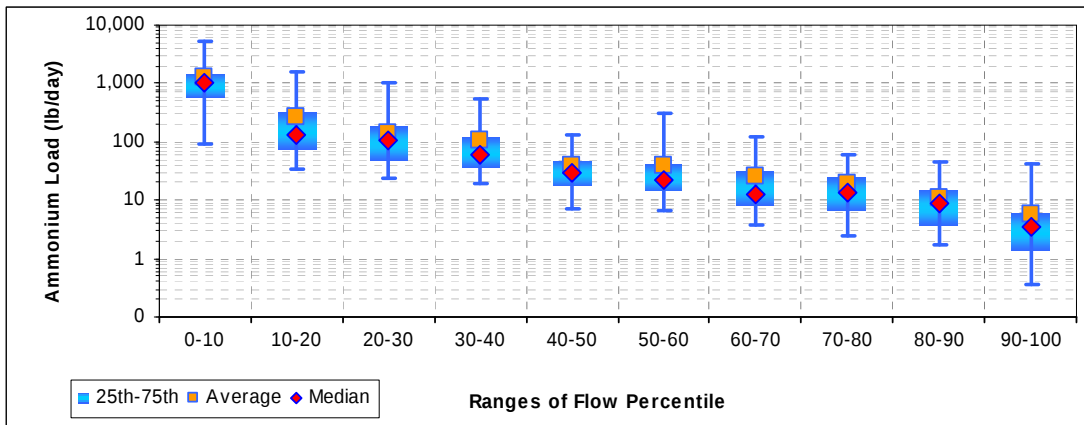


Figure J-51. Ammonium loads by flow percentile for South Prong Lostland Run (WM-51/SPL0016)

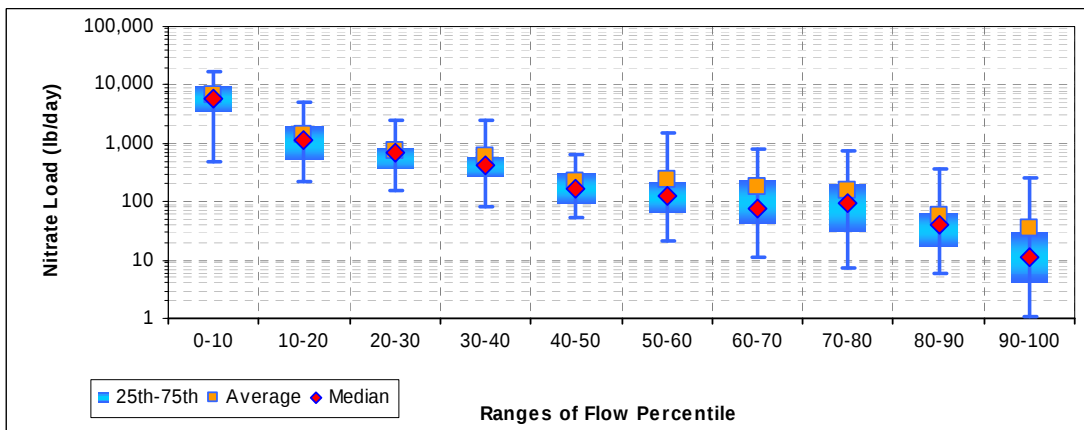


Figure J-52. Nitrate loads by flow percentile for South Prong Lostland Run (WM-51/SPL0016)

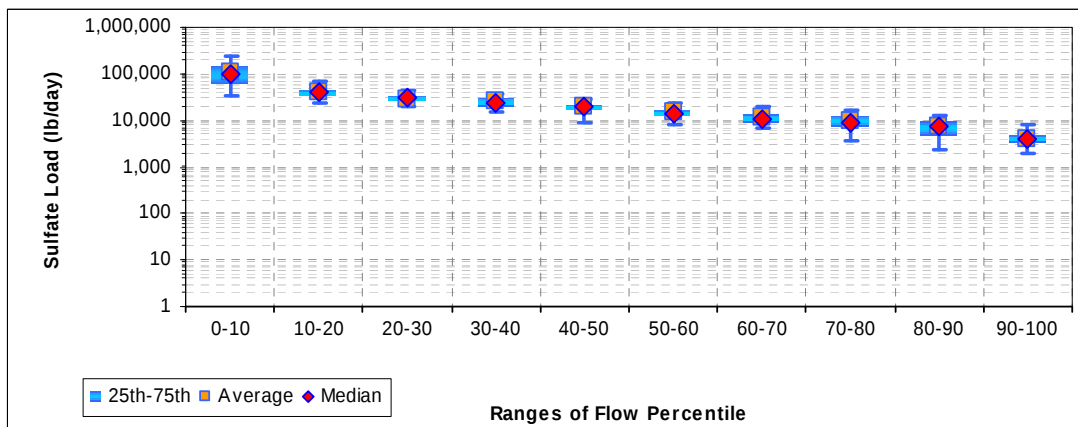


Figure J-53. Sulfate loads by flow percentile for South Prong Lostland Run (WM-51/SPL0016)

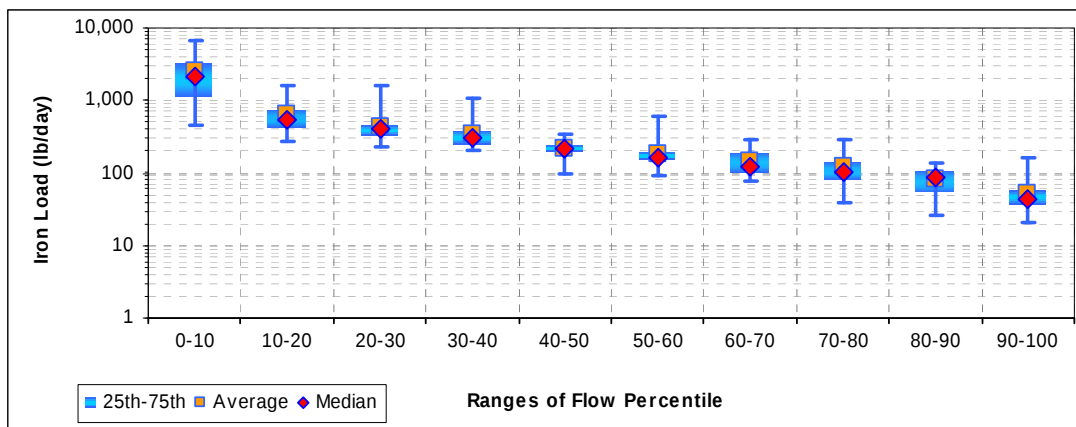


Figure J-54. Iron loads by flow percentile for South Prong Lostland Run (WM-51/SPL0016)

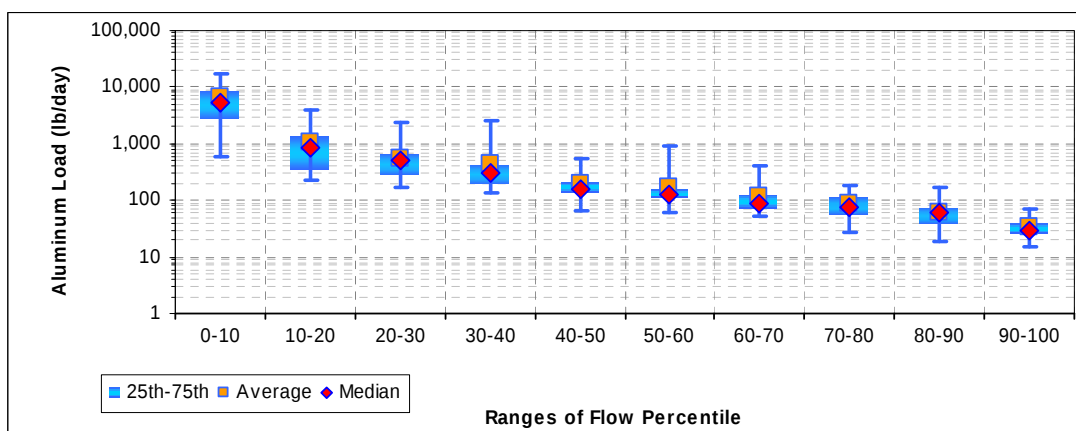


Figure J-55. Aluminum loads by flow percentile for South Prong Lostland Run (WM-51/SPL0016)

Table J-51. Ammonium loads (lb/d) by flow percentile for South Prong Lostland Run (WM-51/SPL0016)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 93.9    | 34.6    | 23.4    | 19.8  | 7.1   | 6.7   | 3.6   | 2.4   | 1.7   | 0.3    |
| Average | 1,288.8 | 270.0   | 145.4   | 107.3 | 37.9  | 39.1  | 25.1  | 18.9  | 11.1  | 5.7    |
| Maximum | 5,185.5 | 1,534.3 | 1,051.8 | 525.0 | 131.1 | 314.6 | 124.6 | 58.1  | 45.3  | 41.7   |
| Median  | 1,025.2 | 132.6   | 103.2   | 60.1  | 28.6  | 22.2  | 12.5  | 13.2  | 9.0   | 3.6    |
| 25th    | 577.2   | 71.6    | 49.1    | 35.3  | 18.2  | 14.0  | 8.2   | 6.4   | 3.8   | 1.4    |
| 75th    | 1,515.6 | 332.7   | 183.0   | 122.2 | 47.3  | 43.0  | 32.2  | 25.0  | 15.4  | 6.1    |

Table J-52. Nitrate loads (lbs/d) by flow percentile for South Prong Lostland Run (WM-51/SPL0016)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|---------|-------|-------|-------|--------|
| Minimum | 498.4    | 219.0   | 151.6   | 84.7    | 54.9  | 21.0    | 11.1  | 7.4   | 6.0   | 1.0    |
| Average | 6,896.7  | 1,450.4 | 733.8   | 616.3   | 215.9 | 242.7   | 175.2 | 155.4 | 57.9  | 34.7   |
| Maximum | 17,397.2 | 4,982.2 | 2,452.1 | 2,463.4 | 659.0 | 1,475.6 | 769.0 | 744.8 | 353.6 | 263.6  |
| Median  | 5,728.2  | 1,119.6 | 685.1   | 415.8   | 166.2 | 129.4   | 77.1  | 95.8  | 40.2  | 11.0   |
| 25th    | 3,514.8  | 516.9   | 366.9   | 265.7   | 92.0  | 64.0    | 43.1  | 30.8  | 17.2  | 4.3    |
| 75th    | 9,510.8  | 2,072.7 | 870.9   | 615.2   | 307.2 | 223.8   | 234.9 | 201.7 | 66.9  | 31.0   |

Table J-53. Sulfate loads (lbs/d) by flow percentile for South Prong Lostland Run (WM-51/SPL0016)

|         | 0-10    | 10-20  | 20-30  | 30-40  | 40-50  | 50-60  | 60-70  | 70-80  | 80-90  | 90-100 |
|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Minimum | 33,475  | 23,737 | 20,167 | 15,634 | 8,803  | 8,038  | 6,943  | 3,555  | 2,432  | 1,940  |
| Average | 107,461 | 39,656 | 29,575 | 25,502 | 19,330 | 15,157 | 11,852 | 9,829  | 7,166  | 4,148  |
| Maximum | 234,786 | 66,290 | 46,089 | 37,986 | 28,159 | 23,016 | 19,888 | 16,434 | 12,494 | 8,209  |
| Median  | 96,029  | 40,138 | 29,839 | 24,007 | 19,376 | 14,424 | 11,081 | 8,499  | 7,133  | 3,903  |
| 25th    | 65,102  | 33,271 | 25,809 | 20,703 | 16,867 | 13,197 | 9,172  | 7,249  | 4,851  | 3,258  |
| 75th    | 150,286 | 45,273 | 33,268 | 30,785 | 22,007 | 17,185 | 13,887 | 12,680 | 9,450  | 4,776  |

Table J-54. Iron loads (lbs/d) by flow percentile for South Prong Lostland Run (WM-51/SPL0016)

|         | 0-10    | 10-20   | 20-30   | 30-40   | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|---------|-------|-------|-------|-------|-------|--------|
| Minimum | 455.9   | 276.6   | 234.1   | 205.2   | 96.4  | 92.4  | 76.1  | 39.7  | 26.6  | 21.3   |
| Average | 2,561.9 | 646.1   | 436.7   | 350.5   | 222.6 | 187.2 | 148.1 | 118.9 | 81.5  | 52.4   |
| Maximum | 6,765.5 | 1,601.8 | 1,612.9 | 1,059.9 | 351.3 | 621.0 | 294.7 | 294.6 | 134.6 | 162.3  |
| Median  | 2,105.3 | 544.6   | 396.4   | 301.8   | 214.8 | 166.3 | 123.8 | 104.7 | 87.9  | 42.8   |
| 25th    | 1,166.7 | 436.9   | 330.2   | 249.8   | 187.7 | 150.1 | 102.9 | 80.9  | 55.4  | 36.3   |
| 75th    | 3,435.2 | 742.1   | 467.6   | 391.8   | 244.3 | 197.8 | 187.9 | 148.5 | 107.4 | 59.4   |

Table J-55. Aluminum loads (lbs/d) by flow percentile for South Prong Lostland Run (WM-51/SPL0016)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|-------|-------|-------|-------|--------|
| Minimum | 583.2    | 224.5   | 173.4   | 140.5   | 67.4  | 61.9  | 53.0  | 27.2  | 18.6  | 14.8   |
| Average | 6,516.9  | 1,070.7 | 561.1   | 433.9   | 189.4 | 165.1 | 116.7 | 87.2  | 58.8  | 34.1   |
| Maximum | 17,068.5 | 3,920.1 | 2,453.9 | 2,567.1 | 534.4 | 912.5 | 394.5 | 189.1 | 165.0 | 72.2   |
| Median  | 5,447.3  | 833.1   | 508.0   | 298.0   | 154.9 | 124.1 | 86.3  | 76.5  | 60.3  | 29.4   |
| 25th    | 2,769.2  | 357.7   | 273.6   | 199.4   | 133.3 | 106.5 | 70.4  | 56.4  | 38.6  | 24.4   |
| 75th    | 9,024.7  | 1,427.6 | 704.7   | 450.9   | 205.2 | 159.9 | 125.7 | 115.3 | 74.2  | 39.1   |

Three Forks Run (WM-54/TFR0016) plots and tables

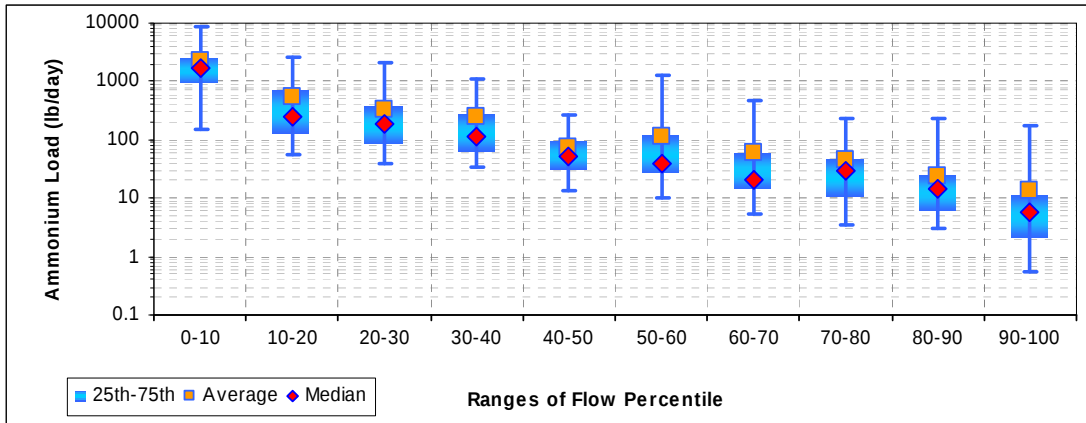


Figure J-56. Ammonium loads by flow percentile for Three Forks Run (WM-54/TFR0016)

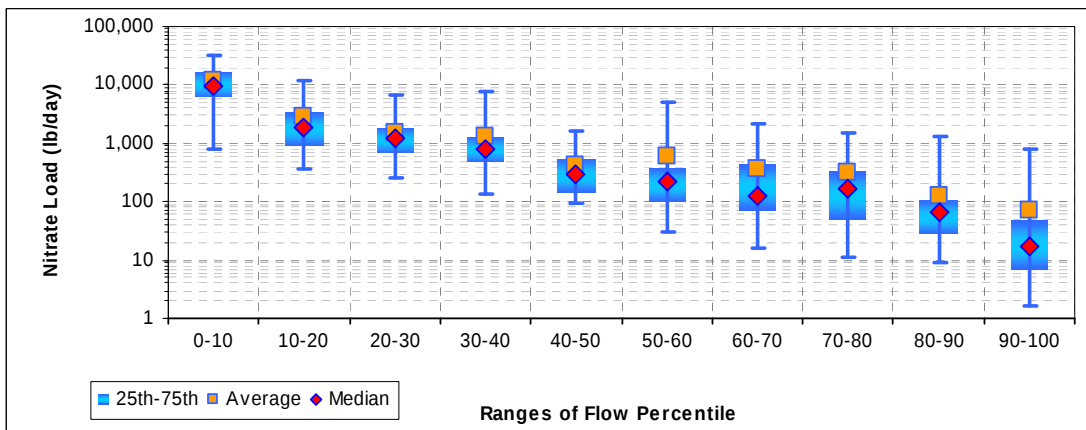


Figure J-57. Nitrate loads by flow percentile for Three Forks Run (WM-54/TFR0016)

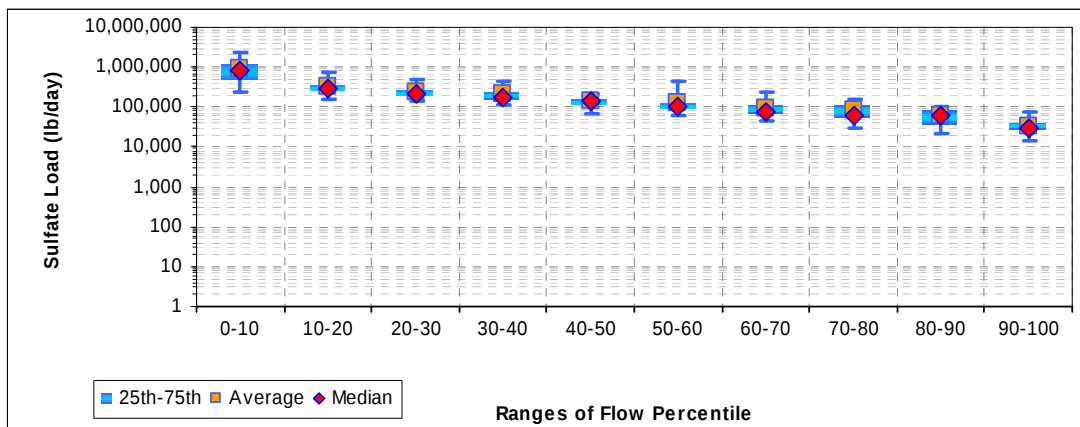


Figure J-58. Sulfate loads by flow percentile for Three Forks Run (WM-54/TFR0016)

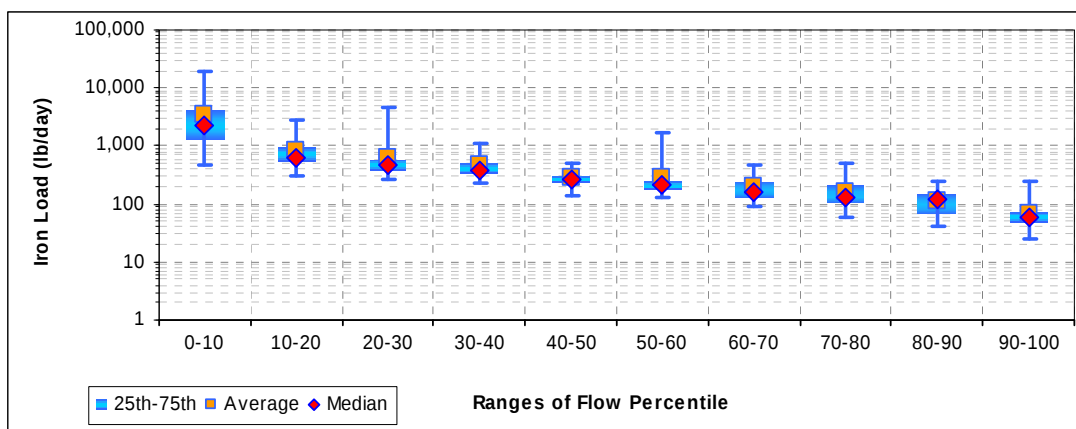


Figure J-59. Iron loads by flow percentile for Three Forks Run (WM-54/TFR0016)

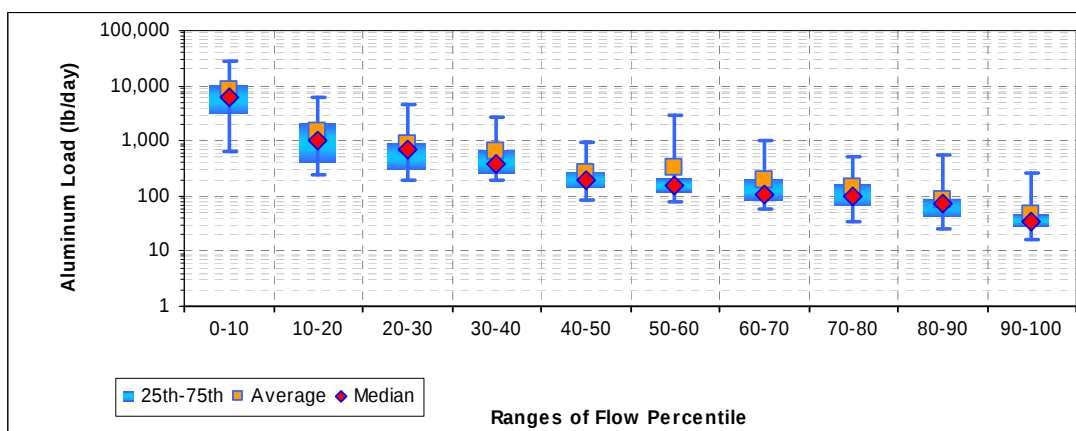


Figure J-60. Aluminum loads by flow percentile for Three Forks Run (WM-54/TFR0016)

Table J-56. Ammonium loads (lb/d) by flow percentile for Three Forks Run (WM-54/TFR0016)

|         | 0-10    | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|---------|-------|---------|-------|-------|-------|--------|
| Minimum | 146.1   | 56.4    | 38.8    | 34.3    | 13.7  | 9.8     | 5.3   | 3.6   | 3.0   | 0.5    |
| Average | 2,253.0 | 546.9   | 318.9   | 247.7   | 76.6  | 114.5   | 61.5  | 45.3  | 24.2  | 13.1   |
| Maximum | 8,636.9 | 2,626.8 | 2,163.0 | 1,144.1 | 258.5 | 1,266.6 | 466.3 | 226.4 | 227.2 | 179.6  |
| Median  | 1,720.2 | 254.1   | 182.2   | 115.2   | 53.4  | 39.9    | 20.9  | 28.6  | 15.0  | 5.6    |
| 25th    | 962.7   | 133.8   | 83.3    | 64.3    | 31.1  | 27.0    | 14.4  | 11.2  | 6.3   | 2.2    |
| 75th    | 2,549.0 | 705.1   | 375.7   | 285.5   | 99.0  | 119.5   | 61.0  | 47.2  | 25.4  | 11.3   |

Table J-57. Nitrate loads (lbs/d) by flow percentile for Three Forks Run (WM-54/TFR0016)

|         | 0-10     | 10-20    | 20-30   | 30-40   | 40-50   | 50-60   | 60-70   | 70-80   | 80-90   | 90-100 |
|---------|----------|----------|---------|---------|---------|---------|---------|---------|---------|--------|
| Minimum | 824.0    | 361.1    | 263.3   | 138.5   | 91.5    | 30.7    | 16.3    | 11.0    | 9.0     | 1.6    |
| Average | 12,154.2 | 2,946.4  | 1,540.4 | 1,347.6 | 414.8   | 580.8   | 370.3   | 316.9   | 122.4   | 69.3   |
| Maximum | 32,887.8 | 12,080.7 | 6,678.0 | 7,586.4 | 1,587.4 | 5,173.5 | 2,207.6 | 1,479.9 | 1,297.0 | 772.6  |
| Median  | 9,401.8  | 1,918.7  | 1,204.0 | 791.0   | 289.0   | 228.8   | 125.3   | 168.0   | 68.5    | 17.4   |
| 25th    | 6,184.0  | 928.0    | 667.3   | 478.0   | 141.3   | 104.4   | 69.4    | 50.6    | 27.9    | 6.6    |
| 75th    | 17,068.9 | 3,639.4  | 1,869.0 | 1,300.3 | 553.5   | 381.7   | 448.7   | 341.9   | 112.3   | 51.5   |

Table J-58. Sulfate loads (lbs/d) by flow percentile for Three Forks Run (WM-54/TFR0016)

|         | 0-10      | 10-20   | 20-30   | 30-40   | 40-50   | 50-60   | 60-70   | 70-80   | 80-90   | 90-100 |
|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| Minimum | 238,214   | 164,403 | 134,813 | 113,641 | 71,055  | 63,285  | 46,283  | 29,904  | 21,802  | 14,732 |
| Average | 921,615   | 334,994 | 241,839 | 208,864 | 139,695 | 126,001 | 97,589  | 80,907  | 59,665  | 34,509 |
| Maximum | 2,410,689 | 750,641 | 499,734 | 447,427 | 216,143 | 441,059 | 240,030 | 152,568 | 102,588 | 73,534 |
| Median  | 783,382   | 300,325 | 224,100 | 179,126 | 136,843 | 107,019 | 79,230  | 60,129  | 63,701  | 30,558 |
| 25th    | 468,289   | 253,108 | 186,700 | 160,306 | 119,074 | 92,448  | 65,850  | 52,736  | 35,736  | 25,479 |
| 75th    | 1,276,150 | 362,940 | 265,030 | 232,703 | 154,885 | 125,527 | 109,358 | 117,297 | 80,322  | 41,635 |

Table J-59. Iron loads (lbs/d) by flow percentile for Three Forks Run (WM-54/TFR0016)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|---------|-------|-------|-------|--------|
| Minimum | 481.5    | 311.5   | 271.2   | 235.8   | 138.7 | 128.2   | 91.4  | 57.9  | 40.7  | 24.9   |
| Average | 3,447.2  | 850.0   | 632.8   | 458.6   | 280.2 | 274.2   | 205.3 | 165.1 | 113.9 | 67.7   |
| Maximum | 19,111.1 | 2,869.8 | 4,684.2 | 1,094.7 | 492.9 | 1,708.1 | 481.4 | 505.8 | 251.7 | 248.0  |
| Median  | 2,310.8  | 646.1   | 485.6   | 366.0   | 263.9 | 206.3   | 161.9 | 126.2 | 118.5 | 58.1   |
| 25th    | 1,256.0  | 547.5   | 386.4   | 339.3   | 229.6 | 177.6   | 131.2 | 107.1 | 69.7  | 45.9   |
| 75th    | 4,178.4  | 966.3   | 587.8   | 491.8   | 304.5 | 253.9   | 242.5 | 210.7 | 154.2 | 72.4   |

Table J-60. Aluminum loads (lbs/d) by flow percentile for Three Forks Run (WM-54/TFR0016)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|---------|---------|-------|-------|--------|
| Minimum | 639.4    | 240.0   | 187.0   | 189.0   | 85.7  | 78.9    | 58.3    | 34.8  | 24.6  | 15.9   |
| Average | 8,098.5  | 1,527.0 | 864.1   | 648.2   | 255.5 | 317.5   | 199.5   | 139.9 | 84.2  | 44.9   |
| Maximum | 28,024.9 | 6,260.8 | 4,551.0 | 2,655.5 | 939.5 | 2,921.9 | 1,032.5 | 509.9 | 563.3 | 252.7  |
| Median  | 6,312.4  | 1,021.1 | 698.2   | 396.0   | 193.5 | 153.6   | 102.7   | 100.0 | 72.1  | 35.5   |
| 25th    | 3,230.0  | 402.4   | 294.6   | 259.2   | 148.2 | 117.8   | 82.1    | 66.1  | 43.3  | 27.9   |
| 75th    | 10,663.0 | 2,142.1 | 963.2   | 695.4   | 280.7 | 203.9   | 202.2   | 163.2 | 90.5  | 45.8   |

## UT to Three Forks Run (WM-55/ZWT0000) plots and tables

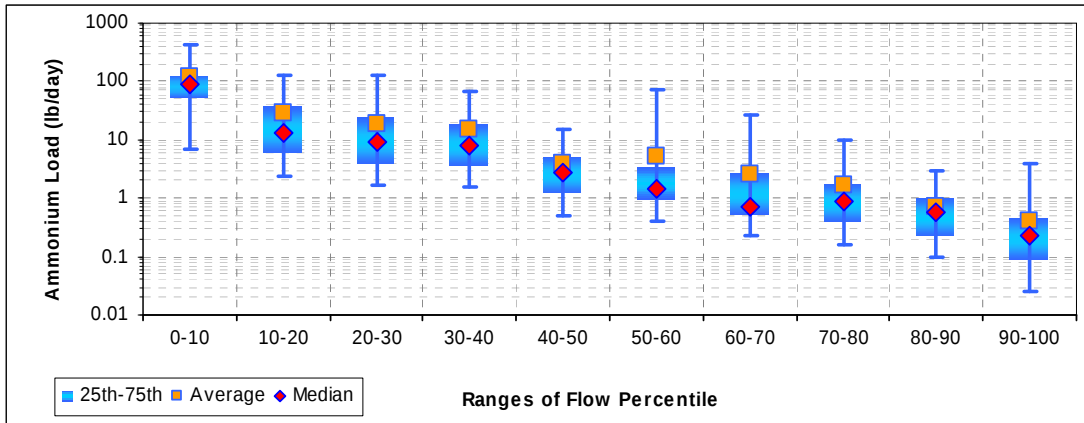


Figure J-61. Ammonium loads by flow percentile for UT to Three Forks Run (WM-55/ZWT0000)

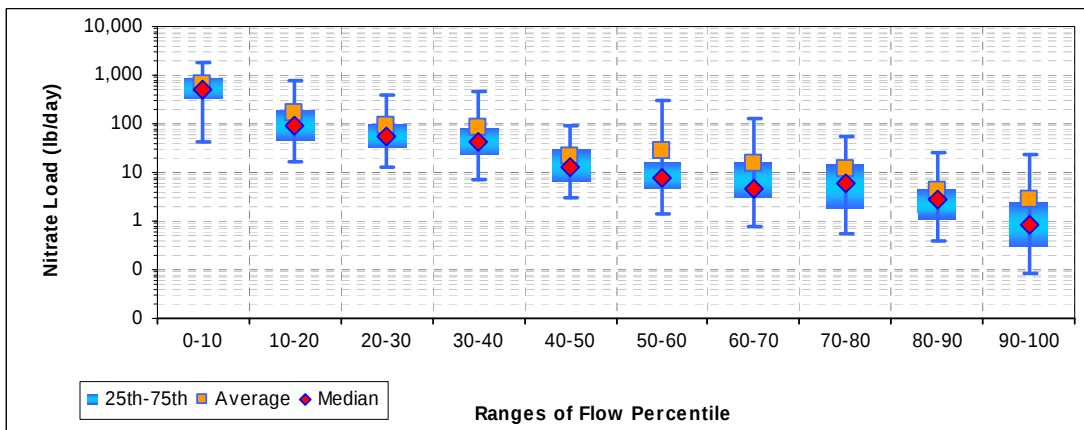


Figure J-62. Nitrate loads by flow percentile for UT to Three Forks Run (WM-55/ZWT0000)

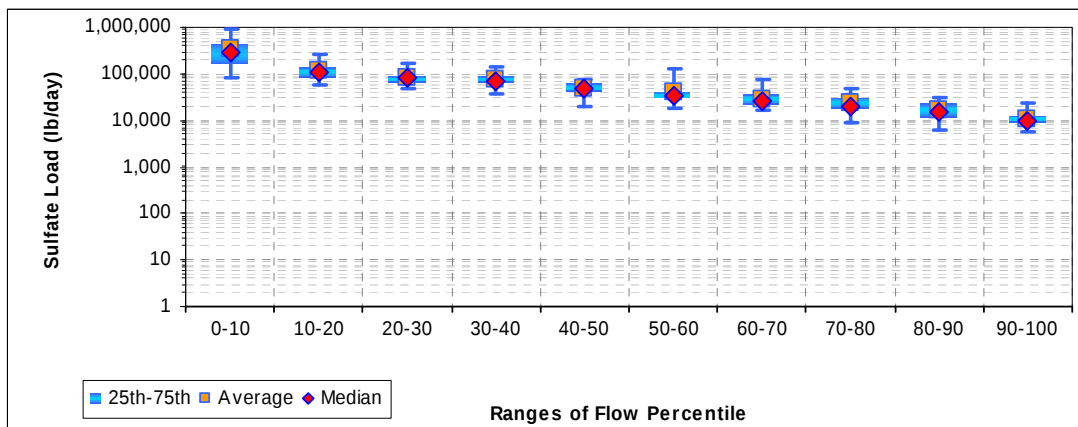


Figure J-63. Sulfate loads by flow percentile for UT to Three Forks Run (WM-55/ZWT0000)

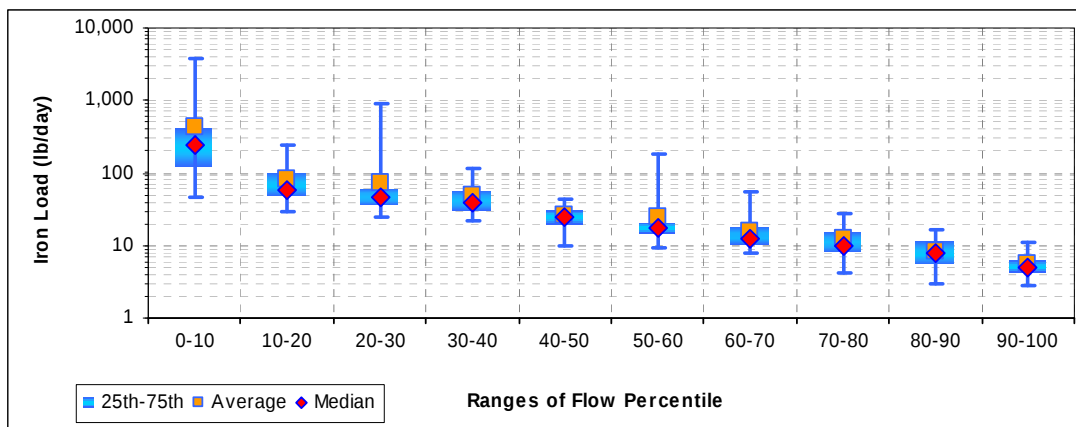


Figure J-64. Iron loads by flow percentile for UT to Three Forks Run (WM-55/ZWT0000)

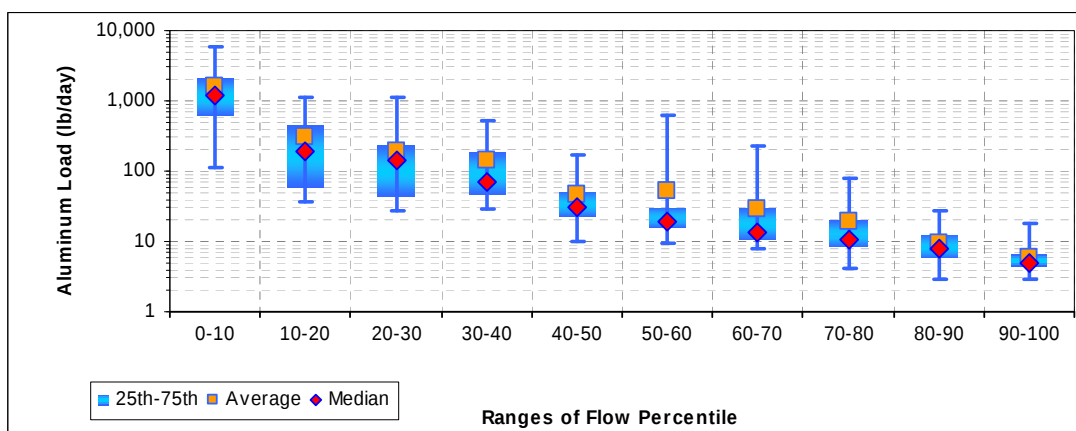


Figure J-65. Aluminum loads by flow percentile for UT to Three Forks Run (WM-55/ZWT0000)

Table J-61. Ammonium loads (lb/d) by flow percentile for UT to Three Forks Run (WM-55/ZWT0000)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 7.0   | 2.4   | 1.6   | 1.5   | 0.5   | 0.4   | 0.2   | 0.2   | 0.1   | 0.0    |
| Average | 114.7 | 29.5  | 18.4  | 15.1  | 4.0   | 5.2   | 2.6   | 1.7   | 0.7   | 0.4    |
| Maximum | 430.8 | 127.4 | 123.7 | 68.0  | 15.0  | 73.5  | 27.6  | 9.7   | 2.9   | 4.0    |
| Median  | 91.2  | 13.5  | 9.4   | 7.8   | 2.7   | 1.4   | 0.7   | 0.9   | 0.6   | 0.2    |
| 25th    | 52.4  | 5.8   | 4.0   | 3.6   | 1.2   | 0.9   | 0.5   | 0.4   | 0.2   | 0.1    |
| 75th    | 129.1 | 38.3  | 24.8  | 18.1  | 5.2   | 3.5   | 2.6   | 1.8   | 1.0   | 0.5    |

Table J-62. Nitrate loads (lbs/d) by flow percentile for UT to Three Forks Run (WM-55/ZWT0000)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 41.7    | 16.4  | 12.9  | 6.9   | 3.0   | 1.4   | 0.8   | 0.5   | 0.4   | 0.1    |
| Average | 653.5   | 163.0 | 89.2  | 81.1  | 21.9  | 27.6  | 15.9  | 12.3  | 4.1   | 2.7    |
| Maximum | 1,774.5 | 757.3 | 395.1 | 458.9 | 93.0  | 311.7 | 132.1 | 54.8  | 25.8  | 24.4   |
| Median  | 494.3   | 91.3  | 57.4  | 41.7  | 12.6  | 8.1   | 4.6   | 6.1   | 2.8   | 0.8    |
| 25th    | 330.7   | 45.5  | 33.0  | 24.3  | 6.3   | 4.7   | 2.9   | 1.8   | 1.1   | 0.3    |
| 75th    | 920.9   | 206.1 | 100.4 | 83.9  | 30.9  | 17.3  | 16.3  | 15.2  | 4.5   | 2.5    |

Table J-63. Sulfate loads (lbs/d) by flow percentile for UT to Three Forks Run (WM-55/ZWT0000)

|         | 0-10    | 10-20   | 20-30   | 30-40   | 40-50  | 50-60   | 60-70  | 70-80  | 80-90  | 90-100 |
|---------|---------|---------|---------|---------|--------|---------|--------|--------|--------|--------|
| Minimum | 82,250  | 57,588  | 49,710  | 37,322  | 20,278 | 18,676  | 16,167 | 8,543  | 5,973  | 5,796  |
| Average | 336,956 | 116,531 | 85,371  | 76,008  | 49,446 | 39,638  | 29,293 | 23,810 | 17,244 | 11,050 |
| Maximum | 883,943 | 257,278 | 161,856 | 146,051 | 75,962 | 134,114 | 74,290 | 47,105 | 32,301 | 23,168 |
| Median  | 279,468 | 105,054 | 82,086  | 72,051  | 49,871 | 34,272  | 25,944 | 19,905 | 15,303 | 10,101 |
| 25th    | 170,883 | 82,311  | 65,267  | 63,165  | 40,731 | 29,645  | 21,591 | 17,431 | 11,489 | 8,681  |
| 75th    | 465,129 | 140,662 | 91,588  | 88,085  | 60,669 | 40,318  | 35,695 | 31,575 | 24,159 | 12,321 |

Table J-64. Iron loads (lbs/d) by flow percentile for UT to Three Forks Run (WM-55/ZWT0000)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 46.6    | 28.8  | 25.2  | 21.9  | 9.9   | 9.1   | 7.9   | 4.2   | 2.9   | 2.8    |
| Average | 426.2   | 84.2  | 75.0  | 47.5  | 26.0  | 24.0  | 15.6  | 12.3  | 8.5   | 5.4    |
| Maximum | 3,718.2 | 240.6 | 928.3 | 115.0 | 43.3  | 177.3 | 53.6  | 28.1  | 16.2  | 11.3   |
| Median  | 240.8   | 58.1  | 46.2  | 38.1  | 24.8  | 17.5  | 12.6  | 9.8   | 7.8   | 4.9    |
| 25th    | 122.2   | 49.8  | 36.5  | 31.0  | 20.0  | 14.7  | 10.5  | 8.5   | 5.6   | 4.2    |
| 75th    | 420.7   | 100.6 | 60.5  | 58.4  | 31.4  | 20.6  | 18.2  | 15.8  | 11.8  | 6.1    |

Table J-65. Aluminum loads (lbs/d) by flow percentile for UT to Three Forks Run (WM-55/ZWT0000)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 113.1   | 36.7    | 27.8    | 28.9  | 10.1  | 9.2   | 7.9   | 4.2   | 2.9   | 2.8    |
| Average | 1,591.2 | 301.8   | 186.6   | 141.6 | 45.5  | 52.3  | 28.9  | 18.7  | 9.5   | 5.8    |
| Maximum | 5,912.3 | 1,109.5 | 1,137.2 | 537.2 | 168.2 | 617.9 | 229.5 | 81.0  | 26.6  | 18.0   |
| Median  | 1,227.0 | 190.1   | 140.6   | 71.2  | 30.8  | 19.6  | 13.0  | 10.9  | 7.9   | 5.0    |
| 25th    | 631.0   | 59.5    | 44.9    | 45.1  | 22.5  | 16.1  | 10.6  | 8.6   | 5.8   | 4.3    |
| 75th    | 2,147.0 | 464.7   | 243.0   | 190.4 | 52.9  | 30.0  | 30.7  | 19.8  | 12.5  | 6.6    |

Short Run (WM-60/SHO0016) plots and tables

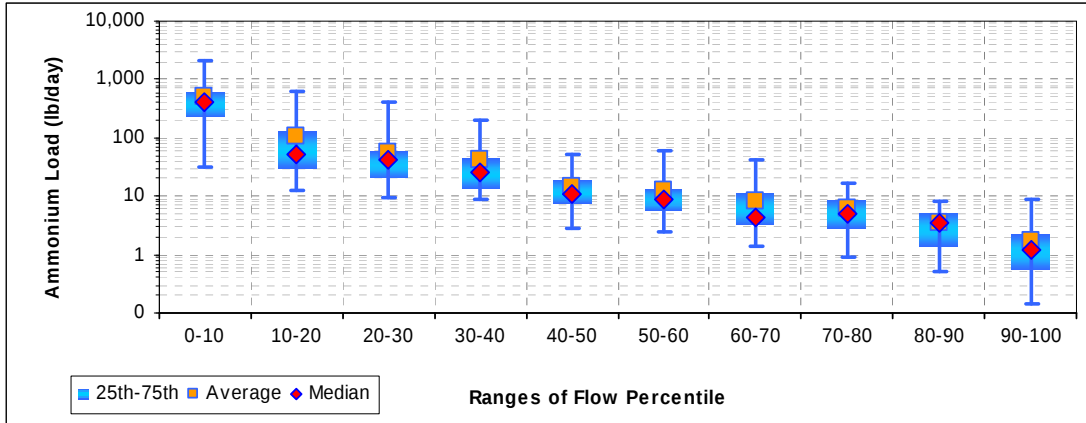


Figure J-66. Ammonium loads by flow percentile for Short Run (WM-60/SHO0016)

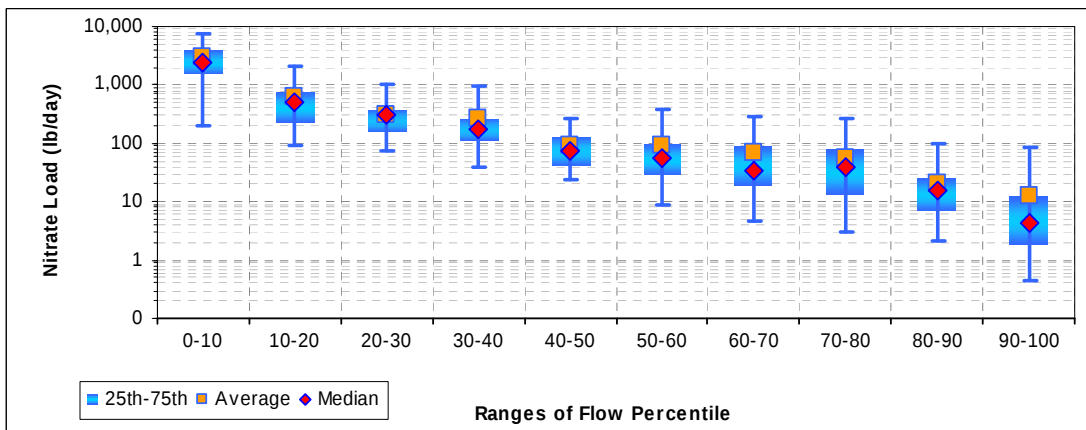


Figure J-67. Nitrate loads by flow percentile for Short Run (WM-60/SHO0016)

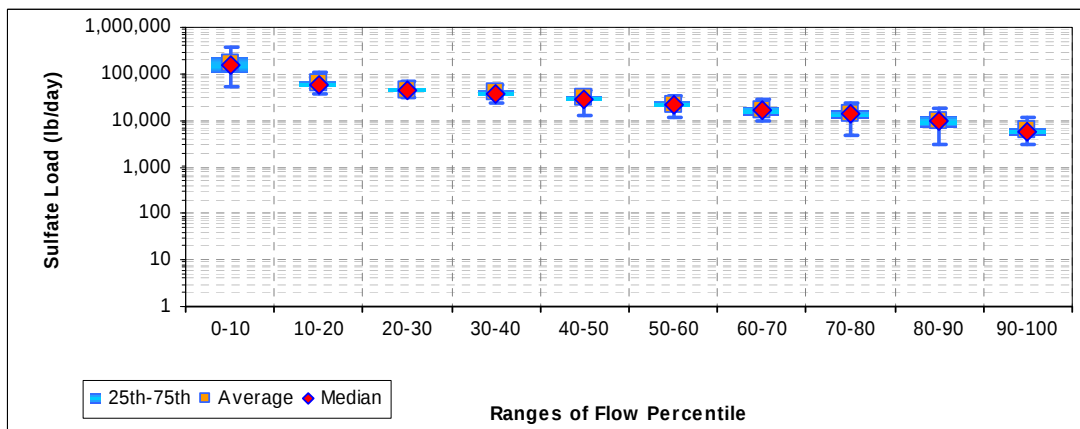


Figure J-68. Sulfate loads by flow percentile for Short Run (WM-60/SHO0016)

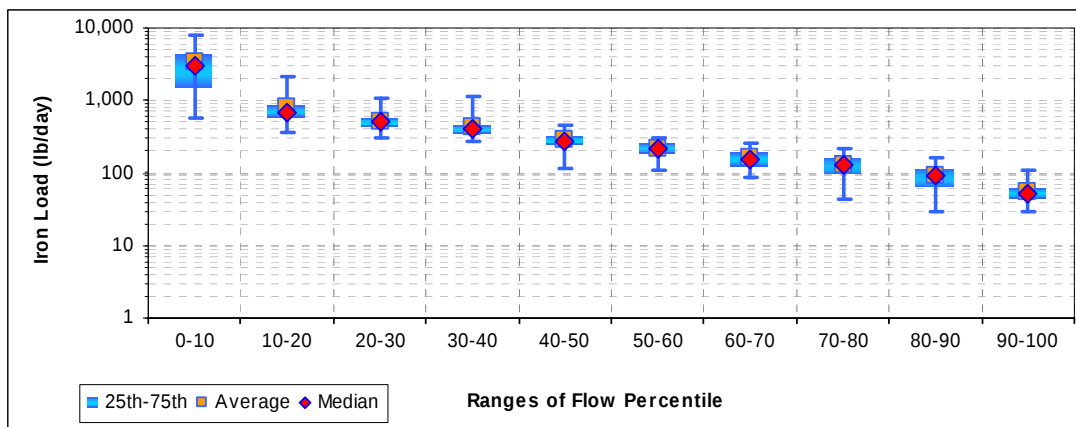


Figure J-69. Iron loads by flow percentile for Short Run (WM-60/SHO0016)

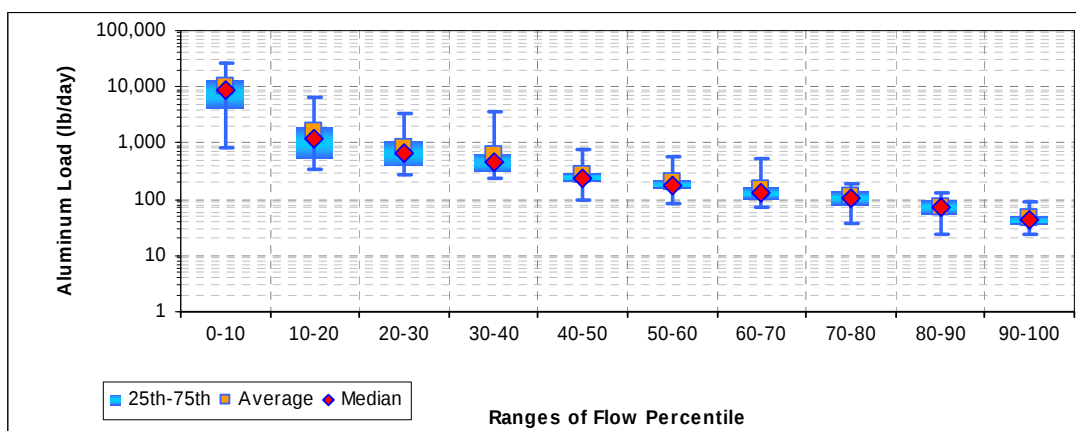


Figure J-70. Aluminum loads by flow percentile for Short Run (WM-60/SHO0016)

Table J-66. Ammonium loads (lb/d) by flow percentile for Short Run (WM-60/SHO0016)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 32.3    | 12.9  | 9.3   | 8.6   | 2.8   | 2.5   | 1.4   | 0.9   | 0.5   | 0.1    |
| Average | 520.8   | 106.2 | 54.7  | 40.7  | 14.8  | 12.4  | 8.2   | 6.2   | 3.5   | 1.7    |
| Maximum | 2,093.6 | 629.7 | 404.5 | 194.1 | 50.9  | 61.9  | 40.7  | 16.8  | 8.0   | 8.6    |
| Median  | 401.6   | 52.8  | 43.2  | 25.2  | 10.7  | 8.6   | 4.4   | 5.1   | 3.4   | 1.2    |
| 25th    | 231.4   | 28.8  | 20.1  | 13.9  | 7.4   | 5.6   | 3.3   | 2.7   | 1.4   | 0.6    |
| 75th    | 610.1   | 131.3 | 60.4  | 45.4  | 19.0  | 13.1  | 11.6  | 8.9   | 5.4   | 2.3    |

Table J-67. Nitrate loads (lbs/d) by flow percentile for Short Run (WM-60/SHO0016)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 207.5   | 92.5    | 71.8    | 39.5  | 23.4  | 8.6   | 4.6   | 3.1   | 2.1   | 0.5    |
| Average | 2,963.2 | 610.3   | 306.1   | 258.4 | 92.3  | 91.0  | 66.9  | 57.7  | 20.9  | 12.4   |
| Maximum | 7,432.3 | 2,091.9 | 1,010.1 | 936.5 | 274.9 | 375.9 | 286.5 | 258.3 | 98.8  | 86.0   |
| Median  | 2,370.1 | 492.1   | 299.9   | 179.7 | 76.8  | 57.1  | 33.3  | 38.2  | 15.5  | 4.3    |
| 25th    | 1,538.6 | 231.9   | 163.0   | 117.6 | 42.1  | 29.2  | 19.2  | 13.3  | 7.1   | 1.8    |
| 75th    | 4,112.1 | 799.5   | 376.3   | 265.5 | 130.8 | 98.0  | 93.4  | 77.7  | 25.0  | 12.6   |

Table J-68. Sulfate loads (lbs/d) by flow percentile for Short Run (WM-60/SHO0016)

|         | 0-10    | 10-20   | 20-30  | 30-40  | 40-50  | 50-60  | 60-70  | 70-80  | 80-90  | 90-100 |
|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| Minimum | 51,891  | 37,021  | 31,932 | 24,242 | 12,562 | 11,397 | 9,475  | 4,766  | 3,137  | 3,164  |
| Average | 167,948 | 61,193  | 45,099 | 39,450 | 29,823 | 22,356 | 16,967 | 13,824 | 9,891  | 6,038  |
| Maximum | 366,840 | 106,785 | 66,343 | 56,155 | 43,132 | 32,389 | 27,790 | 23,071 | 17,711 | 11,781 |
| Median  | 150,170 | 59,768  | 45,408 | 37,376 | 29,082 | 22,447 | 16,592 | 13,543 | 9,657  | 5,456  |
| 25th    | 103,415 | 51,678  | 41,146 | 32,666 | 26,370 | 19,786 | 13,137 | 10,280 | 7,003  | 4,643  |
| 75th    | 235,501 | 70,112  | 49,919 | 46,097 | 33,351 | 24,773 | 20,611 | 17,304 | 12,913 | 6,620  |

Table J-69. Iron loads (lbs/d) by flow percentile for Short Run (WM-60/SHO0016)

|         | 0-10    | 10-20   | 20-30   | 30-40   | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|---------|-------|-------|-------|-------|-------|--------|
| Minimum | 577.5   | 359.6   | 308.5   | 275.4   | 117.4 | 106.5 | 88.6  | 44.5  | 29.3  | 29.6   |
| Average | 3,321.6 | 795.9   | 513.4   | 433.9   | 288.3 | 214.9 | 161.2 | 129.2 | 91.4  | 56.0   |
| Maximum | 8,104.0 | 2,127.4 | 1,081.1 | 1,140.7 | 458.7 | 305.3 | 256.9 | 212.1 | 163.2 | 108.2  |
| Median  | 2,939.9 | 681.9   | 499.4   | 401.7   | 279.2 | 213.0 | 155.4 | 126.7 | 89.4  | 51.9   |
| 25th    | 1,497.3 | 567.9   | 433.8   | 336.5   | 249.7 | 186.7 | 123.1 | 97.1  | 65.3  | 42.8   |
| 75th    | 4,561.2 | 872.8   | 574.6   | 466.0   | 317.7 | 253.4 | 197.3 | 159.7 | 118.0 | 61.6   |

Table J-70. Aluminum loads (lbs/d) by flow percentile for Short Run (WM-60/SHO0016)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|-------|-------|-------|-------|--------|
| Minimum | 842.3    | 334.4   | 263.6   | 228.9   | 95.6  | 86.6  | 72.0  | 36.2  | 23.9  | 24.1   |
| Average | 10,074.0 | 1,595.2 | 800.7   | 634.0   | 277.5 | 203.1 | 146.5 | 110.1 | 74.8  | 45.6   |
| Maximum | 26,368.3 | 6,491.4 | 3,236.2 | 3,626.4 | 795.4 | 575.5 | 520.5 | 187.5 | 132.7 | 88.0   |
| Median  | 8,550.2  | 1,174.6 | 670.2   | 458.9   | 243.0 | 177.1 | 126.4 | 103.6 | 72.7  | 42.2   |
| 25th    | 4,301.0  | 539.5   | 406.3   | 315.4   | 206.3 | 154.6 | 100.2 | 79.2  | 53.1  | 34.8   |
| 75th    | 13,959.4 | 1,991.0 | 1,071.4 | 660.6   | 299.6 | 225.7 | 163.3 | 139.0 | 96.5  | 50.1   |

### Laurel Run (WM-61/LNB0014) plots and tables

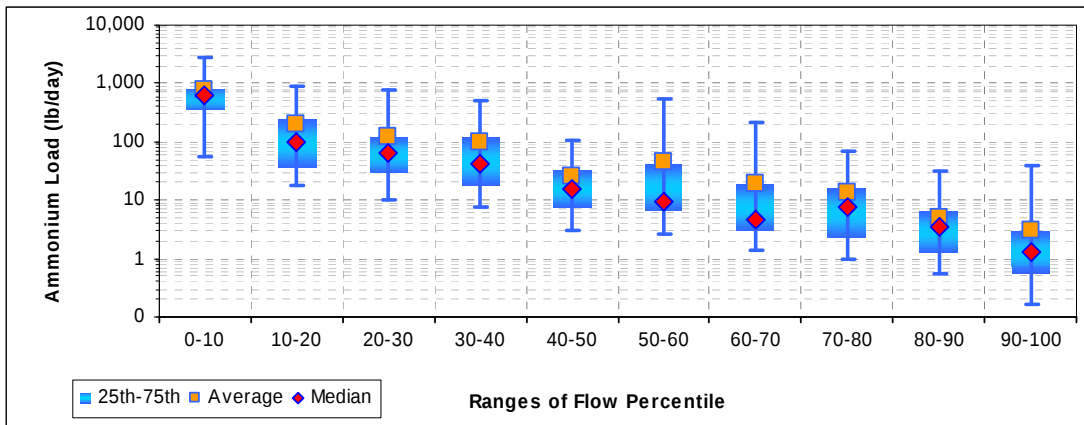


Figure J-71. Ammonium loads by flow percentile for Laurel Run (WM-61/LNB0014)

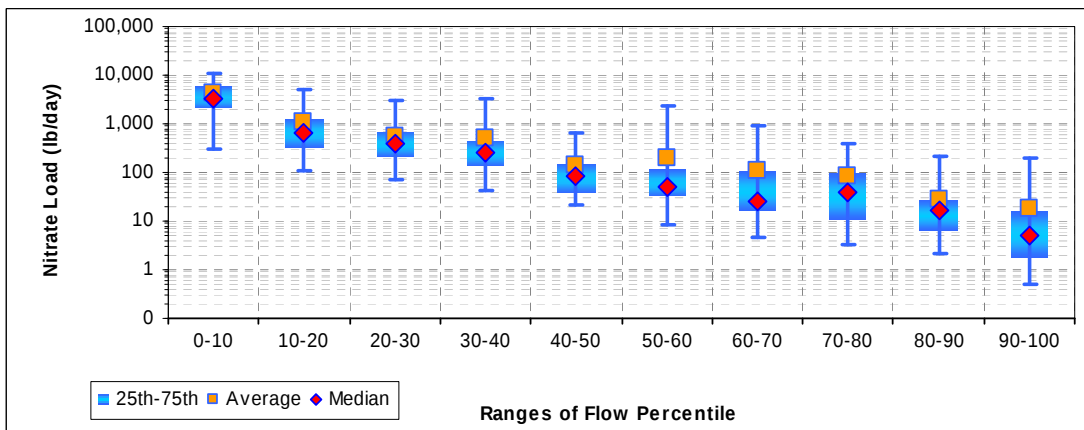


Figure J-72. Nitrate loads by flow percentile for Laurel Run (WM-61/LNB0014)

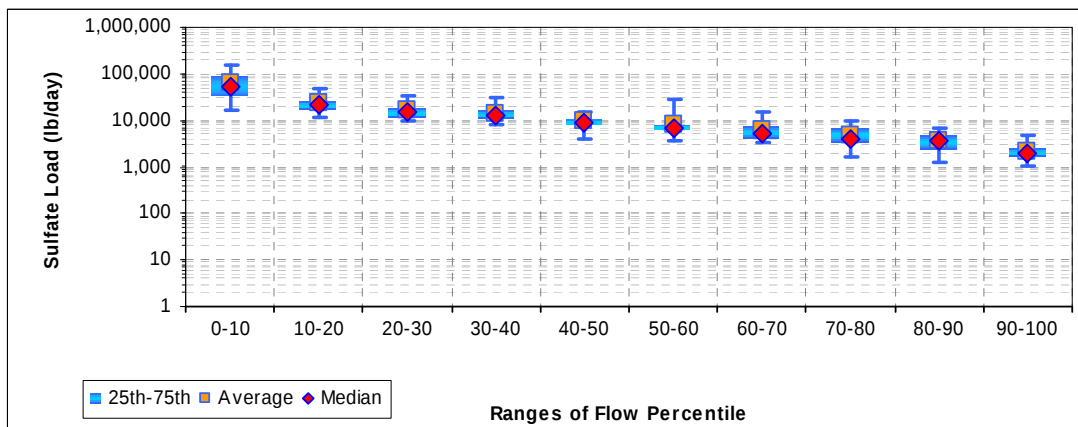


Figure J-73. Sulfate loads by flow percentile for Laurel Run (WM-61/LNB0014)

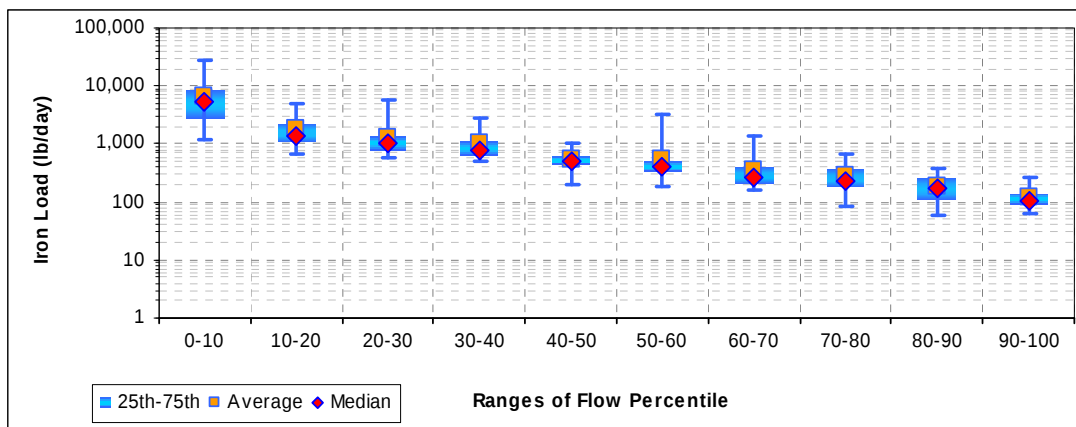


Figure J-74. Iron loads by flow percentile for Laurel Run (WM-61/LNB0014)

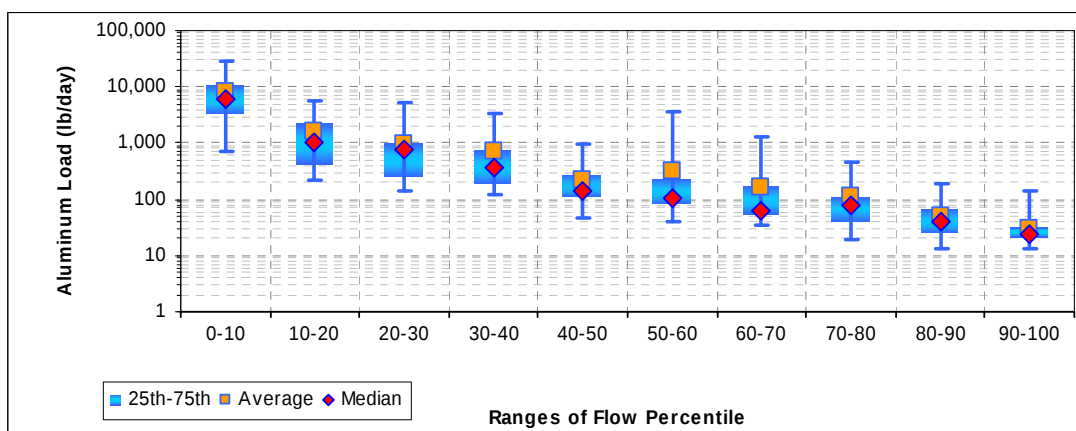


Figure J-75. Aluminum loads by flow percentile for Laurel Run (WM-61/LNB0014)

Table J-71. Ammonium loads (lb/d) by flow percentile for Laurel Run (WM-61/LNB0014)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 56.6    | 17.7  | 10.2  | 7.6   | 3.0   | 2.6   | 1.4   | 1.0   | 0.6   | 0.2    |
| Average | 754.9   | 201.5 | 120.9 | 100.3 | 26.3  | 44.3  | 19.9  | 13.2  | 5.1   | 3.0    |
| Maximum | 2,824.5 | 892.7 | 798.7 | 494.9 | 106.1 | 559.9 | 209.0 | 71.5  | 31.0  | 38.8   |
| Median  | 638.8   | 100.4 | 62.7  | 41.8  | 15.8  | 9.6   | 4.7   | 7.6   | 3.5   | 1.3    |
| 25th    | 348.2   | 36.9  | 28.4  | 18.2  | 7.8   | 6.6   | 3.0   | 2.4   | 1.3   | 0.6    |
| 75th    | 850.6   | 255.2 | 124.9 | 123.2 | 34.9  | 41.3  | 19.9  | 16.6  | 6.4   | 3.1    |

Table J-72. Nitrate loads (lbs/d) by flow percentile for Laurel Run (WM-61/LNB0014)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|---------|-------|-------|-------|--------|
| Minimum | 307.0    | 107.3   | 71.2    | 43.4    | 21.5  | 8.7     | 4.8   | 3.3   | 2.2   | 0.5    |
| Average | 4,182.6  | 1,083.1 | 563.6   | 512.1   | 136.9 | 204.5   | 111.8 | 85.8  | 27.8  | 18.4   |
| Maximum | 10,972.1 | 4,947.2 | 3,025.0 | 3,205.0 | 631.7 | 2,278.5 | 949.9 | 397.0 | 211.3 | 191.4  |
| Median  | 3,179.3  | 632.6   | 380.7   | 251.3   | 82.9  | 49.4    | 26.3  | 39.5  | 17.3  | 5.1    |
| 25th    | 2,087.3  | 319.7   | 212.0   | 136.4   | 39.5  | 31.8    | 17.1  | 10.5  | 6.4   | 1.9    |
| 75th    | 5,837.7  | 1,275.8 | 685.6   | 483.7   | 159.0 | 119.0   | 112.7 | 102.2 | 28.5  | 16.4   |

Table J-73. Sulfate loads (lbs/d) by flow percentile for Laurel Run (WM-61/LNB0014)

|         | 0-10    | 10-20  | 20-30  | 30-40  | 40-50  | 50-60  | 60-70  | 70-80 | 80-90 | 90-100 |
|---------|---------|--------|--------|--------|--------|--------|--------|-------|-------|--------|
| Minimum | 16,877  | 11,499 | 9,506  | 8,070  | 4,057  | 3,740  | 3,303  | 1,698 | 1,210 | 1,076  |
| Average | 64,498  | 23,090 | 16,382 | 14,228 | 9,347  | 8,146  | 5,971  | 4,918 | 3,560 | 2,208  |
| Maximum | 158,226 | 50,052 | 33,036 | 29,633 | 14,937 | 28,642 | 15,776 | 9,867 | 6,634 | 4,650  |
| Median  | 54,680  | 21,092 | 15,409 | 12,325 | 8,970  | 7,078  | 5,040  | 3,866 | 3,523 | 1,962  |
| 25th    | 32,830  | 16,909 | 12,018 | 10,600 | 7,919  | 5,954  | 4,121  | 3,380 | 2,234 | 1,667  |
| 75th    | 87,618  | 25,888 | 17,993 | 15,873 | 10,962 | 7,912  | 7,177  | 6,780 | 4,857 | 2,598  |

Table J-74. Iron loads (lbs/d) by flow percentile for Laurel Run (WM-61/LNB0014)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50   | 50-60   | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|---------|---------|---------|-------|-------|--------|
| Minimum | 1,161.7  | 668.9   | 571.2   | 518.9   | 197.5   | 181.7   | 158.3   | 83.7  | 59.0  | 61.1   |
| Average | 6,819.2  | 1,826.2 | 1,255.1 | 1,005.6 | 551.3   | 541.0   | 353.8   | 279.6 | 186.3 | 120.1  |
| Maximum | 26,750.9 | 4,849.4 | 5,549.4 | 2,799.2 | 1,017.8 | 3,186.2 | 1,338.3 | 678.6 | 373.0 | 255.3  |
| Median  | 5,239.6  | 1,337.9 | 1,026.0 | 773.8   | 505.3   | 407.1   | 261.4   | 230.8 | 170.7 | 107.1  |
| 25th    | 2,877.5  | 1,126.0 | 784.6   | 608.2   | 445.0   | 328.5   | 220.3   | 181.8 | 112.2 | 88.8   |
| 75th    | 8,973.2  | 2,190.6 | 1,322.7 | 1,069.3 | 626.2   | 516.4   | 415.3   | 369.7 | 266.3 | 140.8  |

Table J-75. Aluminum loads (lbs/d) by flow percentile for Laurel Run (WM-61/LNB0014)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|---------|---------|-------|-------|--------|
| Minimum | 725.1    | 217.6   | 141.8   | 122.3   | 45.4  | 41.2    | 35.8    | 18.9  | 13.3  | 13.7   |
| Average | 7,963.6  | 1,602.9 | 935.1   | 711.7   | 224.3 | 318.4   | 166.6   | 109.2 | 49.2  | 30.1   |
| Maximum | 28,097.6 | 5,601.3 | 5,369.9 | 3,473.4 | 970.1 | 3,628.8 | 1,317.4 | 463.1 | 188.1 | 135.7  |
| Median  | 6,038.1  | 1,049.3 | 767.2   | 361.3   | 145.0 | 107.0   | 60.5    | 80.4  | 39.7  | 24.8   |
| 25th    | 3,324.6  | 420.1   | 251.2   | 192.3   | 110.1 | 85.9    | 52.3    | 40.8  | 26.1  | 20.0   |
| 75th    | 10,905.5 | 2,265.8 | 1,062.3 | 747.3   | 263.3 | 235.8   | 181.6   | 115.7 | 64.9  | 33.0   |

## UT to Laurel Run (WM-62/ULF0003) plots and tables

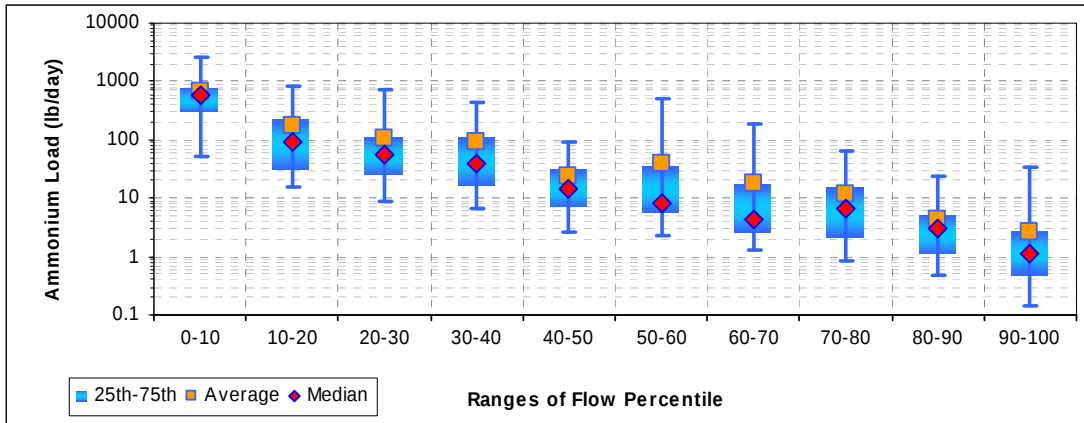


Figure J-. Ammonium loads by flow percentile for UT to Laurel Run (WM-62/ULF0003)

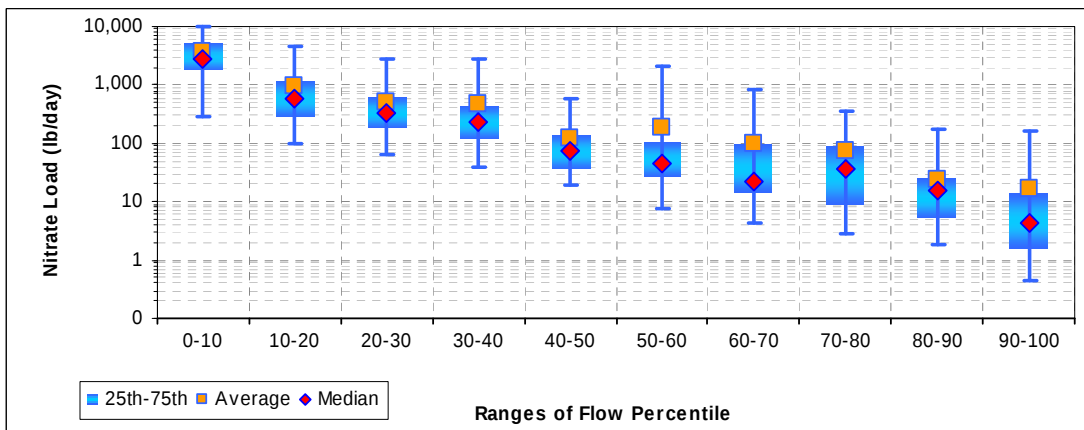


Figure J-1. Nitrate loads by flow percentile for UT to Laurel Run (WM-62/ULF0003)

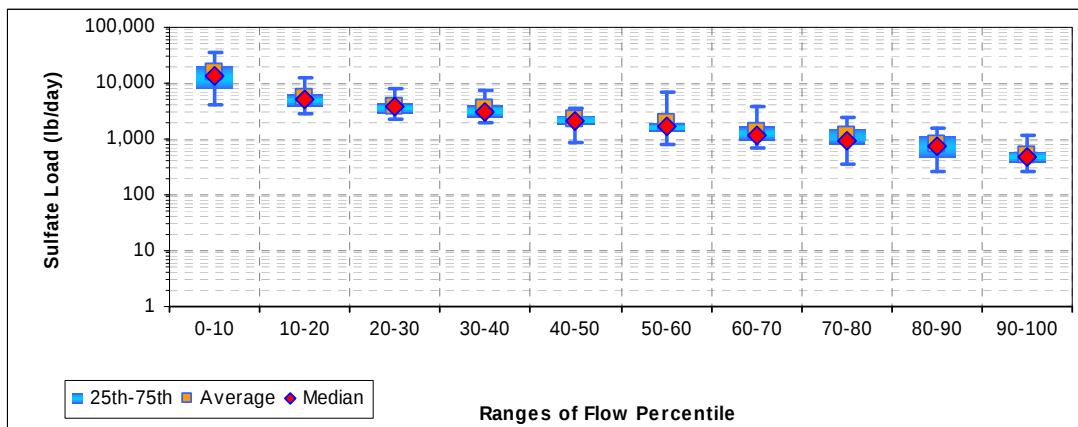


Figure J-2. Sulfate loads by flow percentile for UT to Laurel Run (WM-62/ULF0003)

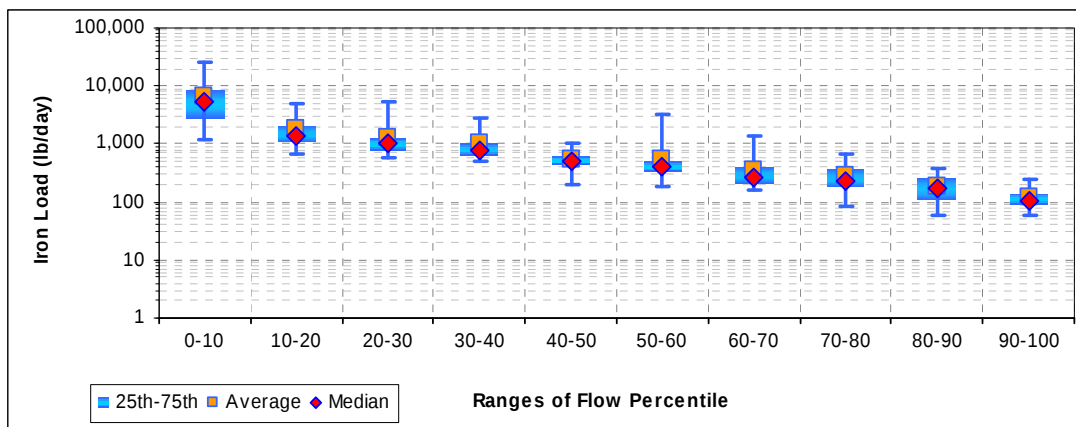


Figure J-3. Iron loads by flow percentile for UT to Laurel Run (WM-62/ULF0003)

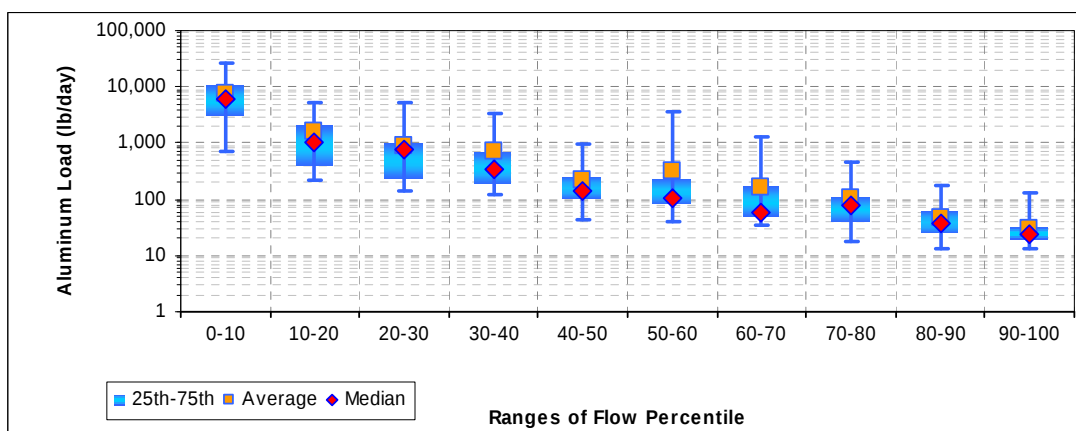


Figure J-4. Aluminum loads by flow percentile for UT to Laurel Run (WM-62/ULF0003)

Table J-. Ammonium loads (lb/d) by flow percentile for UT to Laurel Run (WM-62/ULF0003)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 51.3    | 15.8  | 9.0   | 6.6   | 2.6   | 2.3   | 1.3   | 0.9   | 0.5   | 0.1    |
| Average | 674.7   | 180.1 | 108.1 | 89.6  | 23.5  | 39.6  | 17.7  | 11.7  | 4.4   | 2.6    |
| Maximum | 2,521.0 | 803.0 | 717.6 | 441.8 | 94.9  | 502.8 | 187.5 | 64.1  | 24.4  | 32.9   |
| Median  | 570.7   | 90.9  | 56.1  | 37.9  | 14.0  | 8.4   | 4.2   | 6.7   | 3.0   | 1.1    |
| 25th    | 310.9   | 32.6  | 25.1  | 16.2  | 6.9   | 5.9   | 2.6   | 2.1   | 1.1   | 0.5    |
| 75th    | 760.4   | 229.8 | 112.0 | 110.0 | 31.1  | 36.6  | 17.6  | 15.5  | 5.5   | 2.7    |

Table J-1. Nitrate loads (lbs/d) by flow percentile for UT to Laurel Run (WM-62/ULF0003)

|         | 0-10    | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|---------|-------|---------|-------|-------|-------|--------|
| Minimum | 277.8   | 96.6    | 63.2    | 38.6    | 18.6  | 7.8     | 4.2   | 2.9   | 1.9   | 0.5    |
| Average | 3,762.0 | 972.0   | 506.1   | 459.5   | 122.6 | 183.6   | 99.6  | 76.1  | 24.1  | 16.2   |
| Maximum | 9,850.0 | 4,442.0 | 2,729.4 | 2,880.2 | 567.9 | 2,054.7 | 855.7 | 353.1 | 172.9 | 167.3  |
| Median  | 2,849.7 | 566.3   | 341.1   | 224.1   | 73.7  | 43.7    | 22.7  | 35.4  | 15.1  | 4.5    |
| 25th    | 1,876.9 | 286.8   | 190.9   | 122.3   | 35.3  | 28.3    | 14.5  | 9.1   | 5.5   | 1.6    |
| 75th    | 5,257.2 | 1,149.1 | 617.1   | 428.0   | 141.9 | 106.2   | 101.1 | 91.0  | 25.3  | 14.6   |

Table J-2. Sulfate loads (lbs/d) by flow percentile for UT to Laurel Run (WM-62/ULF0003)

|         | 0-10   | 10-20  | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 4,127  | 2,763  | 2,286 | 1,971 | 855   | 787   | 686   | 363   | 256   | 265    |
| Average | 15,380 | 5,542  | 3,924 | 3,439 | 2,205 | 1,946 | 1,374 | 1,130 | 800   | 519    |
| Maximum | 36,278 | 12,071 | 8,260 | 7,280 | 3,641 | 7,129 | 3,887 | 2,388 | 1,588 | 1,121  |
| Median  | 12,971 | 5,042  | 3,705 | 3,036 | 2,105 | 1,680 | 1,130 | 935   | 733   | 466    |
| 25th    | 7,889  | 3,936  | 2,897 | 2,442 | 1,878 | 1,379 | 951   | 781   | 487   | 385    |
| 75th    | 21,322 | 6,226  | 4,384 | 3,995 | 2,630 | 1,961 | 1,688 | 1,563 | 1,162 | 610    |

Table J-3. Iron loads (lbs/d) by flow percentile for UT to Laurel Run (WM-62/ULF0003)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50   | 50-60   | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|---------|---------|---------|-------|-------|--------|
| Minimum | 1,153.7  | 664.1   | 567.1   | 514.8   | 195.8   | 180.1   | 156.9   | 83.0  | 58.5  | 60.7   |
| Average | 6,755.3  | 1,812.3 | 1,243.7 | 998.4   | 547.2   | 536.8   | 351.0   | 277.4 | 184.8 | 119.2  |
| Maximum | 26,252.4 | 4,810.9 | 5,424.0 | 2,782.3 | 1,010.1 | 3,155.8 | 1,329.0 | 673.8 | 370.3 | 253.5  |
| Median  | 5,193.6  | 1,329.2 | 1,018.4 | 768.2   | 501.8   | 404.3   | 259.5   | 229.1 | 169.3 | 106.3  |
| 25th    | 2,857.3  | 1,118.1 | 778.9   | 603.6   | 442.0   | 325.9   | 218.7   | 180.6 | 111.3 | 88.1   |
| 75th    | 8,909.8  | 2,176.2 | 1,312.2 | 1,061.6 | 621.8   | 512.8   | 412.1   | 366.9 | 264.3 | 139.7  |

Table J-4. Aluminum loads (lbs/d) by flow percentile for UT to Laurel Run (WM-62/ULF0003)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|---------|---------|-------|-------|--------|
| Minimum | 704.3    | 211.1   | 136.9   | 118.1   | 43.7  | 39.6    | 34.4    | 18.2  | 12.8  | 13.3   |
| Average | 7,706.1  | 1,551.2 | 905.3   | 689.6   | 217.0 | 308.3   | 160.9   | 105.5 | 47.3  | 29.0   |
| Maximum | 27,191.6 | 5,416.1 | 5,200.0 | 3,379.8 | 938.0 | 3,516.8 | 1,277.0 | 449.4 | 175.7 | 129.4  |
| Median  | 5,851.4  | 1,016.0 | 742.1   | 348.8   | 140.4 | 103.9   | 58.3    | 77.6  | 37.8  | 23.6   |
| 25th    | 3,218.9  | 408.4   | 243.6   | 185.9   | 106.4 | 82.8    | 50.2    | 39.5  | 25.2  | 19.3   |
| 75th    | 10,552.4 | 2,186.3 | 1,025.9 | 721.6   | 254.9 | 228.1   | 175.6   | 113.7 | 62.7  | 31.8   |

### North Prong Lostland Run (WM-64/NPL0018) plots and tables

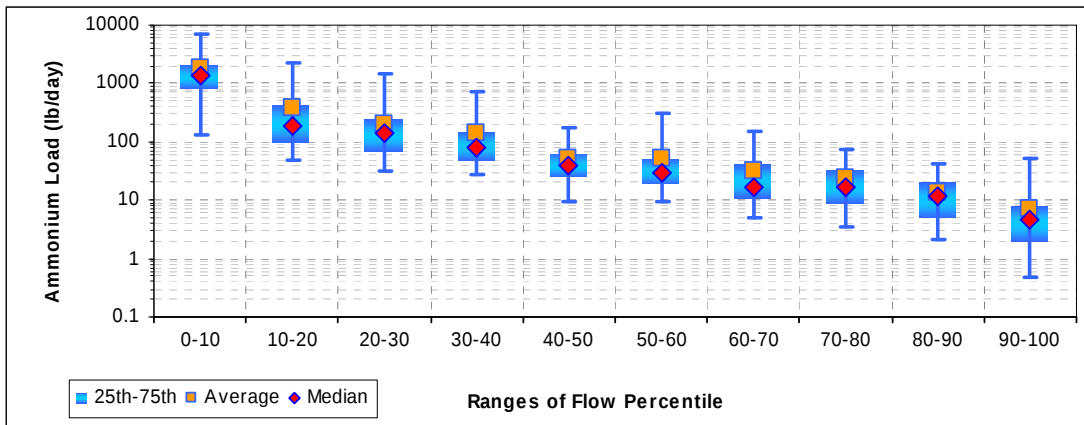


Figure J-81. Ammonium loads by flow percentile for North Prong Lostland Run (WM-64/NPL0018)

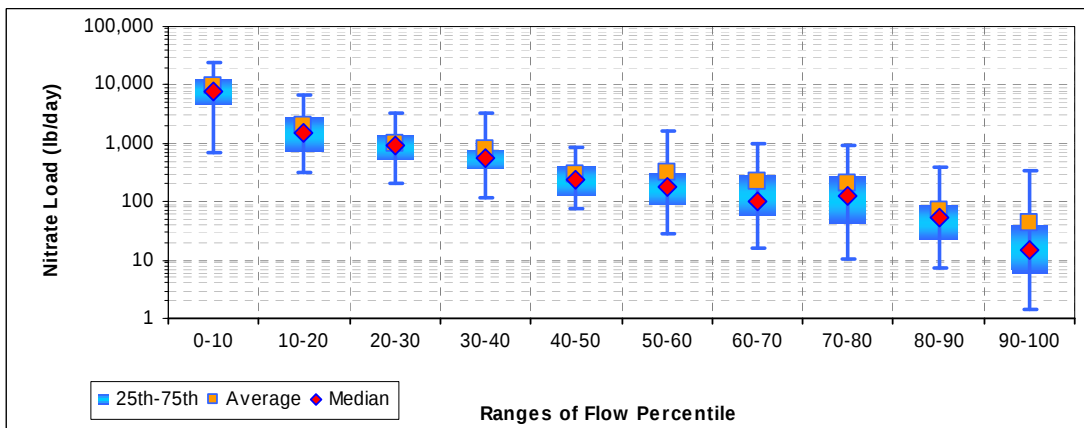


Figure J-82. Nitrate loads by flow percentile for North Prong Lostland Run (WM-64/NPL0018)

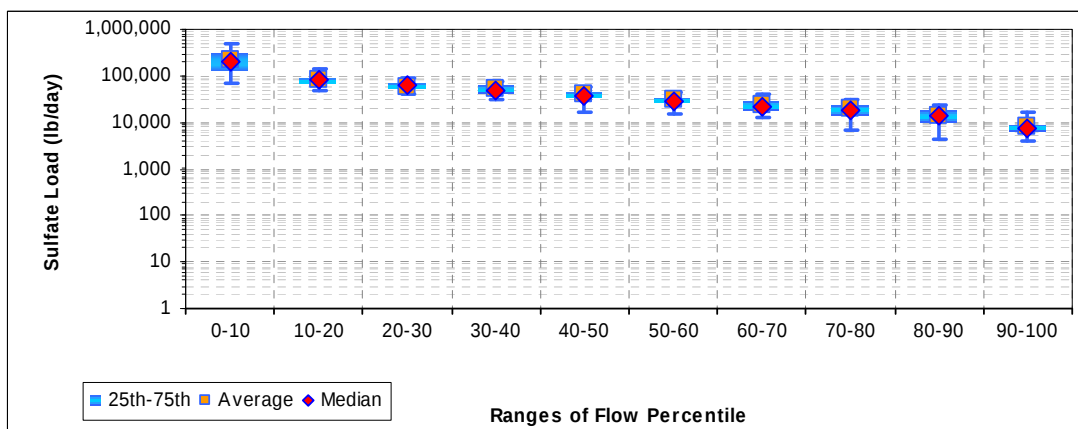


Figure J-83. Sulfate loads by flow percentile for North Prong Lostland Run (WM-64/NPL0018)

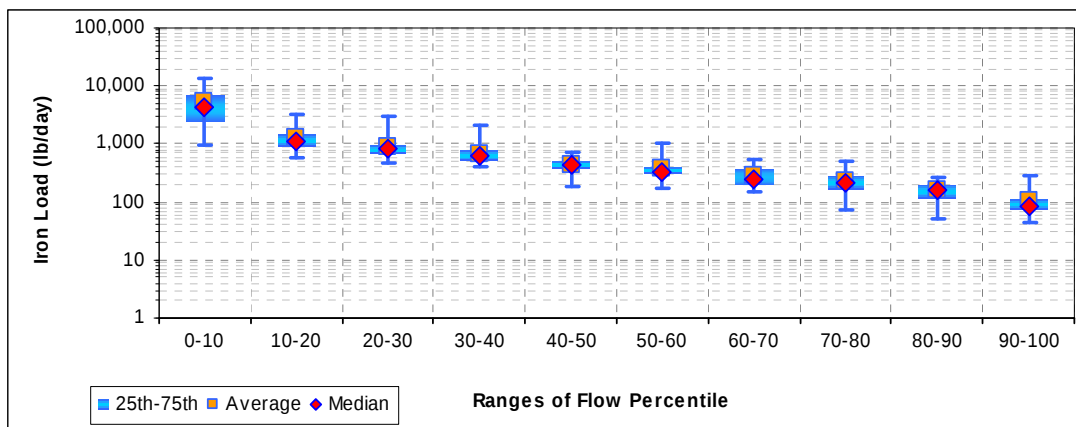


Figure J-84. Iron loads by flow percentile for North Prong Lostland Run (WM-64/NPL0018)

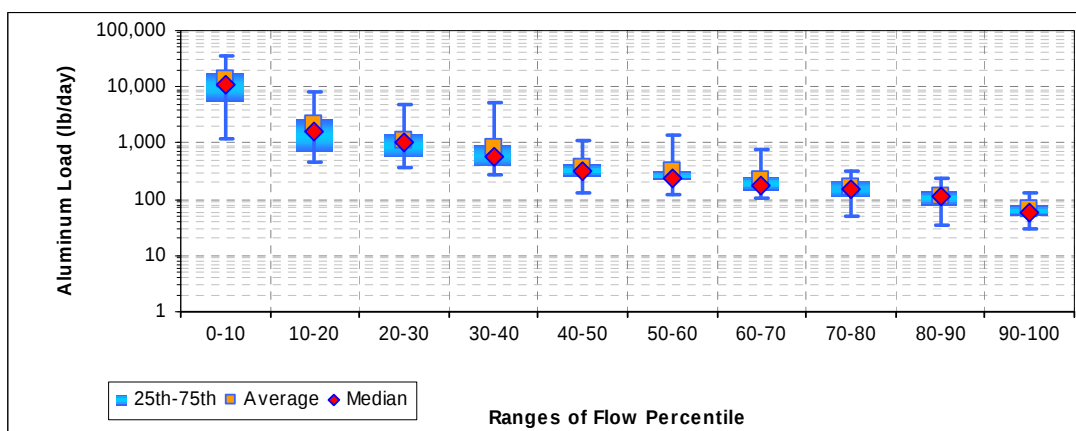


Figure J-85. Aluminum loads by flow percentile for North Prong Lostland Run (WM-64/NPL0018)

Table J-81. Ammonium loads (lb/d) by flow percentile for North Prong Lostland Run (WM-64/NPL0018)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 128.4   | 48.7    | 32.7    | 27.3  | 9.4   | 9.3   | 5.1   | 3.4   | 2.1   | 0.5    |
| Average | 1,784.4 | 367.5   | 196.6   | 141.3 | 50.7  | 50.7  | 31.6  | 24.0  | 13.8  | 7.3    |
| Maximum | 7,182.9 | 2,176.2 | 1,449.1 | 720.7 | 179.1 | 315.3 | 150.4 | 72.2  | 42.2  | 50.9   |
| Median  | 1,411.7 | 184.2   | 141.1   | 81.7  | 38.0  | 30.3  | 16.6  | 17.2  | 11.9  | 4.6    |
| 25th    | 803.4   | 100.5   | 67.2    | 48.3  | 24.8  | 19.1  | 10.9  | 8.9   | 5.1   | 1.9    |
| 75th    | 2,103.5 | 444.5   | 252.4   | 147.8 | 63.4  | 51.2  | 42.5  | 34.2  | 20.6  | 8.3    |

Table J-82. Nitrate loads (lbs/d) by flow percentile for North Prong Lostland Run (WM-64/NPL0018)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|---------|---------|-------|-------|--------|
| Minimum | 700.6    | 307.0   | 208.7   | 117.0   | 75.3  | 29.2    | 15.6    | 10.4  | 7.5   | 1.5    |
| Average | 9,518.6  | 1,954.9 | 1,006.5 | 817.7   | 290.5 | 311.4   | 225.8   | 199.7 | 73.2  | 44.6   |
| Maximum | 23,973.9 | 6,757.0 | 3,379.6 | 3,230.0 | 869.1 | 1,584.8 | 1,001.2 | 936.2 | 403.9 | 329.7  |
| Median  | 7,930.2  | 1,542.8 | 923.4   | 553.6   | 231.3 | 182.8   | 103.7   | 126.7 | 52.8  | 14.9   |
| 25th    | 4,859.9  | 722.7   | 503.7   | 360.3   | 129.2 | 88.7    | 56.1    | 41.8  | 23.0  | 5.8    |
| 75th    | 13,049.0 | 2,829.9 | 1,370.8 | 770.8   | 409.0 | 307.7   | 305.0   | 266.4 | 87.2  | 41.3   |

Table J-83. Sulfate loads (lbs/d) by flow percentile for North Prong Lostland Run (WM-64/NPL0018)

|         | 0-10    | 10-20   | 20-30  | 30-40  | 40-50  | 50-60  | 60-70  | 70-80  | 80-90  | 90-100 |
|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| Minimum | 69,692  | 49,222  | 40,543 | 32,299 | 17,133 | 15,598 | 13,256 | 6,711  | 4,518  | 4,015  |
| Average | 219,548 | 80,142  | 59,976 | 51,126 | 38,988 | 30,255 | 23,298 | 19,209 | 13,873 | 8,203  |
| Maximum | 476,975 | 137,924 | 90,416 | 76,896 | 56,952 | 45,051 | 39,056 | 32,241 | 24,540 | 16,119 |
| Median  | 196,894 | 79,027  | 60,957 | 47,820 | 38,543 | 29,533 | 22,082 | 17,369 | 13,543 | 7,392  |
| 25th    | 133,713 | 67,241  | 52,618 | 41,726 | 33,611 | 26,626 | 18,005 | 13,743 | 9,392  | 6,332  |
| 75th    | 306,031 | 89,737  | 67,676 | 61,974 | 44,816 | 34,099 | 27,876 | 24,170 | 18,655 | 9,203  |

Table J-84. Iron loads (lbs/d) by flow percentile for North Prong Lostland Run (WM-64/NPL0018)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|---------|-------|-------|-------|--------|
| Minimum | 945.8    | 572.3   | 482.6   | 399.0   | 187.7 | 178.4   | 145.2 | 74.9  | 49.5  | 44.1   |
| Average | 5,176.9  | 1,286.3 | 873.9   | 690.6   | 446.6 | 366.6   | 286.1 | 229.2 | 156.6 | 101.7  |
| Maximum | 13,166.7 | 3,320.6 | 2,985.7 | 2,098.4 | 708.4 | 1,018.0 | 548.8 | 510.9 | 264.5 | 288.4  |
| Median  | 4,356.0  | 1,114.6 | 808.2   | 602.9   | 440.3 | 339.3   | 243.5 | 213.6 | 166.1 | 83.4   |
| 25th    | 2,367.2  | 894.4   | 674.9   | 504.7   | 385.0 | 296.6   | 200.6 | 158.9 | 109.3 | 71.8   |
| 75th    | 6,949.6  | 1,480.9 | 962.5   | 766.5   | 489.8 | 398.1   | 365.1 | 290.3 | 202.0 | 112.9  |

Table J-85. Aluminum loads (lbs/d) by flow percentile for North Prong Lostland Run (WM-64/NPL0018)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50   | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|---------|---------|-------|-------|-------|--------|
| Minimum | 1,218.1  | 467.6   | 357.4   | 274.0   | 131.0   | 120.0   | 101.3 | 51.4  | 34.5  | 30.7   |
| Average | 13,261.6 | 2,127.7 | 1,128.9 | 849.9   | 375.2   | 310.8   | 220.3 | 165.7 | 111.1 | 66.7   |
| Maximum | 34,606.4 | 8,319.6 | 4,833.5 | 5,186.1 | 1,074.9 | 1,339.6 | 760.6 | 305.3 | 234.6 | 131.2  |
| Median  | 11,170.6 | 1,550.5 | 1,017.4 | 573.8   | 315.1   | 239.4   | 169.5 | 148.9 | 110.6 | 56.3   |
| 25th    | 5,636.0  | 731.4   | 552.3   | 401.4   | 262.2   | 215.8   | 137.7 | 110.8 | 76.2  | 48.3   |
| 75th    | 18,319.6 | 2,735.0 | 1,478.7 | 922.3   | 415.6   | 319.9   | 245.1 | 213.7 | 143.3 | 77.3   |

# Laurel Run (WM-67/LRE0029) plots and tables

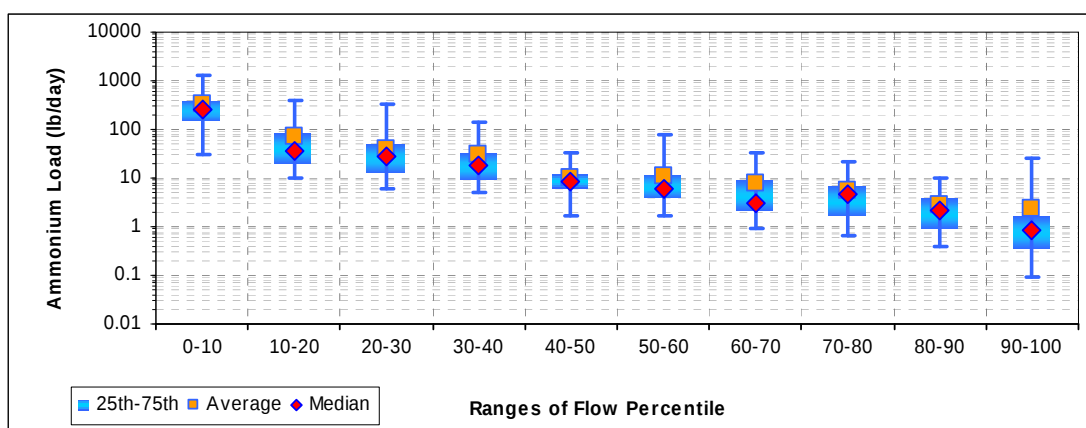


Figure J-86. Ammonium loads by flow percentile for Laurel Run (WM-67/LRE0029)

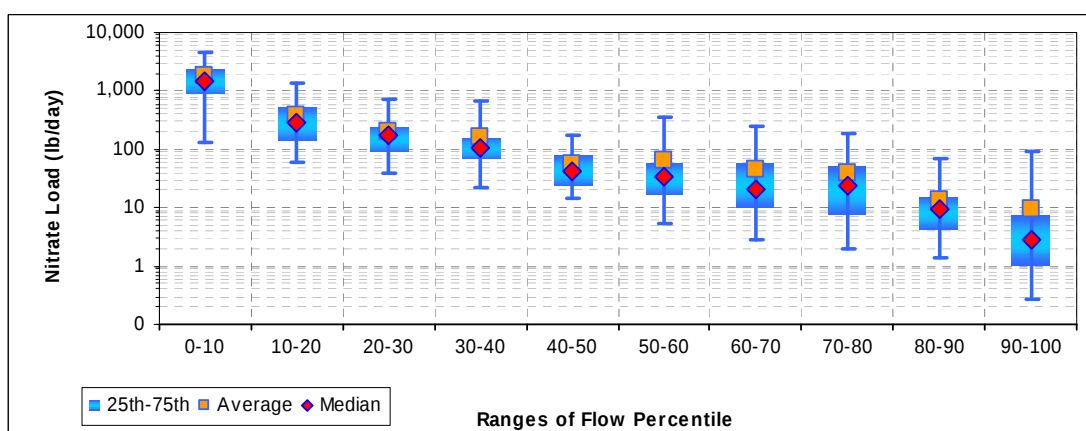


Figure J-87. Nitrate loads by flow percentile for Laurel Run (WM-67/LRE0029)

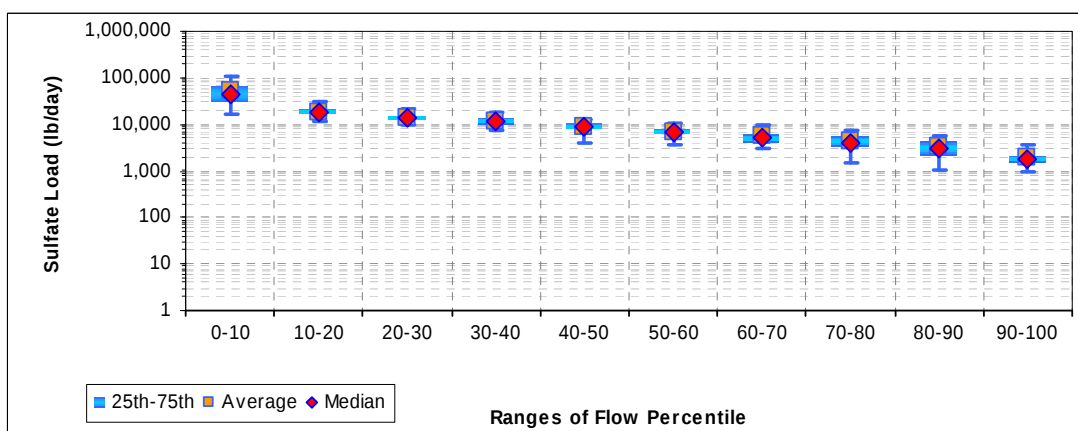


Figure J-88. Sulfate loads by flow percentile for Laurel Run (WM-67/LRE0029)

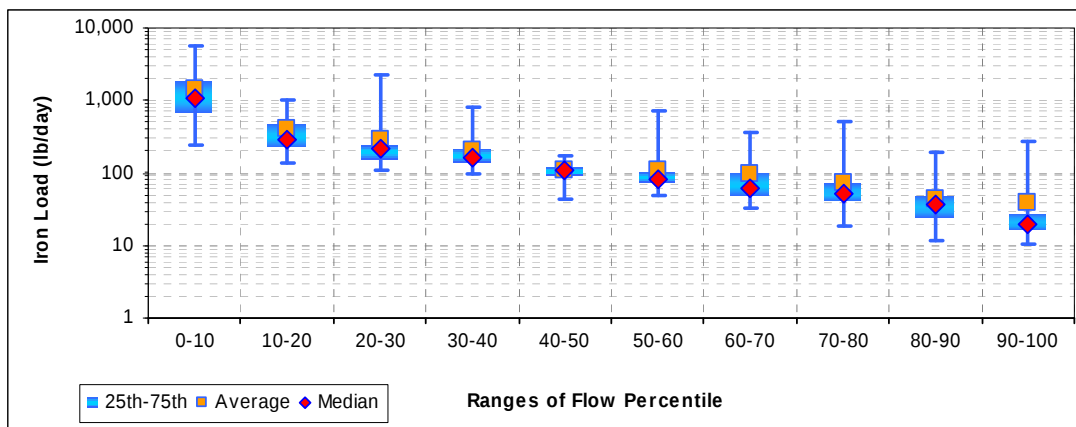


Figure J-89. Iron loads by flow percentile for Laurel Run (WM-67/LRE0029)

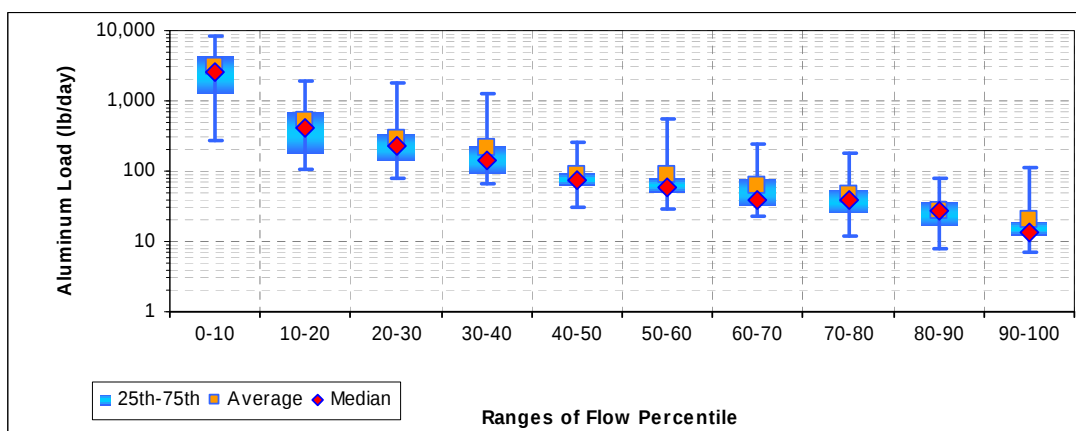


Figure J-90. Aluminum loads by flow percentile for Laurel Run (WM-67/LRE0029)

Table J-86. Ammonium loads (lb/d) by flow percentile for Laurel Run (WM-67/LRE0029)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 29.9    | 9.6   | 5.9   | 5.2   | 1.7   | 1.7   | 0.9   | 0.6   | 0.4   | 0.1    |
| Average | 334.9   | 71.1  | 40.6  | 29.1  | 10.2  | 11.1  | 7.6   | 5.6   | 2.8   | 2.4    |
| Maximum | 1,331.1 | 407.7 | 321.5 | 139.3 | 33.9  | 79.0  | 32.5  | 21.0  | 9.8   | 25.6   |
| Median  | 261.5   | 37.4  | 28.7  | 18.2  | 8.4   | 6.3   | 3.2   | 4.5   | 2.2   | 0.9    |
| 25th    | 151.6   | 19.6  | 13.2  | 9.2   | 6.0   | 3.9   | 2.1   | 1.7   | 0.9   | 0.4    |
| 75th    | 391.1   | 85.9  | 49.1  | 32.8  | 12.3  | 11.4  | 9.5   | 6.9   | 3.9   | 1.6    |

Table J-87. Nitrate loads (lbs/d) by flow percentile for Laurel Run (WM-67/LRE0029)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 130.2   | 58.2    | 39.3  | 21.9  | 14.0  | 5.4   | 2.9   | 1.9   | 1.4   | 0.3    |
| Average | 1,785.2 | 377.6   | 194.4 | 162.4 | 55.8  | 64.0  | 46.4  | 39.8  | 13.8  | 9.6    |
| Maximum | 4,493.1 | 1,348.6 | 709.5 | 671.6 | 172.6 | 350.2 | 246.7 | 188.1 | 70.0  | 92.4   |
| Median  | 1,473.5 | 290.7   | 180.1 | 107.1 | 42.5  | 33.8  | 20.6  | 24.1  | 9.7   | 2.8    |
| 25th    | 906.3   | 136.1   | 94.4  | 67.6  | 24.6  | 16.3  | 10.4  | 7.7   | 4.2   | 1.1    |
| 75th    | 2,441.9 | 533.1   | 251.7 | 166.9 | 77.9  | 58.8  | 57.9  | 50.3  | 16.0  | 7.6    |

Table J-88. Sulfate loads (lbs/d) by flow percentile for Laurel Run (WM-67/LRE0029)

|         | 0-10    | 10-20  | 20-30  | 30-40  | 40-50  | 50-60  | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|--------|--------|--------|--------|--------|-------|-------|-------|--------|
| Minimum | 15,870  | 11,149 | 9,520  | 7,295  | 3,949  | 3,599  | 3,046 | 1,552 | 1,046 | 925    |
| Average | 51,053  | 18,809 | 13,982 | 12,035 | 9,038  | 7,089  | 5,463 | 4,487 | 3,204 | 1,926  |
| Maximum | 111,509 | 31,844 | 21,308 | 18,120 | 13,112 | 10,882 | 9,364 | 7,507 | 5,691 | 3,730  |
| Median  | 45,851  | 18,720 | 14,179 | 11,508 | 8,916  | 6,767  | 5,104 | 4,006 | 3,094 | 1,708  |
| 25th    | 30,964  | 15,879 | 12,324 | 9,705  | 7,831  | 6,141  | 4,155 | 3,272 | 2,157 | 1,467  |
| 75th    | 71,623  | 21,405 | 15,541 | 14,463 | 10,297 | 7,981  | 6,466 | 5,762 | 4,329 | 2,222  |

Table J-89. Iron loads (lbs/d) by flow percentile for Laurel Run (WM-67/LRE0029)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 238.0   | 139.4   | 109.8   | 99.1  | 43.3  | 50.0  | 33.4  | 19.0  | 11.5  | 10.2   |
| Average | 1,450.0 | 394.8   | 284.4   | 207.5 | 109.3 | 111.2 | 96.9  | 74.8  | 42.8  | 38.7   |
| Maximum | 5,580.7 | 1,009.4 | 2,283.9 | 812.5 | 168.1 | 708.5 | 372.1 | 523.3 | 191.1 | 275.1  |
| Median  | 1,054.1 | 290.8   | 210.6   | 159.7 | 109.3 | 83.7  | 59.9  | 52.3  | 37.8  | 19.9   |
| 25th    | 681.7   | 226.3   | 157.3   | 135.8 | 93.6  | 72.3  | 48.2  | 41.1  | 25.1  | 16.8   |
| 75th    | 1,923.0 | 471.1   | 247.9   | 212.2 | 122.9 | 102.9 | 102.6 | 73.0  | 49.8  | 27.8   |

Table J-90. Aluminum loads (lbs/d) by flow percentile for Laurel Run (WM-67/LRE0029)

|         | 0-10    | 10-20   | 20-30   | 30-40   | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|---------|-------|-------|-------|-------|-------|--------|
| Minimum | 274.8   | 105.8   | 80.5    | 67.2    | 30.2  | 28.8  | 23.3  | 12.1  | 8.0   | 7.1    |
| Average | 3,147.7 | 526.1   | 287.3   | 216.3   | 89.5  | 87.0  | 63.8  | 46.8  | 27.6  | 20.7   |
| Maximum | 8,188.3 | 1,971.8 | 1,782.3 | 1,258.0 | 254.0 | 546.7 | 236.2 | 182.6 | 79.5  | 111.1  |
| Median  | 2,585.7 | 409.2   | 231.8   | 146.3   | 75.5  | 59.3  | 39.4  | 38.7  | 26.8  | 13.8   |
| 25th    | 1,300.2 | 183.2   | 145.9   | 96.9    | 63.9  | 50.6  | 32.7  | 25.5  | 17.5  | 11.7   |
| 75th    | 4,289.0 | 688.0   | 345.0   | 223.3   | 96.6  | 78.4  | 77.1  | 54.2  | 36.0  | 19.4   |

## Glade Run (WM-69/GLR0031) plots and tables

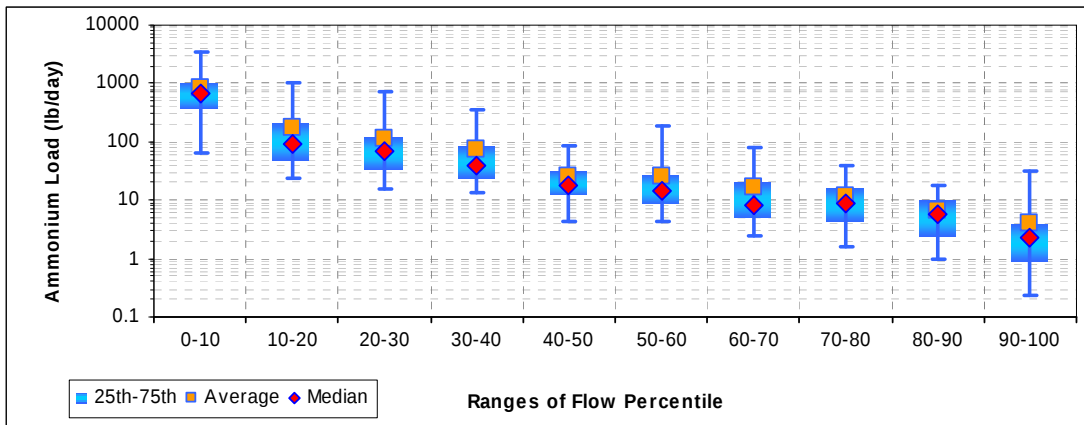


Figure J-91. Ammonium loads by flow percentile for Glade Run (WM-69/GLR0031)

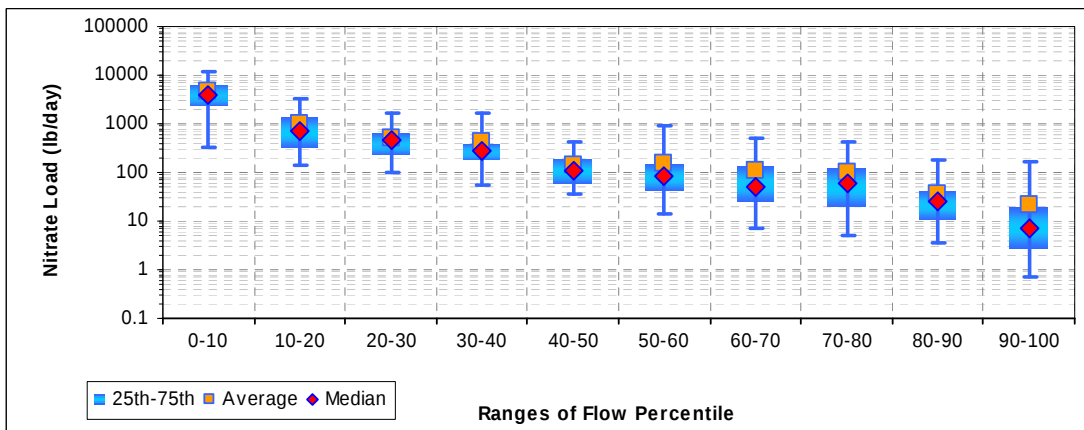


Figure J-92. Nitrate loads by flow percentile for Glade Run (WM-69/GLR0031)

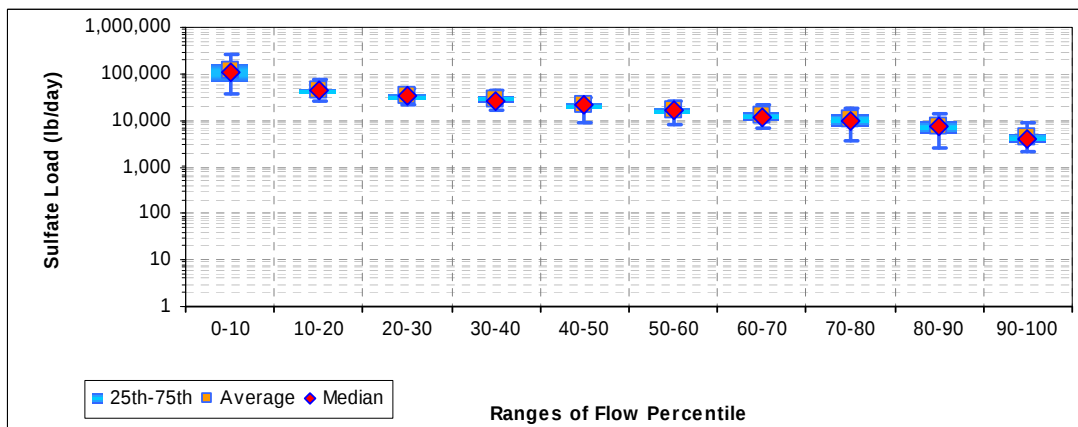


Figure J-93. Sulfate loads by flow percentile for Glade Run (WM-69/GLR0031)

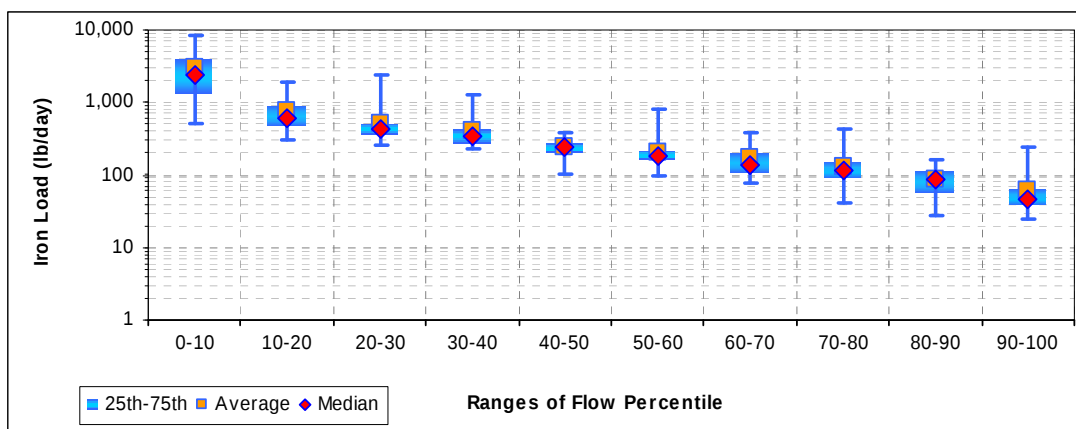


Figure J-94. Iron loads by flow percentile for Glade Run (WM-69/GLR0031)

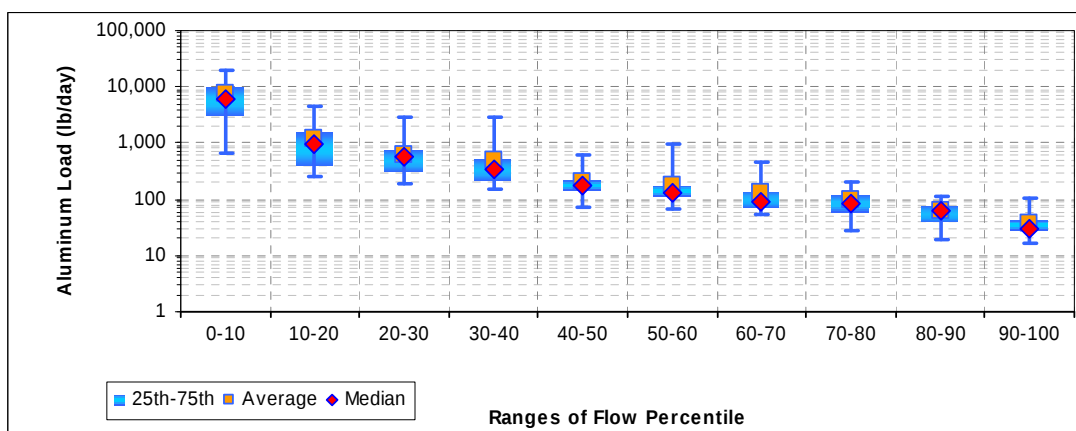


Figure J-95. Aluminum loads by flow percentile for Glade Run (WM-69/GLR0031)

Table J-91. Ammonium loads (lb/d) by flow percentile for Glade Run (WM-69/GLR0031)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 64.5    | 23.3    | 15.5  | 13.1  | 4.5   | 4.4   | 2.4   | 1.6   | 1.0   | 0.2    |
| Average | 860.5   | 180.4   | 110.3 | 72.0  | 24.9  | 25.1  | 16.2  | 12.0  | 6.6   | 4.0    |
| Maximum | 3,443.5 | 1,037.2 | 719.7 | 351.9 | 87.4  | 188.0 | 78.1  | 38.3  | 17.7  | 31.4   |
| Median  | 684.4   | 91.0    | 69.5  | 40.4  | 18.1  | 14.6  | 8.0   | 8.6   | 5.6   | 2.2    |
| 25th    | 386.3   | 48.4    | 33.0  | 23.3  | 12.5  | 9.0   | 5.1   | 4.2   | 2.4   | 0.9    |
| 75th    | 1,008.9 | 214.4   | 124.7 | 82.8  | 31.2  | 28.1  | 20.8  | 16.5  | 9.8   | 3.9    |

Table J-92. Nitrate loads (lbs/d) by flow percentile for Glade Run (WM-69/GLR0031)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|-------|-------|-------|-------|--------|
| Minimum | 334.3    | 145.9   | 100.1   | 56.1    | 36.0  | 13.8  | 7.4   | 4.9   | 3.6   | 0.7    |
| Average | 4,587.4  | 959.3   | 502.6   | 409.2   | 141.0 | 154.3 | 110.6 | 96.2  | 34.7  | 22.1   |
| Maximum | 11,576.4 | 3,340.2 | 1,657.7 | 1,630.2 | 435.1 | 883.2 | 509.1 | 444.1 | 184.0 | 172.8  |
| Median  | 3,811.5  | 740.5   | 451.5   | 273.1   | 109.4 | 84.2  | 49.5  | 59.9  | 25.0  | 7.2    |
| 25th    | 2,336.9  | 342.0   | 241.6   | 174.7   | 61.5  | 41.5  | 26.3  | 19.8  | 10.8  | 2.8    |
| 75th    | 6,314.9  | 1,358.1 | 664.6   | 407.5   | 197.3 | 148.8 | 144.4 | 126.3 | 40.9  | 19.9   |

Table J-93. Sulfate loads (lbs/d) by flow percentile for Glade Run (WM-69/GLR0031)

|         | 0-10    | 10-20  | 20-30  | 30-40  | 40-50  | 50-60  | 60-70  | 70-80  | 80-90  | 90-100 |
|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Minimum | 37,209  | 26,326 | 22,306 | 17,268 | 9,170  | 8,357  | 7,100  | 3,655  | 2,465  | 2,197  |
| Average | 119,421 | 43,734 | 32,560 | 28,185 | 21,200 | 16,446 | 12,632 | 10,416 | 7,523  | 4,497  |
| Maximum | 261,703 | 74,126 | 50,046 | 42,589 | 31,064 | 24,855 | 21,193 | 17,376 | 13,291 | 8,892  |
| Median  | 106,715 | 43,215 | 33,209 | 26,701 | 20,775 | 15,858 | 11,908 | 9,387  | 7,248  | 4,111  |
| 25th    | 71,940  | 36,870 | 28,599 | 22,842 | 18,639 | 14,388 | 9,635  | 7,517  | 5,087  | 3,460  |
| 75th    | 167,436 | 50,222 | 35,883 | 33,930 | 24,364 | 18,527 | 15,045 | 13,432 | 10,122 | 5,084  |

Table J-94. Iron loads (lbs/d) by flow percentile for Glade Run (WM-69/GLR0031)

|         | 0-10    | 10-20   | 20-30   | 30-40   | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|---------|-------|-------|-------|-------|-------|--------|
| Minimum | 514.5   | 310.3   | 259.8   | 232.2   | 100.4 | 99.1  | 77.8  | 41.4  | 27.0  | 24.1   |
| Average | 2,950.6 | 744.0   | 508.4   | 402.0   | 245.6 | 210.4 | 167.4 | 132.8 | 87.5  | 61.5   |
| Maximum | 8,555.8 | 1,909.7 | 2,342.7 | 1,287.6 | 387.9 | 788.0 | 393.6 | 433.7 | 161.5 | 239.2  |
| Median  | 2,391.9 | 608.9   | 442.5   | 342.0   | 241.8 | 184.1 | 134.9 | 115.4 | 88.4  | 46.3   |
| 25th    | 1,350.5 | 494.5   | 366.9   | 278.4   | 208.9 | 165.0 | 112.0 | 89.7  | 59.1  | 39.7   |
| 75th    | 3,910.3 | 889.9   | 524.1   | 439.7   | 272.1 | 218.2 | 208.7 | 157.1 | 112.6 | 65.5   |

Table J-95. Aluminum loads (lbs/d) by flow percentile for Glade Run (WM-69/GLR0031)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|-------|-------|-------|-------|--------|
| Minimum | 661.8    | 251.8   | 192.9   | 156.3   | 70.2  | 64.7  | 54.2  | 28.1  | 18.8  | 16.8   |
| Average | 7,332.1  | 1,198.0 | 628.9   | 488.8   | 207.7 | 179.4 | 126.7 | 93.9  | 60.8  | 38.5   |
| Maximum | 19,191.8 | 4,525.7 | 2,938.1 | 2,903.2 | 597.6 | 957.4 | 462.3 | 200.6 | 113.9 | 102.3  |
| Median  | 6,152.0  | 923.6   | 568.0   | 334.7   | 172.7 | 134.5 | 90.9  | 83.2  | 61.8  | 30.8   |
| 25th    | 3,114.3  | 401.6   | 312.2   | 222.6   | 145.7 | 116.5 | 73.8  | 59.6  | 41.2  | 27.6   |
| 75th    | 10,156.3 | 1,618.9 | 792.3   | 521.7   | 225.2 | 173.5 | 135.6 | 121.9 | 79.4  | 42.1   |

## UT to Savage River above Aaron Run (WM-72/ZWV0001) plots and tables

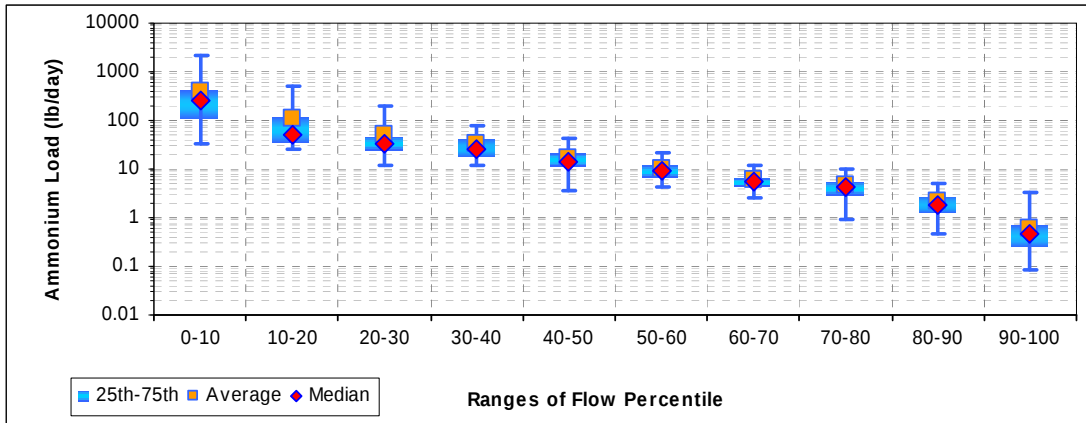


Figure J-96. Ammonium loads by flow percentile for UT to Savage River above Aaron Run (WM-72/ZWV0001)

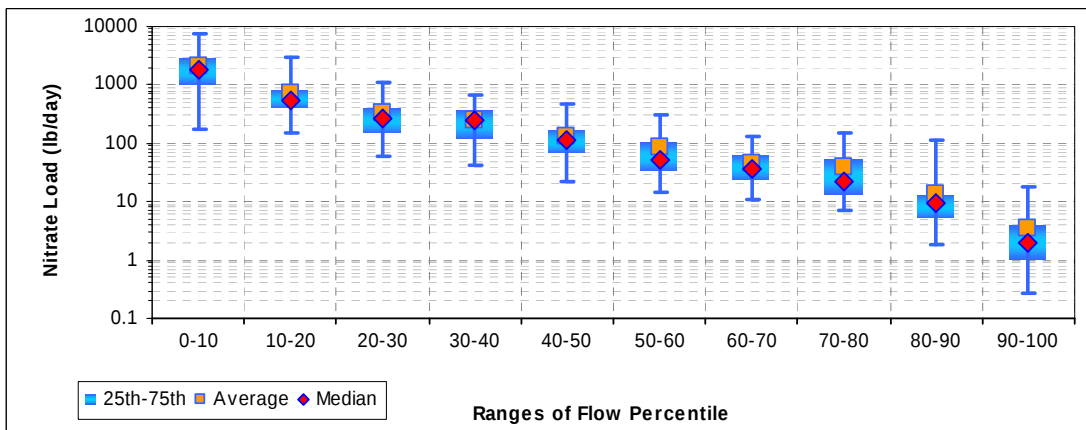


Figure J-97. Nitrate loads by flow percentile for UT to Savage River above Aaron Run (WM-72/ZWV0001)

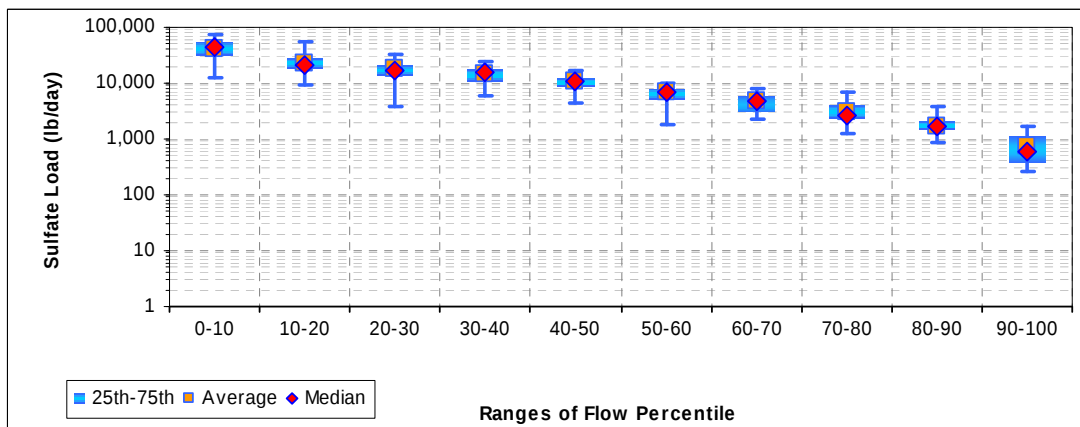


Figure J-98. Sulfate loads by flow percentile for UT to Savage River above Aaron Run (WM-72/ZWV0001)

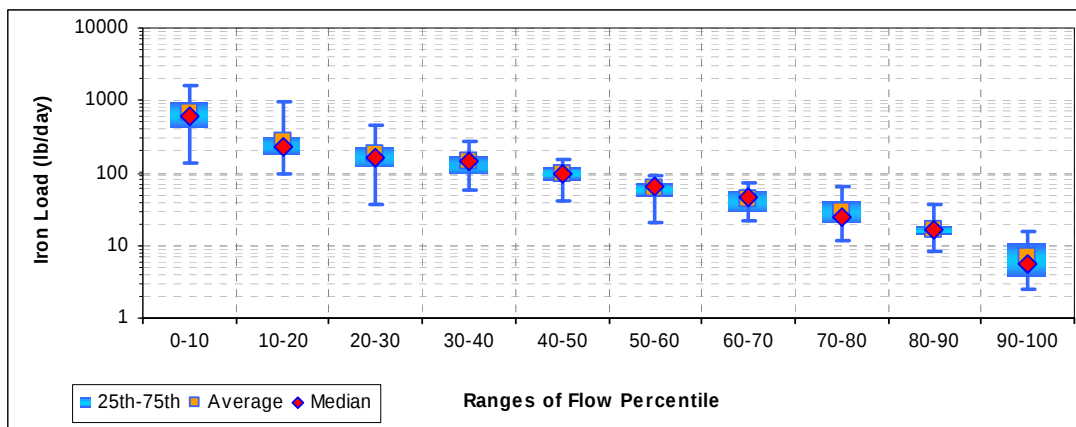


Figure J-99. Iron loads by flow percentile for UT to Savage River above Aaron Run (WM-72/ZWV0001)

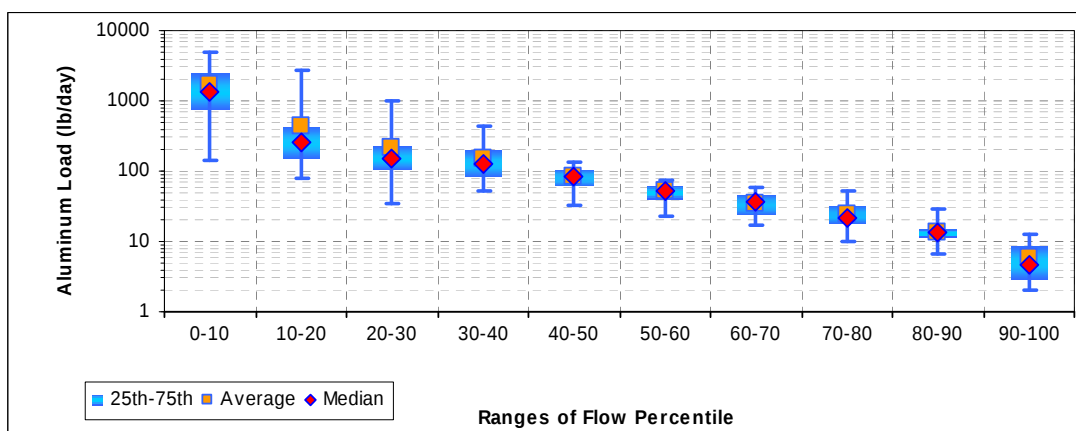


Figure J-100. Aluminum loads by flow percentile for UT to Savage River above Aaron Run (WM-72/ZWV0001)

Table J-96. Ammonium loads (lb/d) by flow percentile for UT to Savage River above Aaron Run (WM-72/ZWV0

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 33.7    | 26.0  | 11.4  | 11.7  | 3.6   | 4.2   | 2.6   | 0.9   | 0.5   | 0.1    |
| Average | 381.1   | 109.9 | 48.8  | 32.4  | 17.0  | 9.7   | 5.8   | 4.5   | 2.1   | 0.6    |
| Maximum | 2,123.9 | 523.1 | 191.8 | 76.6  | 44.1  | 21.3  | 12.2  | 10.0  | 4.9   | 3.3    |
| Median  | 258.8   | 51.0  | 33.7  | 25.0  | 14.0  | 9.2   | 5.3   | 4.2   | 1.9   | 0.5    |
| 25th    | 113.4   | 35.5  | 24.4  | 17.6  | 11.2  | 6.5   | 4.2   | 2.8   | 1.2   | 0.3    |
| 75th    | 438.7   | 113.8 | 46.3  | 41.8  | 21.4  | 12.3  | 6.8   | 5.5   | 2.9   | 0.7    |

Table J-97. Nitrate loads (lbs/d) by flow percentile for UT to Savage River above Aaron Run (WM-72/ZWV0001

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 169.5   | 154.1   | 60.4    | 41.6  | 22.0  | 14.7  | 10.6  | 7.0   | 1.9   | 0.3    |
| Average | 2,142.5 | 721.5   | 340.0   | 254.4 | 131.0 | 85.6  | 46.3  | 38.7  | 13.7  | 3.5    |
| Maximum | 7,406.4 | 2,968.9 | 1,121.4 | 664.2 | 454.9 | 315.3 | 133.3 | 151.8 | 116.9 | 17.3   |
| Median  | 1,778.0 | 534.0   | 266.0   | 255.2 | 111.0 | 53.3  | 36.9  | 22.7  | 9.1   | 1.9    |
| 25th    | 1,059.5 | 403.5   | 153.4   | 123.3 | 70.6  | 35.0  | 23.8  | 13.7  | 5.4   | 1.0    |
| 75th    | 2,947.6 | 859.7   | 405.8   | 371.6 | 173.0 | 104.4 | 64.4  | 54.8  | 13.2  | 4.1    |

Table J-98. Sulfate loads (lbs/d) by flow percentile for UT to Savage River above Aaron Run (WM-72/ZWV0001

|         | 0-10   | 10-20  | 20-30  | 30-40  | 40-50  | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|--------|--------|--------|-------|-------|-------|-------|--------|
| Minimum | 12,138 | 9,601  | 3,858  | 6,094  | 4,310  | 1,755 | 2,321 | 1,283 | 866   | 265    |
| Average | 42,452 | 23,177 | 17,620 | 14,444 | 10,477 | 6,649 | 4,638 | 3,137 | 1,740 | 758    |
| Maximum | 75,695 | 54,638 | 33,541 | 24,130 | 16,210 | 9,954 | 7,815 | 6,793 | 3,815 | 1,630  |
| Median  | 42,966 | 21,541 | 17,216 | 15,209 | 10,646 | 7,022 | 4,783 | 2,605 | 1,740 | 599    |
| 25th    | 30,542 | 17,550 | 13,404 | 10,431 | 8,387  | 5,016 | 3,078 | 2,243 | 1,474 | 392    |
| 75th    | 55,429 | 28,103 | 21,541 | 17,566 | 12,923 | 8,008 | 6,168 | 4,238 | 2,031 | 1,170  |

Table J-99. Iron loads (lbs/d) by flow percentile for UT to Savage River above Aaron Run (WM-72/ZWV0001)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 139.1   | 97.2  | 37.3  | 58.9  | 40.4  | 21.3  | 21.4  | 12.0  | 8.1   | 2.5    |
| Average | 678.0   | 269.4 | 182.3 | 144.3 | 98.9  | 62.4  | 43.4  | 29.4  | 16.2  | 7.1    |
| Maximum | 1,586.0 | 967.9 | 467.7 | 273.4 | 153.2 | 94.2  | 73.3  | 63.5  | 36.1  | 15.2   |
| Median  | 615.5   | 225.8 | 164.0 | 149.2 | 99.7  | 66.1  | 44.9  | 24.3  | 16.1  | 5.6    |
| 25th    | 430.3   | 178.5 | 125.6 | 98.4  | 79.0  | 46.4  | 28.7  | 20.7  | 13.7  | 3.6    |
| 75th    | 960.2   | 314.5 | 229.4 | 172.6 | 122.2 | 75.0  | 57.7  | 40.1  | 18.8  | 10.8   |

Table J-100. Aluminum loads (lbs/d) by flow percentile for UT to Savage River above Aaron Run (WM-72/ZWV

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 140.0   | 79.9    | 34.5    | 51.0  | 32.8  | 23.1  | 17.4  | 9.8   | 6.6   | 2.0    |
| Average | 1,692.1 | 440.2   | 220.3   | 153.5 | 83.7  | 51.9  | 35.5  | 24.4  | 13.3  | 5.8    |
| Maximum | 5,033.3 | 2,711.0 | 1,023.8 | 431.9 | 137.4 | 76.6  | 59.6  | 51.7  | 29.4  | 12.4   |
| Median  | 1,356.5 | 261.3   | 152.5   | 129.2 | 81.8  | 53.8  | 36.6  | 21.1  | 13.2  | 4.5    |
| 25th    | 759.5   | 154.0   | 107.1   | 81.7  | 64.2  | 38.6  | 24.0  | 17.8  | 11.1  | 3.0    |
| 75th    | 2,605.5 | 428.8   | 234.3   | 203.1 | 104.4 | 61.1  | 47.1  | 32.6  | 15.5  | 8.8    |

### Aaron Run (WM-73/AAR0000) plots and tables

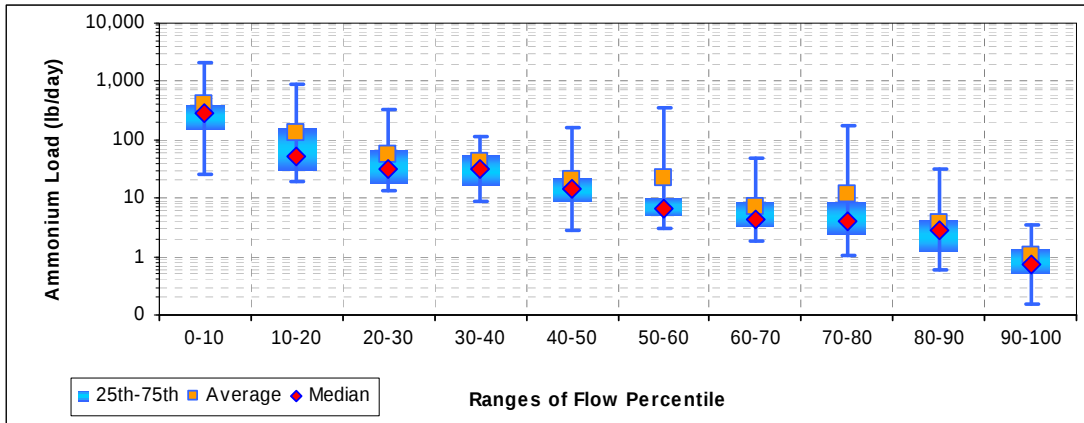


Figure J-101. Ammonium loads by flow percentile for Aaron Run (AAR0000/WM-73)

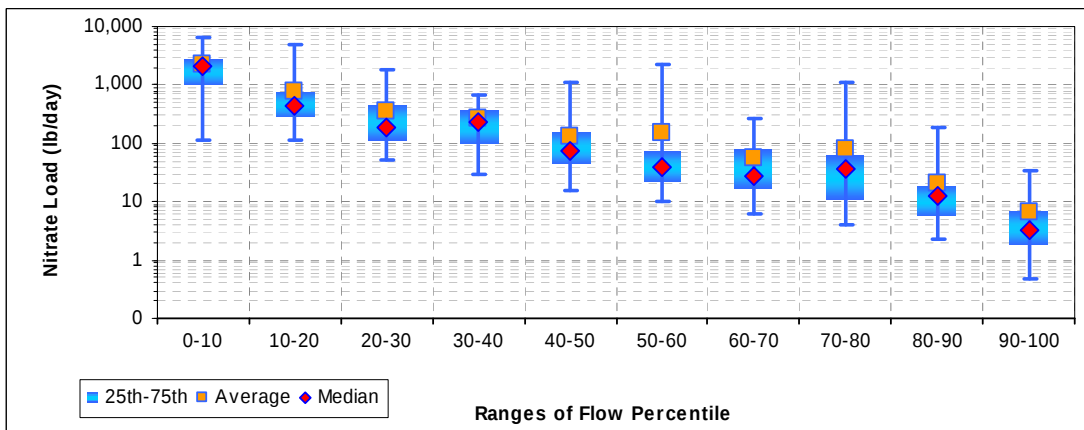


Figure J-102. Nitrate loads by flow percentile for Aaron Run (AAR0000/WM-73)

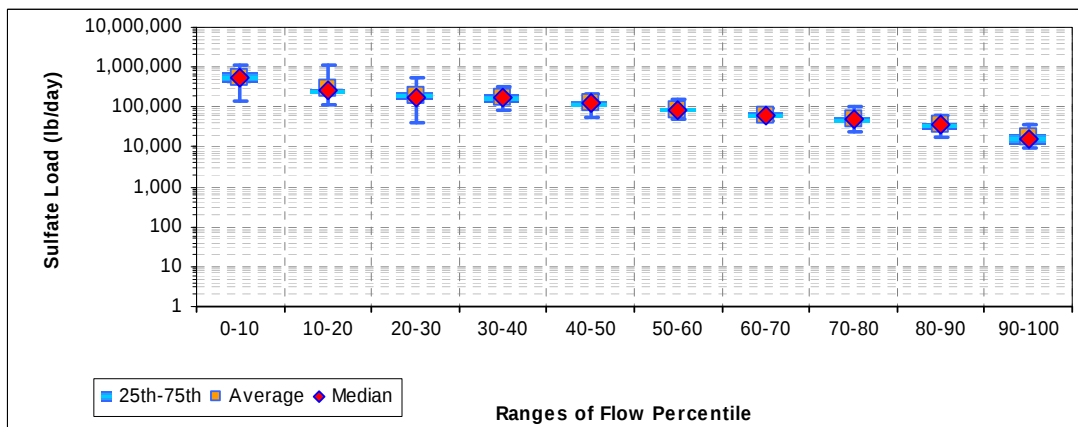


Figure J-103. Sulfate loads by flow percentile for Aaron Run (AAR0000/WM-73)

\*\* These plots include upstream loads from UT to Aaron Run (WM-78/ZWA0000).

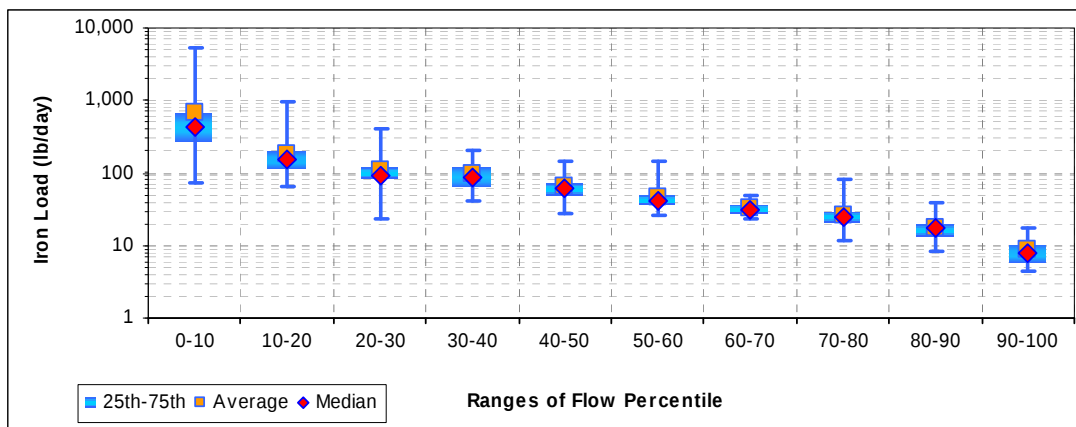


Figure J-104. Iron loads by flow percentile for Aaron Run (AAR0000/WM-73)

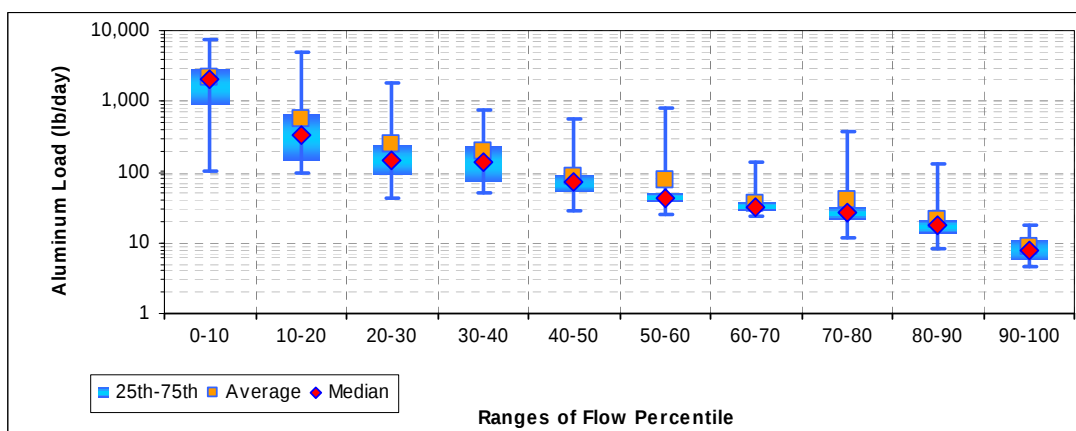


Figure J-105. Aluminum loads by flow percentile for Aaron Run (AAR0000/WM-73)

\*\* These plots include upstream loads from UT to Aaron Run (WM-78/ZWA0000).

Table J-101. Ammonium loads (lb/d) by flow percentile for Aaron Run (AAR0000/WM-73)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 24.8    | 19.5  | 13.0  | 8.7   | 2.7   | 3.0   | 1.8   | 1.0   | 0.6   | 0.1    |
| Average | 404.3   | 127.6 | 56.2  | 41.2  | 20.6  | 21.9  | 7.4   | 11.3  | 3.8   | 1.0    |
| Maximum | 2,053.4 | 903.6 | 339.7 | 116.3 | 158.7 | 343.7 | 49.6  | 168.3 | 31.8  | 3.5    |
| Median  | 290.8   | 53.6  | 32.7  | 30.8  | 14.5  | 6.8   | 4.2   | 4.1   | 2.7   | 0.7    |
| 25th    | 146.2   | 29.9  | 18.1  | 16.5  | 8.7   | 4.9   | 3.2   | 2.4   | 1.2   | 0.5    |
| 75th    | 412.1   | 162.2 | 68.6  | 55.1  | 21.4  | 10.4  | 9.0   | 8.5   | 4.4   | 1.3    |

Table J-102. Nitrate loads (lbs/d) by flow percentile for Aaron Run (AAR0000/WM-73)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50   | 50-60   | 60-70 | 70-80   | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|---------|---------|-------|---------|-------|--------|
| Minimum | 110.1   | 116.5   | 51.6    | 30.4  | 16.0    | 10.1    | 6.0   | 4.1     | 2.3   | 0.5    |
| Average | 2,192.1 | 756.6   | 346.7   | 264.0 | 133.7   | 150.0   | 55.9  | 81.0    | 21.1  | 6.5    |
| Maximum | 6,489.5 | 4,805.1 | 1,856.3 | 676.7 | 1,116.0 | 2,250.1 | 273.8 | 1,141.7 | 192.1 | 34.2   |
| Median  | 2,084.5 | 450.0   | 192.8   | 228.1 | 74.6    | 40.0    | 27.4  | 36.6    | 12.9  | 3.2    |
| 25th    | 1,016.3 | 283.0   | 112.2   | 97.3  | 45.1    | 21.8    | 16.7  | 10.7    | 5.8   | 1.8    |
| 75th    | 2,872.4 | 756.7   | 480.0   | 369.4 | 165.5   | 76.8    | 80.0  | 66.2    | 18.6  | 7.0    |

Table J-103. Sulfate loads (lbs/d) by flow percentile for Aaron Run (AAR0000/WM-73)

|         | 0-10      | 10-20     | 20-30   | 30-40   | 40-50   | 50-60   | 60-70  | 70-80   | 80-90  | 90-100 |
|---------|-----------|-----------|---------|---------|---------|---------|--------|---------|--------|--------|
| Minimum | 144,577   | 119,708   | 41,066  | 82,180  | 55,793  | 51,970  | 47,226 | 23,311  | 17,095 | 9,176  |
| Average | 557,132   | 285,380   | 201,046 | 177,611 | 124,875 | 86,770  | 64,516 | 51,956  | 35,015 | 17,572 |
| Maximum | 1,074,311 | 1,081,690 | 548,013 | 326,367 | 206,455 | 161,692 | 97,209 | 105,303 | 60,543 | 34,967 |
| Median  | 523,728   | 270,956   | 181,392 | 167,506 | 121,807 | 85,490  | 62,484 | 50,969  | 35,378 | 15,962 |
| 25th    | 413,922   | 212,201   | 163,522 | 128,869 | 101,661 | 74,785  | 56,382 | 40,818  | 26,959 | 12,015 |
| 75th    | 729,664   | 304,449   | 240,799 | 215,403 | 146,718 | 94,752  | 73,204 | 58,006  | 41,008 | 21,045 |

Table J-104. Iron loads (lbs/d) by flow percentile for Aaron Run (AAR0000/WM-73)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 74.5    | 64.2  | 23.1  | 42.3  | 27.3  | 25.4  | 23.1  | 11.4  | 8.4   | 4.5    |
| Average | 673.2   | 182.3 | 111.5 | 96.8  | 63.5  | 45.4  | 32.0  | 26.8  | 17.5  | 8.6    |
| Maximum | 5,370.7 | 951.5 | 407.9 | 210.0 | 141.9 | 144.0 | 49.2  | 82.0  | 39.3  | 17.1   |
| Median  | 438.5   | 151.9 | 93.1  | 86.0  | 60.5  | 42.1  | 30.6  | 25.0  | 17.5  | 7.8    |
| 25th    | 266.6   | 113.6 | 82.3  | 65.7  | 49.9  | 36.8  | 27.6  | 20.7  | 13.2  | 5.9    |
| 75th    | 674.0   | 207.4 | 122.8 | 122.1 | 72.0  | 48.8  | 35.9  | 28.5  | 20.1  | 10.3   |

Table J-105. Aluminum loads (lbs/d) by flow percentile for Aaron Run (AAR0000/WM-73)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 103.8   | 94.6    | 43.8    | 51.9  | 27.5  | 25.6  | 23.3  | 11.5  | 8.4   | 4.6    |
| Average | 2,163.1 | 574.5   | 245.3   | 193.1 | 88.7  | 75.1  | 36.5  | 40.1  | 21.0  | 8.8    |
| Maximum | 7,443.2 | 4,947.4 | 1,822.0 | 775.9 | 555.5 | 782.7 | 135.9 | 381.8 | 127.3 | 17.2   |
| Median  | 2,096.2 | 324.5   | 145.2   | 138.3 | 71.4  | 43.9  | 32.1  | 26.0  | 17.6  | 7.9    |
| 25th    | 903.1   | 147.8   | 93.8    | 72.9  | 54.8  | 37.3  | 27.8  | 21.3  | 13.3  | 5.9    |
| 75th    | 2,922.7 | 692.3   | 249.3   | 231.2 | 91.4  | 50.7  | 37.6  | 32.1  | 21.2  | 11.2   |

\*\* These tables include upstream loads from UT to Aaron Run (WM-78/ZWA0000).

Pine Swamp Run (WM-77/PYS0024) plots and tables

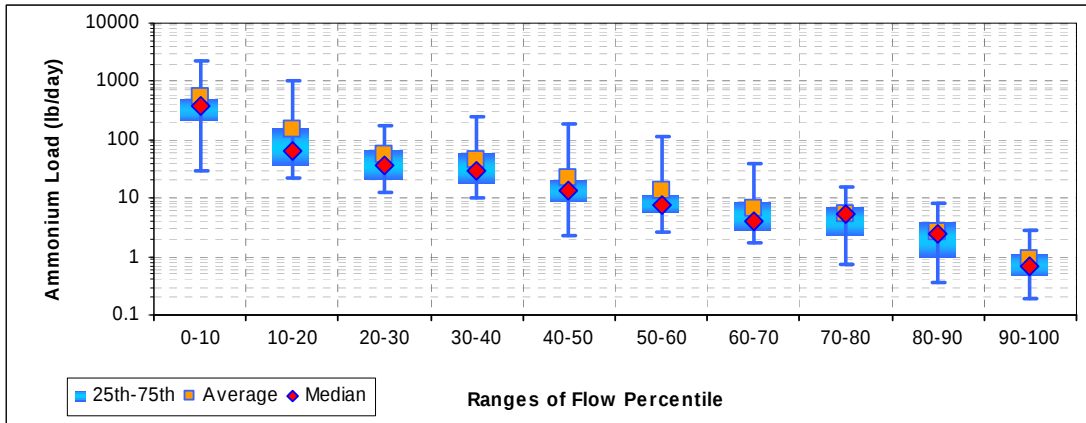


Figure J-106. Ammonium loads by flow percentile for Pine Swamp Run (PYS0024/WM-77)

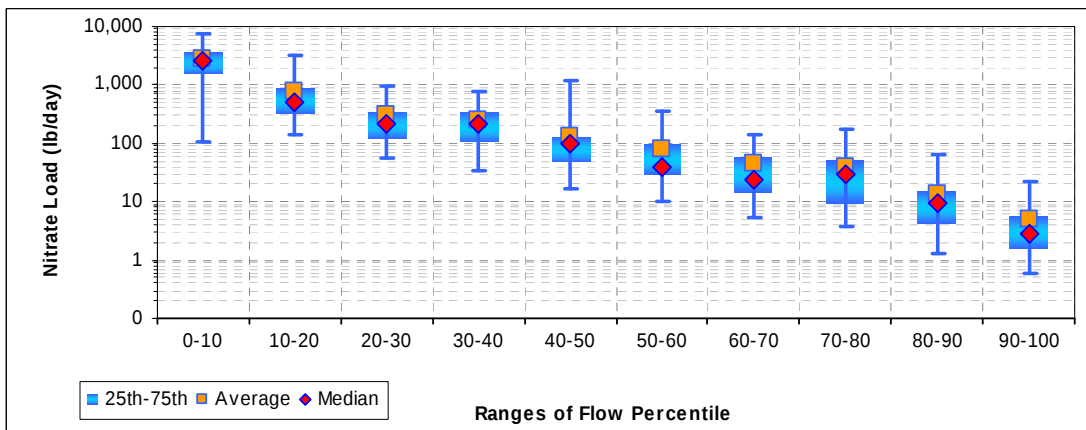


Figure J-107. Nitrate loads by flow percentile for Pine Swamp Run (PYS0024/WM-77)

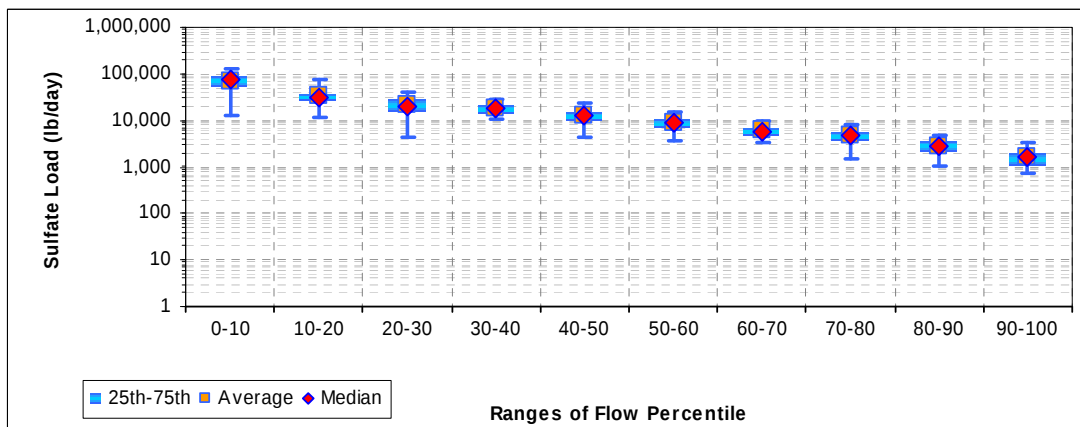


Figure J-108. Sulfate loads by flow percentile for Pine Swamp Run (PYS0024/WM-77)

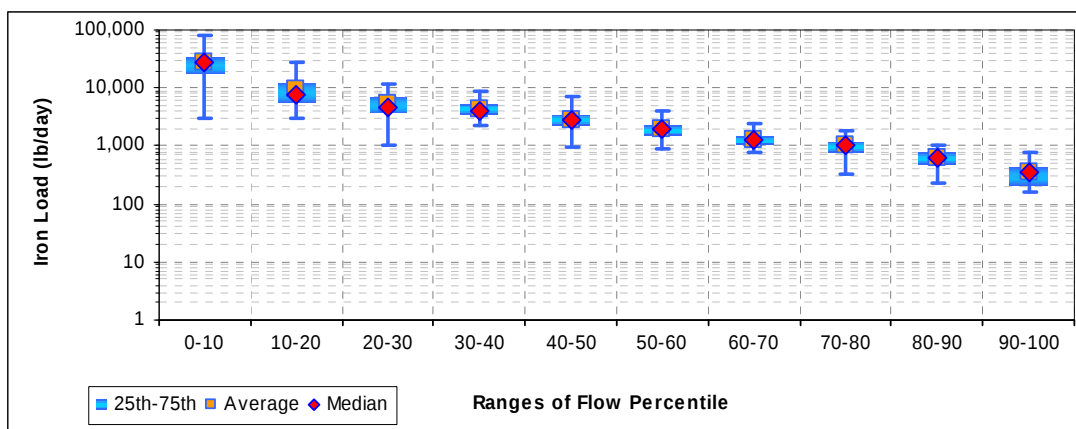


Figure J-109. Iron loads by flow percentile for Pine Swamp Run (PYS0024/WM-77)

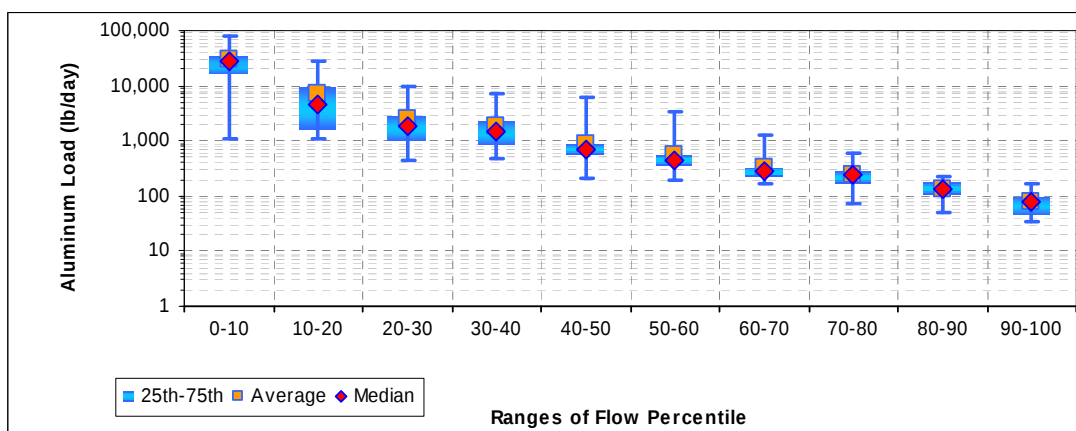


Figure J-110. Aluminum loads by flow percentile for Pine Swamp Run (PYS0024/WM-77)

Table J-106. Ammonium loads (lb/d) by flow percentile for Pine Swamp Run (PYS0024/WM-77)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 28.7    | 21.9  | 12.4  | 10.0  | 2.4   | 2.7   | 1.7   | 0.7   | 0.4   | 0.2    |
| Average | 523.8   | 145.8 | 55.1  | 45.7  | 21.6  | 13.1  | 6.6   | 5.3   | 2.6   | 0.9    |
| Maximum | 2,265.0 | 994.6 | 178.3 | 242.8 | 181.0 | 112.7 | 38.5  | 16.0  | 8.1   | 2.8    |
| Median  | 374.4   | 65.2  | 37.1  | 30.5  | 13.9  | 7.8   | 4.1   | 5.3   | 2.4   | 0.7    |
| 25th    | 216.9   | 37.5  | 21.1  | 17.7  | 8.8   | 5.6   | 2.9   | 2.3   | 1.0   | 0.5    |
| 75th    | 499.1   | 161.0 | 68.0  | 58.7  | 20.7  | 11.6  | 8.9   | 7.0   | 4.0   | 1.1    |

Table J-107. Nitrate loads (lbs/d) by flow percentile for Pine Swamp Run (PYS0024/WM-77)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50   | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|---------|-------|-------|-------|-------|--------|
| Minimum | 102.3   | 137.1   | 54.7  | 34.7  | 17.1    | 10.3  | 5.5   | 3.7   | 1.3   | 0.6    |
| Average | 2,750.0 | 777.4   | 304.5 | 245.0 | 134.0   | 81.6  | 43.6  | 40.3  | 13.6  | 5.0    |
| Maximum | 7,326.3 | 3,100.4 | 944.2 | 763.4 | 1,228.6 | 349.3 | 140.4 | 178.0 | 63.9  | 21.8   |
| Median  | 2,520.8 | 502.4   | 221.7 | 220.1 | 96.3    | 40.5  | 23.4  | 30.4  | 9.8   | 2.9    |
| 25th    | 1,588.4 | 327.3   | 118.8 | 105.1 | 49.8    | 30.3  | 14.7  | 9.4   | 4.3   | 1.6    |
| 75th    | 3,629.6 | 898.9   | 345.3 | 342.7 | 134.4   | 95.8  | 59.3  | 53.7  | 15.3  | 5.6    |

Table J-108. Sulfate loads (lbs/d) by flow percentile for Pine Swamp Run (PYS0024/WM-77)

|         | 0-10    | 10-20  | 20-30  | 30-40  | 40-50  | 50-60  | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|--------|--------|--------|--------|--------|-------|-------|-------|--------|
| Minimum | 13,209  | 11,264 | 4,168  | 10,477 | 4,473  | 3,711  | 3,476 | 1,535 | 1,044 | 739    |
| Average | 69,550  | 33,647 | 21,835 | 17,948 | 12,718 | 8,741  | 5,970 | 4,563 | 2,838 | 1,679  |
| Maximum | 128,810 | 76,631 | 39,585 | 28,587 | 23,679 | 14,960 | 9,735 | 8,065 | 4,891 | 3,459  |
| Median  | 72,162  | 29,912 | 20,469 | 18,072 | 12,504 | 8,692  | 5,757 | 4,573 | 2,887 | 1,636  |
| 25th    | 51,786  | 24,874 | 14,934 | 13,769 | 9,815  | 6,944  | 4,819 | 3,526 | 2,155 | 1,018  |
| 75th    | 89,130  | 38,183 | 27,390 | 21,321 | 15,358 | 10,399 | 6,987 | 5,519 | 3,549 | 2,022  |

Table J-109. Iron loads (lbs/d) by flow percentile for Pine Swamp Run (PYS0024/WM-77)

|         | 0-10     | 10-20    | 20-30    | 30-40   | 40-50   | 50-60   | 60-70   | 70-80   | 80-90   | 90-100 |
|---------|----------|----------|----------|---------|---------|---------|---------|---------|---------|--------|
| Minimum | 3,096.3  | 3,057.7  | 1,035.4  | 2,255.5 | 977.8   | 901.0   | 759.8   | 335.7   | 228.4   | 159.8  |
| Average | 27,407.7 | 9,706.1  | 5,414.5  | 4,338.8 | 2,878.4 | 1,962.4 | 1,315.7 | 1,000.0 | 615.6   | 364.2  |
| Maximum | 79,541.2 | 26,823.9 | 11,863.0 | 8,779.2 | 7,221.9 | 4,060.3 | 2,449.7 | 1,858.7 | 1,054.1 | 747.8  |
| Median  | 27,098.2 | 7,406.6  | 4,655.6  | 4,061.7 | 2,742.7 | 1,908.7 | 1,253.0 | 997.7   | 624.4   | 357.2  |
| 25th    | 17,517.3 | 5,743.4  | 3,634.3  | 3,427.9 | 2,195.0 | 1,515.5 | 1,051.2 | 766.5   | 470.1   | 220.3  |
| 75th    | 33,032.9 | 12,147.4 | 7,003.6  | 5,302.9 | 3,371.8 | 2,288.5 | 1,511.0 | 1,188.0 | 765.6   | 439.1  |

Table J-110. Aluminum loads (lbs/d) by flow percentile for Pine Swamp Run (PYS0024/WM-77)

|         | 0-10     | 10-20    | 20-30   | 30-40   | 40-50   | 50-60   | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|----------|----------|---------|---------|---------|---------|---------|-------|-------|--------|
| Minimum | 1,110.0  | 1,061.7  | 458.8   | 496.4   | 213.4   | 196.6   | 165.8   | 73.3  | 49.9  | 34.9   |
| Average | 28,918.6 | 7,219.5  | 2,591.2 | 1,866.4 | 865.6   | 552.1   | 320.3   | 236.9 | 136.6 | 79.6   |
| Maximum | 78,897.2 | 28,762.6 | 9,864.9 | 7,389.4 | 6,156.7 | 3,271.1 | 1,250.1 | 620.3 | 230.0 | 163.2  |
| Median  | 28,501.1 | 4,438.8  | 1,891.7 | 1,433.1 | 673.3   | 433.2   | 286.4   | 245.0 | 136.3 | 78.0   |
| 25th    | 16,253.7 | 1,547.7  | 1,016.0 | 879.6   | 557.4   | 350.7   | 229.4   | 167.3 | 102.6 | 48.1   |
| 75th    | 35,604.8 | 9,533.2  | 2,949.0 | 2,338.8 | 849.2   | 551.5   | 337.2   | 278.8 | 173.9 | 95.8   |

## UT to Aaron Run (WM-78/ZWA0000) plots and tables

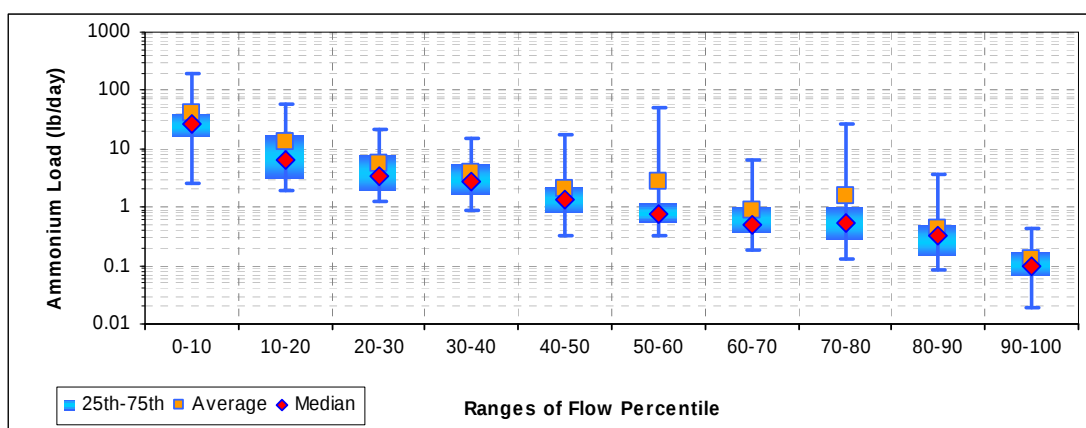


Figure J-111. Ammonium loads by flow percentile for UT to Aaron Run (ZWA0000/WM-78)

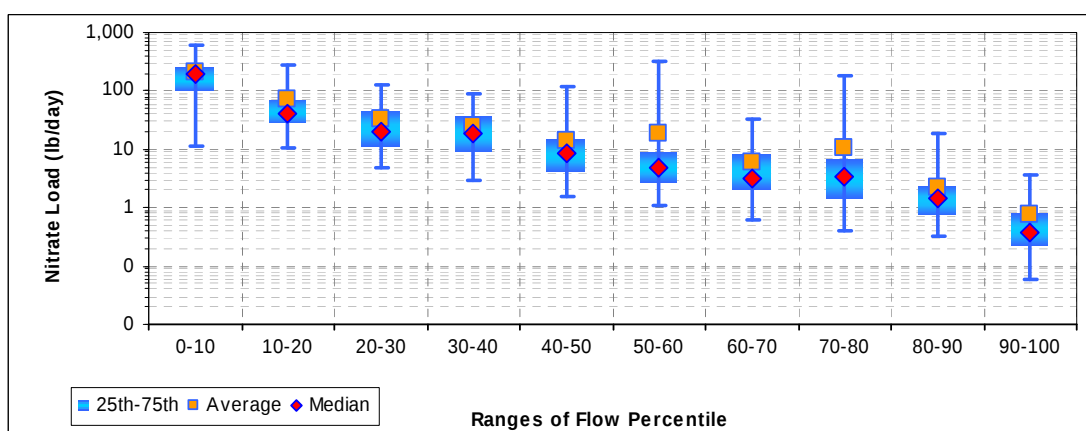


Figure J-112. Nitrate loads by flow percentile for UT to Aaron Run (ZWA0000/WM-78)

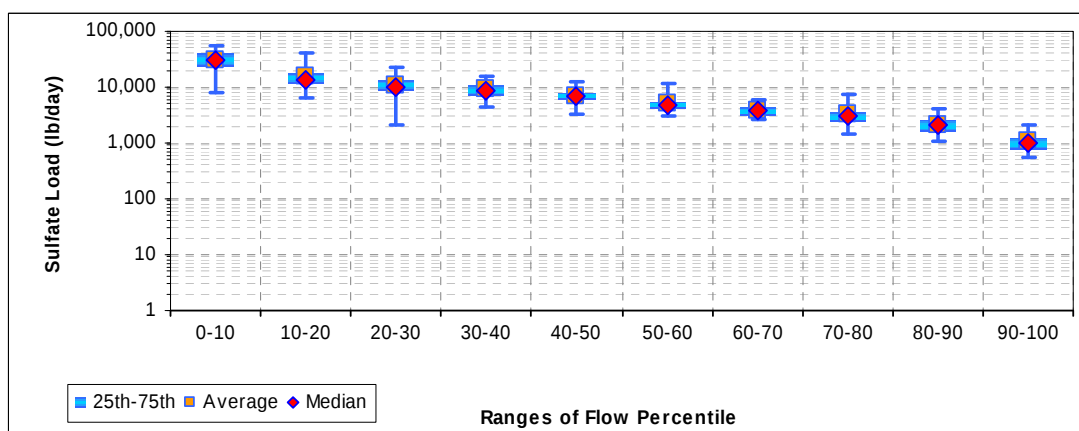


Figure J-113. Sulfate loads by flow percentile for UT to Aaron Run (ZWA0000/WM-78)

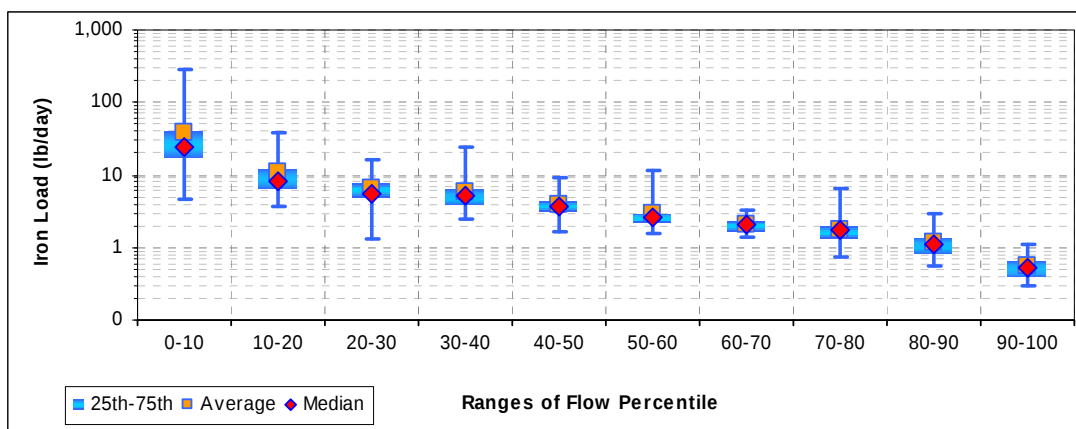


Figure J-114. Iron loads by flow percentile for UT to Aaron Run (ZWA0000/WM-78)

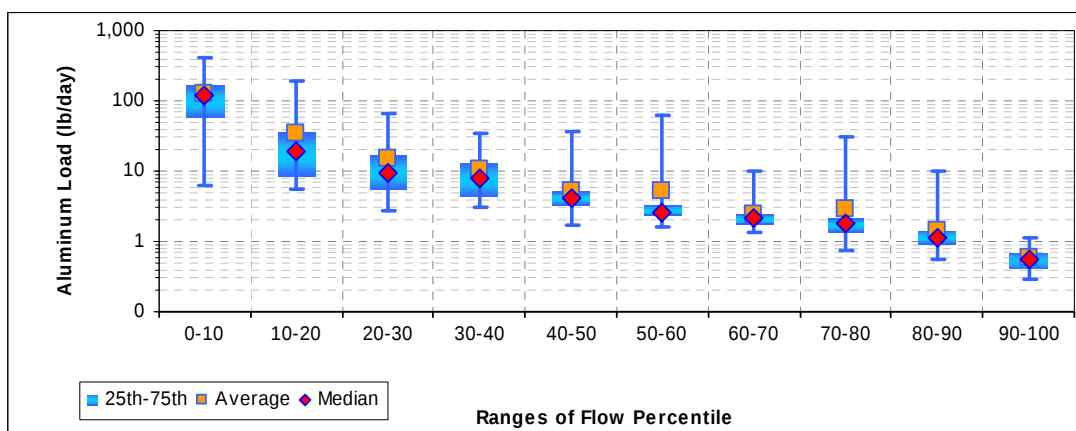


Figure J-115. Aluminum loads by flow percentile for UT to Aaron Run (ZWA0000/WM-78)

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Table J-111. Ammonium loads (lb/d) by flow percentile for UT to Aaron Run (ZWA0000/WM-78)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 2.5   | 1.9   | 1.3   | 0.9   | 0.3   | 0.3   | 0.2   | 0.1   | 0.1   | 0.0    |
| Average | 40.3  | 12.7  | 5.8   | 4.0   | 2.1   | 2.8   | 0.9   | 1.5   | 0.4   | 0.1    |
| Maximum | 200.0 | 57.2  | 21.2  | 15.3  | 17.5  | 50.6  | 6.4   | 27.1  | 3.5   | 0.4    |
| Median  | 27.4  | 6.3   | 3.4   | 2.8   | 1.4   | 0.8   | 0.5   | 0.5   | 0.3   | 0.1    |
| 25th    | 15.7  | 3.1   | 1.9   | 1.6   | 0.8   | 0.5   | 0.4   | 0.3   | 0.2   | 0.1    |
| 75th    | 41.4  | 16.8  | 8.1   | 5.5   | 2.2   | 1.1   | 1.0   | 1.0   | 0.5   | 0.2    |

Table J-112. Nitrate loads (lbs/d) by flow percentile for UT to Aaron Run (ZWA0000/WM-78)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 11.1  | 10.7  | 4.8   | 2.9   | 1.6   | 1.1   | 0.6   | 0.4   | 0.3   | 0.1    |
| Average | 205.7 | 70.9  | 34.1  | 24.1  | 13.9  | 18.5  | 6.1   | 10.3  | 2.3   | 0.8    |
| Maximum | 592.6 | 268.9 | 130.9 | 87.5  | 117.7 | 316.8 | 32.3  | 179.3 | 18.1  | 3.7    |
| Median  | 189.5 | 41.6  | 19.8  | 19.2  | 8.5   | 4.7   | 3.2   | 3.4   | 1.4   | 0.4    |
| 25th    | 100.5 | 28.8  | 11.4  | 9.5   | 4.3   | 2.7   | 2.1   | 1.4   | 0.8   | 0.2    |
| 75th    | 260.2 | 72.2  | 45.7  | 37.1  | 15.6  | 9.2   | 8.6   | 7.1   | 2.3   | 0.8    |

Table J-113. Sulfate loads (lbs/d) by flow percentile for UT to Aaron Run (ZWA0000/WM-78)

|         | 0-10   | 10-20  | 20-30  | 30-40  | 40-50  | 50-60  | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|--------|--------|--------|--------|-------|-------|-------|--------|
| Minimum | 8,153  | 6,490  | 2,147  | 4,472  | 3,205  | 2,993  | 2,557 | 1,419 | 1,055 | 547    |
| Average | 30,429 | 15,511 | 11,093 | 9,276  | 6,872  | 5,087  | 3,789 | 3,180 | 2,144 | 1,062  |
| Maximum | 55,672 | 41,638 | 21,841 | 15,392 | 12,510 | 11,778 | 5,899 | 7,478 | 4,035 | 2,125  |
| Median  | 29,483 | 13,803 | 10,131 | 8,770  | 6,802  | 4,817  | 3,846 | 3,130 | 2,126 | 967    |
| 25th    | 22,573 | 11,666 | 8,658  | 7,055  | 5,755  | 4,253  | 3,152 | 2,387 | 1,599 | 754    |
| 75th    | 40,246 | 17,865 | 13,770 | 10,814 | 8,011  | 5,561  | 4,296 | 3,598 | 2,533 | 1,242  |

Table J-114. Iron loads (lbs/d) by flow percentile for UT to Aaron Run (ZWA0000/WM-78)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 4.5   | 3.8   | 1.3   | 2.5   | 1.7   | 1.6   | 1.4   | 0.8   | 0.6   | 0.3    |
| Average | 38.2  | 10.7  | 6.7   | 5.9   | 3.8   | 2.9   | 2.0   | 1.8   | 1.2   | 0.6    |
| Maximum | 288.4 | 37.3  | 16.4  | 24.4  | 9.3   | 11.5  | 3.2   | 6.4   | 2.9   | 1.1    |
| Median  | 24.9  | 8.4   | 5.6   | 5.2   | 3.6   | 2.6   | 2.0   | 1.7   | 1.1   | 0.5    |
| 25th    | 17.5  | 6.5   | 4.8   | 3.9   | 3.2   | 2.3   | 1.7   | 1.3   | 0.8   | 0.4    |
| 75th    | 41.6  | 12.1  | 7.8   | 6.4   | 4.4   | 3.0   | 2.3   | 1.9   | 1.4   | 0.7    |

Table J-115. Aluminum loads (lbs/d) by flow percentile for UT to Aaron Run (ZWA0000/WM-78)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 6.4   | 5.5   | 2.7   | 3.1   | 1.7   | 1.6   | 1.4   | 0.8   | 0.6   | 0.3    |
| Average | 127.7 | 33.6  | 15.0  | 10.7  | 5.4   | 5.2   | 2.4   | 2.9   | 1.5   | 0.6    |
| Maximum | 415.8 | 188.6 | 65.8  | 34.0  | 36.2  | 63.6  | 10.2  | 31.0  | 10.1  | 1.1    |
| Median  | 120.1 | 19.6  | 9.7   | 7.9   | 4.0   | 2.6   | 2.1   | 1.8   | 1.1   | 0.5    |
| 25th    | 60.3  | 8.5   | 5.5   | 4.3   | 3.3   | 2.3   | 1.7   | 1.3   | 0.9   | 0.4    |
| 75th    | 169.6 | 37.7  | 17.5  | 13.1  | 5.1   | 3.3   | 2.4   | 2.2   | 1.4   | 0.7    |

## Miller Run (WM-80/MRR0000) plots and tables

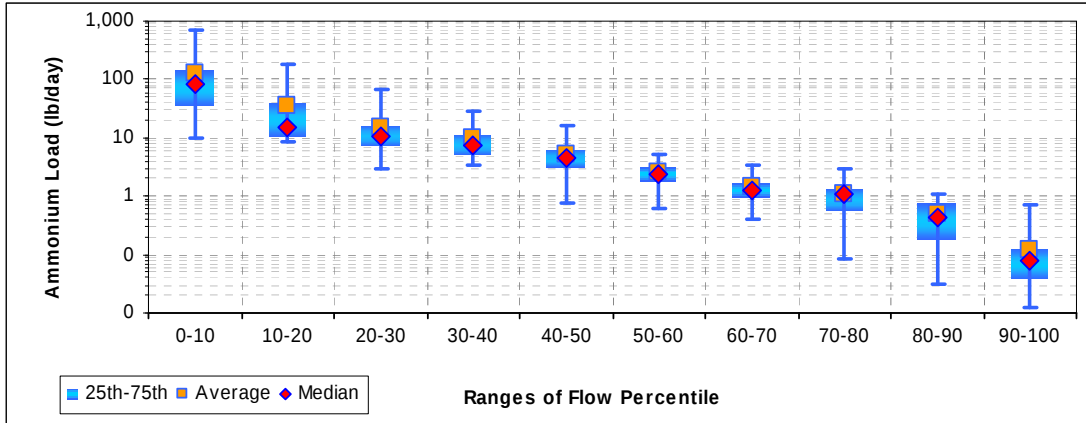


Figure J-116. Ammonium loads by flow percentile for Miller Run (MRR0000/WM-80)

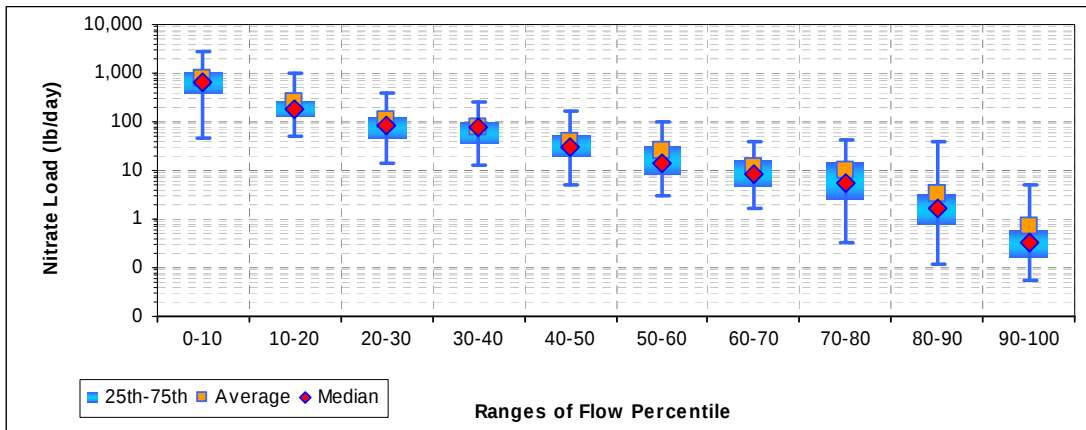


Figure J-117. Nitrate loads by flow percentile for Miller Run (MRR0000/WM-80)

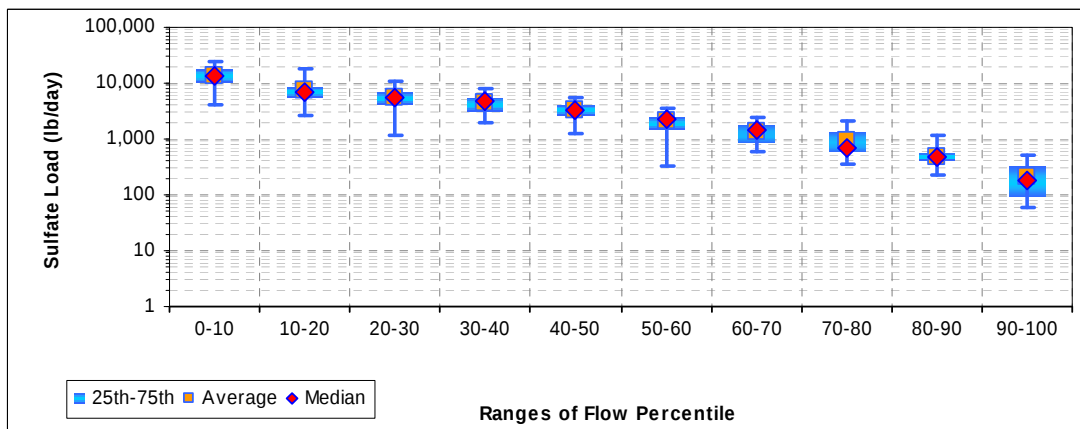


Figure J-118. Sulfate loads by flow percentile for Miller Run (MRR0000/WM-80)

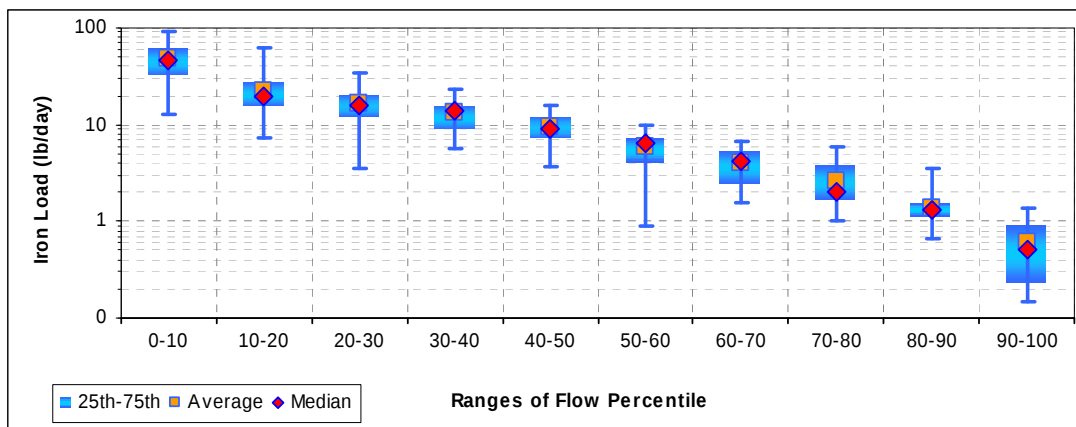


Figure J-119. Iron loads by flow percentile for Miller Run (MRR0000/WM-80)

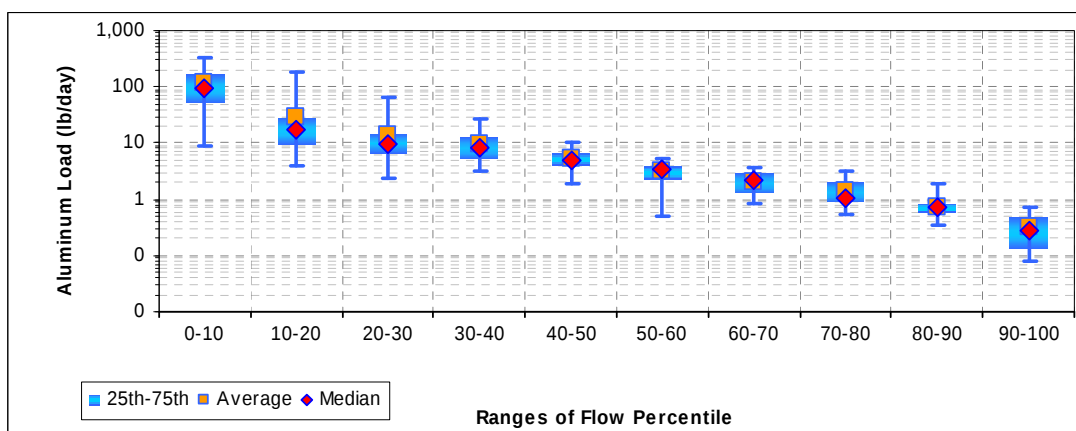


Figure J-120. Aluminum loads by flow percentile for Miller Run (MRR0000/WM-80)

Table J-116. Ammonium loads (lb/d) by flow percentile for Miller Run (MRR0000/WM-80)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 9.9   | 8.4   | 3.0   | 3.4   | 0.7   | 0.6   | 0.4   | 0.1   | 0.0   | 0.0    |
| Average | 125.9 | 35.9  | 15.0  | 9.8   | 5.2   | 2.6   | 1.4   | 1.1   | 0.5   | 0.1    |
| Maximum | 720.9 | 177.5 | 65.3  | 29.1  | 16.0  | 5.3   | 3.4   | 2.9   | 1.1   | 0.7    |
| Median  | 82.5  | 15.2  | 10.5  | 7.5   | 4.4   | 2.3   | 1.3   | 1.1   | 0.4   | 0.1    |
| 25th    | 36.0  | 10.6  | 7.3   | 5.2   | 3.1   | 1.8   | 1.0   | 0.6   | 0.2   | 0.0    |
| 75th    | 149.2 | 39.7  | 16.4  | 11.1  | 6.3   | 3.2   | 1.7   | 1.3   | 0.7   | 0.1    |

Table J-117. Nitrate loads (lbs/d) by flow percentile for Miller Run (MRR0000/WM-80)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 45.1    | 51.4    | 13.8  | 12.8  | 4.9   | 3.1   | 1.6   | 0.3   | 0.1   | 0.1    |
| Average | 765.9   | 245.0   | 105.5 | 78.5  | 40.1  | 24.8  | 12.1  | 9.8   | 3.4   | 0.7    |
| Maximum | 2,681.7 | 1,035.3 | 381.5 | 245.1 | 162.4 | 102.4 | 40.3  | 42.2  | 40.8  | 5.1    |
| Median  | 635.5   | 178.8   | 84.4  | 80.2  | 31.3  | 14.4  | 8.1   | 5.5   | 1.7   | 0.3    |
| 25th    | 397.8   | 130.3   | 45.6  | 37.3  | 19.2  | 8.3   | 4.7   | 2.5   | 0.8   | 0.2    |
| 75th    | 1,092.3 | 283.8   | 134.6 | 101.6 | 53.3  | 31.8  | 17.0  | 15.9  | 3.2   | 0.6    |

Table J-118. Sulfate loads (lbs/d) by flow percentile for Miller Run (MRR0000/WM-80)

|         | 0-10   | 10-20  | 20-30  | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|--------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 4,036  | 2,689  | 1,187  | 1,946 | 1,291 | 339   | 586   | 354   | 232   | 61     |
| Average | 13,600 | 7,391  | 5,548  | 4,550 | 3,322 | 2,078 | 1,391 | 920   | 491   | 218    |
| Maximum | 24,349 | 17,594 | 10,749 | 7,734 | 5,482 | 3,431 | 2,406 | 2,047 | 1,187 | 496    |
| Median  | 13,620 | 6,764  | 5,412  | 4,812 | 3,268 | 2,239 | 1,472 | 703   | 477   | 186    |
| 25th    | 10,090 | 5,510  | 4,206  | 3,137 | 2,677 | 1,486 | 879   | 615   | 411   | 94     |
| 75th    | 17,894 | 8,888  | 6,726  | 5,482 | 4,213 | 2,514 | 1,864 | 1,319 | 568   | 338    |

Table J-119. Iron loads (lbs/d) by flow percentile for Miller Run (MRR0000/WM-80)

|         | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 12.5 | 7.2   | 3.5   | 5.6   | 3.7   | 0.9   | 1.6   | 1.0   | 0.7   | 0.1    |
| Average | 47.4 | 22.5  | 16.2  | 13.2  | 9.4   | 5.9   | 3.9   | 2.6   | 1.4   | 0.6    |
| Maximum | 90.3 | 62.4  | 34.9  | 23.5  | 15.9  | 10.0  | 6.8   | 5.8   | 3.4   | 1.4    |
| Median  | 45.5 | 19.9  | 15.6  | 14.1  | 9.2   | 6.3   | 4.2   | 2.0   | 1.3   | 0.5    |
| 25th    | 33.4 | 16.1  | 12.0  | 8.9   | 7.2   | 4.1   | 2.5   | 1.7   | 1.1   | 0.2    |
| 75th    | 61.8 | 27.8  | 20.3  | 15.8  | 12.1  | 7.2   | 5.3   | 3.8   | 1.6   | 0.9    |

Table J-120. Aluminum loads (lbs/d) by flow percentile for Miller Run (MRR0000/WM-80)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 8.8   | 3.9   | 2.3   | 3.2   | 2.0   | 0.5   | 0.8   | 0.5   | 0.4   | 0.1    |
| Average | 113.4 | 29.1  | 13.3  | 9.6   | 5.3   | 3.1   | 2.1   | 1.4   | 0.7   | 0.3    |
| Maximum | 322.8 | 177.6 | 66.9  | 27.9  | 10.0  | 5.3   | 3.6   | 3.1   | 1.8   | 0.7    |
| Median  | 94.3  | 17.6  | 9.6   | 8.3   | 5.1   | 3.4   | 2.2   | 1.1   | 0.7   | 0.3    |
| 25th    | 50.9  | 9.7   | 6.8   | 5.4   | 3.9   | 2.2   | 1.3   | 0.9   | 0.6   | 0.1    |
| 75th    | 167.8 | 28.5  | 15.0  | 12.7  | 6.8   | 3.9   | 2.8   | 2.0   | 0.8   | 0.5    |

## Big Run (WM-81/BRU0048) plots and tables

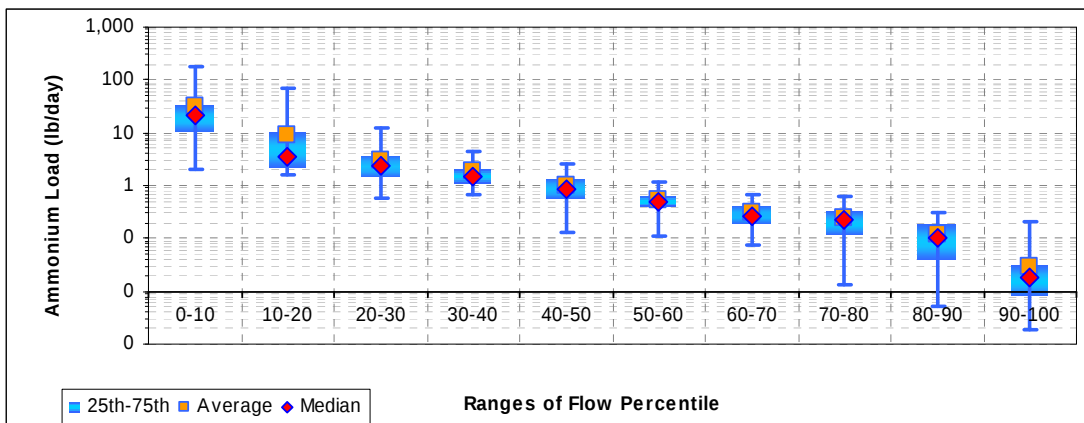


Figure J-121. Ammonium loads by flow percentile for Big Run (BRU0048/WM-81)

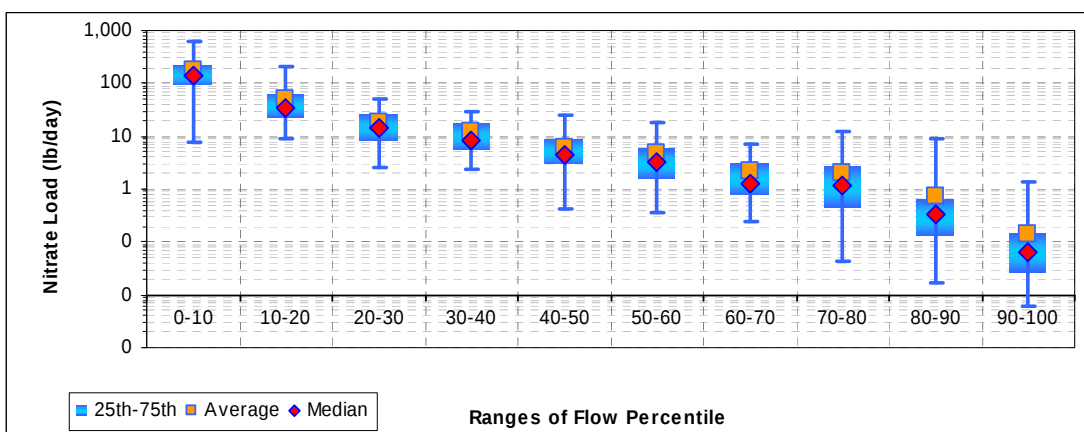


Figure J-122. Nitrate loads by flow percentile for Big Run (BRU0048/WM-81)

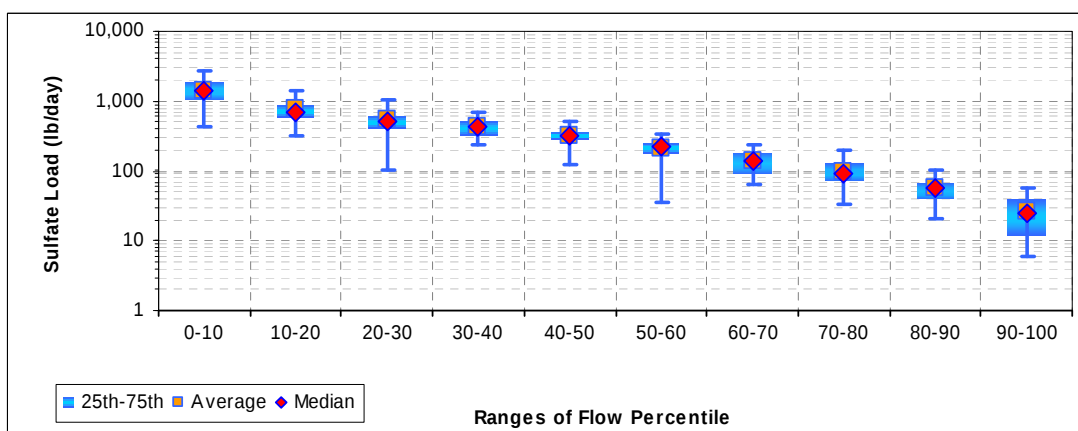


Figure J-123. Sulfate loads by flow percentile for Big Run (BRU0048/WM-81)

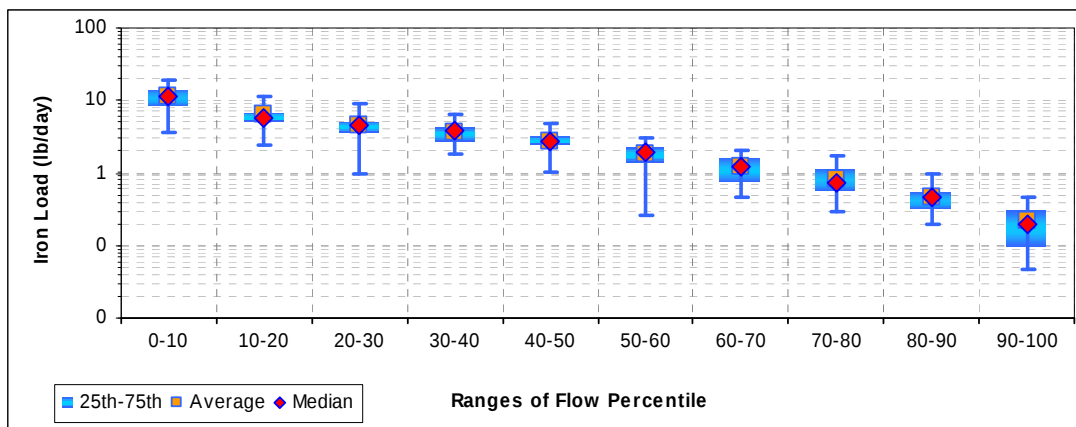


Figure J-124. Iron loads by flow percentile for Big Run (BRU0048/WM-81)

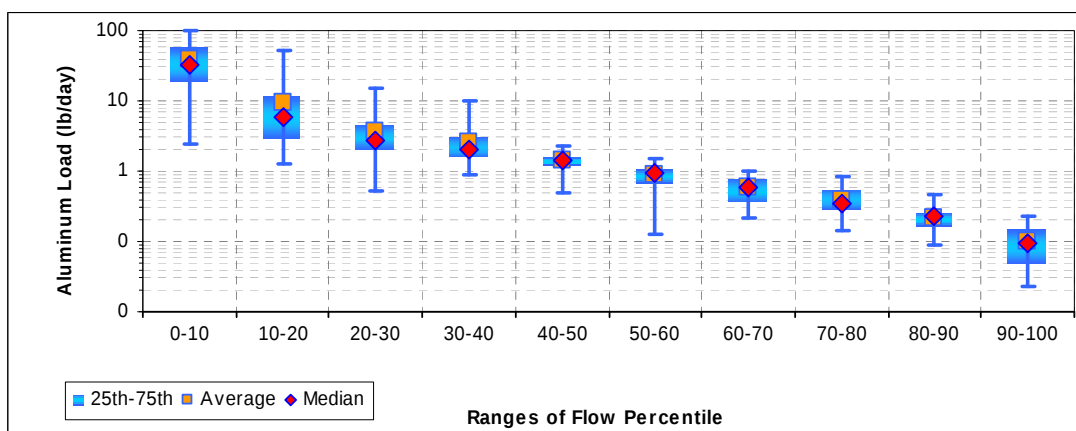


Figure J-125. Aluminum loads by flow percentile for Big Run (BRU0048/WM-81)

Table J-121. Ammonium loads (lb/d) by flow percentile for Big Run (BRU0048/WM-81)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 2.1   | 1.7   | 0.6   | 0.7   | 0.1   | 0.1   | 0.1   | 0.0   | 0.0   | 0.0    |
| Average | 30.8  | 8.8   | 3.1   | 1.9   | 1.0   | 0.6   | 0.3   | 0.2   | 0.1   | 0.0    |
| Maximum | 172.3 | 69.3  | 12.0  | 4.5   | 2.6   | 1.2   | 0.7   | 0.6   | 0.3   | 0.2    |
| Median  | 20.8  | 3.5   | 2.3   | 1.5   | 0.8   | 0.5   | 0.3   | 0.2   | 0.1   | 0.0    |
| 25th    | 10.4  | 2.3   | 1.4   | 1.1   | 0.6   | 0.4   | 0.2   | 0.1   | 0.0   | 0.0    |
| 75th    | 34.2  | 10.3  | 3.7   | 2.1   | 1.4   | 0.6   | 0.4   | 0.3   | 0.2   | 0.0    |

Table J-122. Nitrate loads (lbs/d) by flow percentile for Big Run (BRU0048/WM-81)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 7.8   | 9.1   | 2.5   | 2.3   | 0.4   | 0.4   | 0.2   | 0.0   | 0.0   | 0.0    |
| Average | 176.6 | 51.1  | 18.6  | 12.1  | 6.2   | 4.7   | 2.2   | 2.0   | 0.7   | 0.1    |
| Maximum | 609.5 | 216.4 | 52.5  | 30.2  | 25.6  | 17.8  | 7.1   | 12.1  | 8.8   | 1.4    |
| Median  | 146.0 | 35.5  | 14.6  | 8.4   | 4.4   | 3.4   | 1.2   | 1.1   | 0.3   | 0.1    |
| 25th    | 94.6  | 23.4  | 8.4   | 5.4   | 2.9   | 1.6   | 0.8   | 0.5   | 0.1   | 0.0    |
| 75th    | 216.4 | 62.7  | 26.4  | 18.2  | 9.0   | 6.2   | 3.3   | 2.8   | 0.7   | 0.1    |

Table J-123. Sulfate loads (lbs/d) by flow percentile for Big Run (BRU0048/WM-81)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 429   | 327   | 106   | 238   | 121   | 36    | 62    | 32    | 21    | 6      |
| Average | 1,447 | 757   | 534   | 424   | 322   | 215   | 141   | 98    | 55    | 26     |
| Maximum | 2,633 | 1,418 | 1,028 | 682   | 518   | 334   | 237   | 199   | 105   | 55     |
| Median  | 1,445 | 699   | 519   | 422   | 325   | 228   | 142   | 92    | 57    | 24     |
| 25th    | 1,068 | 577   | 413   | 322   | 275   | 173   | 92    | 73    | 41    | 12     |
| 75th    | 1,845 | 874   | 605   | 504   | 360   | 256   | 183   | 128   | 68    | 40     |

Table J-124. Iron loads (lbs/d) by flow percentile for Big Run (BRU0048/WM-81)

|         | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 3.6  | 2.5   | 1.0   | 1.9   | 1.1   | 0.3   | 0.5   | 0.3   | 0.2   | 0.0    |
| Average | 11.4 | 6.4   | 4.6   | 3.7   | 2.8   | 1.8   | 1.2   | 0.8   | 0.5   | 0.2    |
| Maximum | 18.7 | 11.4  | 9.3   | 6.3   | 4.8   | 3.1   | 2.1   | 1.7   | 1.0   | 0.5    |
| Median  | 11.7 | 5.9   | 4.5   | 3.8   | 2.7   | 2.0   | 1.2   | 0.7   | 0.5   | 0.2    |
| 25th    | 8.5  | 5.0   | 3.7   | 2.7   | 2.4   | 1.4   | 0.8   | 0.6   | 0.3   | 0.1    |
| 75th    | 14.7 | 6.9   | 5.1   | 4.2   | 3.1   | 2.3   | 1.6   | 1.2   | 0.5   | 0.3    |

Table J-125. Aluminum loads (lbs/d) by flow percentile for Big Run (BRU0048/WM-81)

|         | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 2.5  | 1.2   | 0.5   | 0.9   | 0.5   | 0.1   | 0.2   | 0.1   | 0.1   | 0.0    |
| Average | 38.6 | 9.7   | 3.7   | 2.6   | 1.4   | 0.9   | 0.6   | 0.4   | 0.2   | 0.1    |
| Maximum | 99.4 | 51.6  | 14.8  | 10.1  | 2.3   | 1.5   | 1.0   | 0.8   | 0.5   | 0.2    |
| Median  | 32.6 | 6.0   | 2.7   | 2.1   | 1.4   | 0.9   | 0.6   | 0.3   | 0.2   | 0.1    |
| 25th    | 18.9 | 2.9   | 2.0   | 1.6   | 1.2   | 0.7   | 0.4   | 0.3   | 0.2   | 0.0    |
| 75th    | 57.3 | 11.7  | 4.7   | 3.1   | 1.6   | 1.1   | 0.8   | 0.6   | 0.3   | 0.2    |

## Little Savage River (WM-86/LSA0028) plots and tables

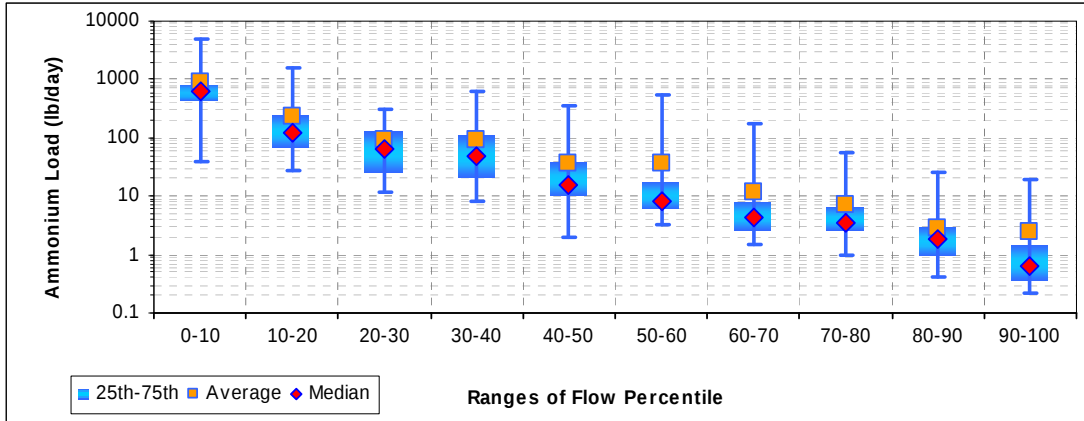


Figure J-126. Ammonium loads by flow percentile for Little Savage River (LSA0028/WM-86)

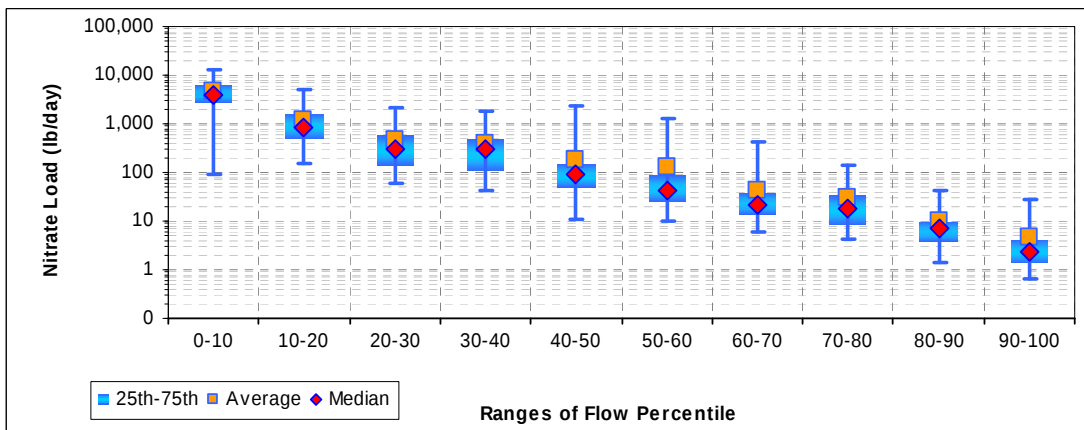


Figure J-127. Nitrate loads by flow percentile for Little Savage River (LSA0028/WM-86)

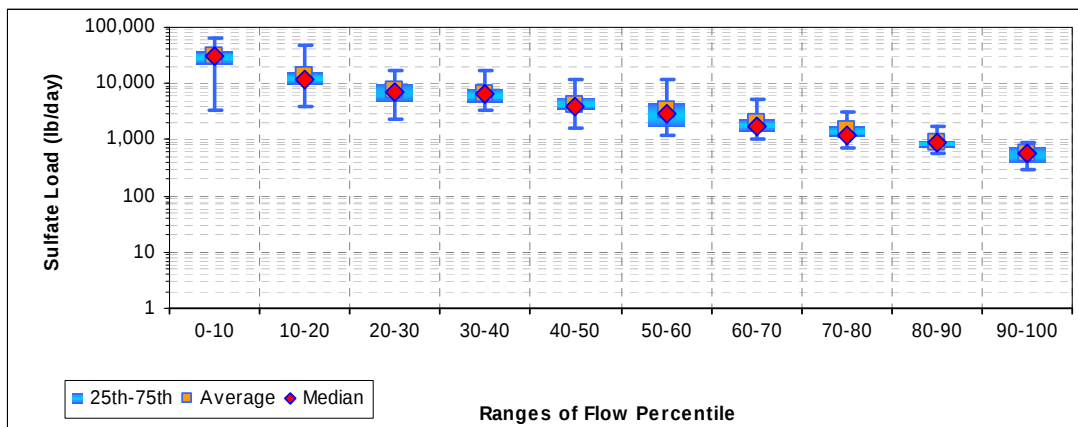


Figure J-128. Sulfate loads by flow percentile for Little Savage River (LSA0028/WM-86)

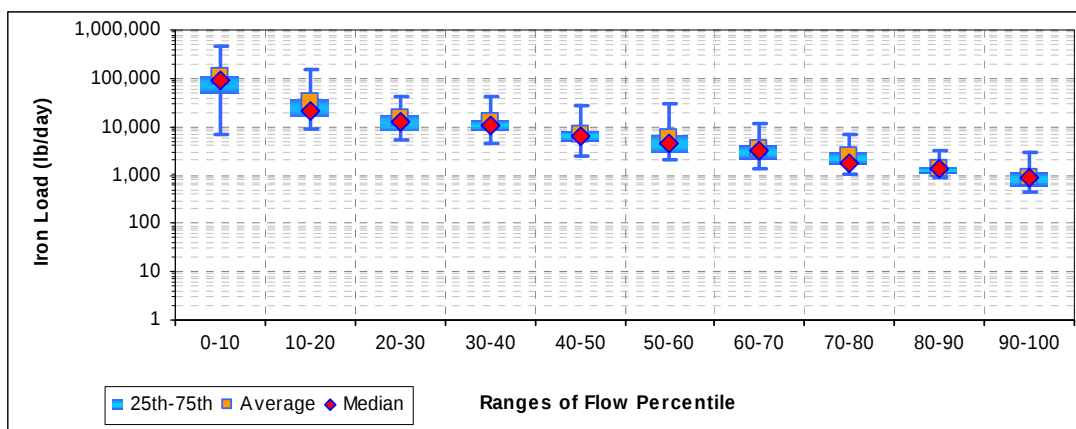


Figure J-129. Iron loads by flow percentile for Little Savage River (LSA0028/WM-86)

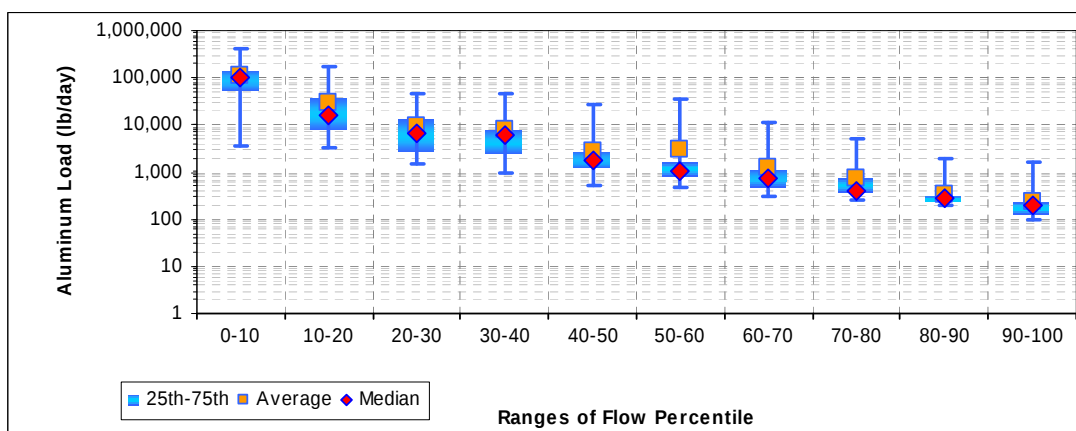


Figure J-130. Aluminum loads by flow percentile for Little Savage River (LSA0028/WM-86)

Table J-126. Ammonium loads (lb/d) by flow percentile for Little Savage River (LSA0028/WM-86)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 39.7    | 28.3    | 11.5  | 8.4   | 2.0   | 3.2   | 1.5   | 1.0   | 0.4   | 0.2    |
| Average | 888.0   | 234.9   | 92.1  | 90.7  | 36.7  | 36.4  | 11.4  | 7.0   | 2.9   | 2.5    |
| Maximum | 4,856.3 | 1,574.8 | 298.2 | 627.2 | 362.8 | 551.0 | 170.2 | 54.6  | 25.5  | 19.7   |
| Median  | 617.5   | 124.4   | 63.6  | 47.8  | 15.1  | 8.0   | 4.3   | 3.5   | 1.8   | 0.6    |
| 25th    | 434.2   | 70.9    | 25.4  | 20.3  | 10.4  | 6.4   | 2.7   | 2.6   | 1.0   | 0.4    |
| 75th    | 858.6   | 247.4   | 127.5 | 111.2 | 39.0  | 18.6  | 8.3   | 6.6   | 3.0   | 1.5    |

Table J-127. Nitrate loads (lbs/d) by flow percentile for Little Savage River (LSA0028/WM-86)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50   | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|---------|---------|-------|-------|-------|--------|
| Minimum | 95.1     | 150.7   | 59.9    | 41.8    | 11.3    | 10.2    | 5.7   | 4.1   | 1.5   | 0.7    |
| Average | 4,476.1  | 1,229.1 | 457.9   | 399.3   | 186.1   | 127.0   | 41.4  | 29.6  | 9.8   | 4.7    |
| Maximum | 13,225.8 | 5,007.1 | 2,210.6 | 1,866.9 | 2,321.5 | 1,343.7 | 428.2 | 142.3 | 41.9  | 28.5   |
| Median  | 3,763.7  | 879.9   | 297.4   | 293.5   | 93.4    | 44.1    | 21.2  | 18.7  | 6.8   | 2.4    |
| 25th    | 2,696.3  | 506.6   | 138.9   | 106.3   | 52.5    | 25.8    | 13.9  | 8.8   | 4.1   | 1.4    |
| 75th    | 6,418.0  | 1,610.6 | 579.2   | 488.9   | 158.3   | 94.3    | 39.1  | 35.6  | 10.0  | 4.2    |

Table J-128. Sulfate loads (lbs/d) by flow percentile for Little Savage River (LSA0028/WM-86)

|         | 0-10   | 10-20  | 20-30  | 30-40  | 40-50  | 50-60  | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|--------|--------|--------|--------|-------|-------|-------|--------|
| Minimum | 3,452  | 3,932  | 2,398  | 3,314  | 1,615  | 1,175  | 996   | 732   | 581   | 303    |
| Average | 30,212 | 13,652 | 7,783  | 6,711  | 4,315  | 3,334  | 2,038 | 1,470 | 886   | 578    |
| Maximum | 63,053 | 48,873 | 16,870 | 16,447 | 11,749 | 12,104 | 5,159 | 3,111 | 1,732 | 910    |
| Median  | 30,667 | 11,727 | 7,268  | 6,436  | 3,851  | 2,926  | 1,756 | 1,205 | 885   | 584    |
| 25th    | 21,387 | 9,154  | 4,679  | 4,415  | 3,361  | 1,682  | 1,364 | 1,096 | 723   | 402    |
| 75th    | 37,247 | 16,311 | 10,142 | 7,926  | 5,458  | 4,593  | 2,297 | 1,782 | 987   | 750    |

Table J-129. Iron loads (lbs/d) by flow percentile for Little Savage River (LSA0028/WM-86)

|         | 0-10      | 10-20     | 20-30    | 30-40    | 40-50    | 50-60    | 60-70    | 70-80   | 80-90   | 90-100  |
|---------|-----------|-----------|----------|----------|----------|----------|----------|---------|---------|---------|
| Minimum | 6,879.1   | 9,068.3   | 5,487.4  | 4,372.4  | 2,378.6  | 2,024.3  | 1,362.6  | 1,031.5 | 867.9   | 442.5   |
| Average | 103,817.5 | 31,948.4  | 14,845.9 | 12,814.6 | 6,921.7  | 5,981.6  | 3,441.9  | 2,417.7 | 1,337.5 | 896.0   |
| Maximum | 474,557.5 | 146,427.3 | 43,603.1 | 43,125.4 | 26,841.7 | 30,817.1 | 11,605.5 | 7,132.7 | 3,119.8 | 2,833.3 |
| Median  | 87,534.5  | 21,323.0  | 12,420.4 | 10,837.1 | 6,328.9  | 4,448.9  | 3,159.7  | 1,794.2 | 1,317.3 | 873.1   |
| 25th    | 51,385.7  | 15,613.2  | 7,955.0  | 8,259.4  | 5,035.7  | 2,942.2  | 2,034.1  | 1,621.7 | 1,023.4 | 584.8   |
| 75th    | 118,550.3 | 38,745.0  | 18,335.3 | 13,597.4 | 8,365.9  | 7,192.0  | 3,957.8  | 2,898.4 | 1,450.7 | 1,113.4 |

Table J-130. Aluminum loads (lbs/d) by flow percentile for Little Savage River (LSA0028/WM-86)

|         | 0-10      | 10-20     | 20-30    | 30-40    | 40-50    | 50-60    | 60-70    | 70-80   | 80-90   | 90-100  |
|---------|-----------|-----------|----------|----------|----------|----------|----------|---------|---------|---------|
| Minimum | 3,472.6   | 3,371.1   | 1,550.0  | 962.5    | 523.1    | 465.2    | 302.1    | 246.9   | 189.4   | 96.6    |
| Average | 112,440.6 | 30,097.7  | 9,776.9  | 8,139.3  | 2,824.9  | 2,961.2  | 1,218.2  | 755.5   | 330.4   | 239.4   |
| Maximum | 429,268.2 | 175,662.7 | 47,205.9 | 45,304.4 | 28,023.4 | 36,560.8 | 11,591.3 | 5,098.7 | 2,003.8 | 1,694.5 |
| Median  | 101,788.1 | 16,285.0  | 6,566.6  | 5,853.3  | 1,812.8  | 1,043.7  | 737.0    | 401.3   | 287.5   | 190.5   |
| 25th    | 54,948.5  | 7,728.4   | 2,767.1  | 2,486.9  | 1,296.1  | 776.1    | 454.6    | 357.4   | 233.2   | 127.6   |
| 75th    | 139,163.4 | 38,261.7  | 13,108.3 | 8,024.6  | 2,658.8  | 1,681.3  | 1,184.7  | 703.7   | 316.8   | 243.0   |

### Poplar Lick Run (WM-96/POP0065) plots and tables

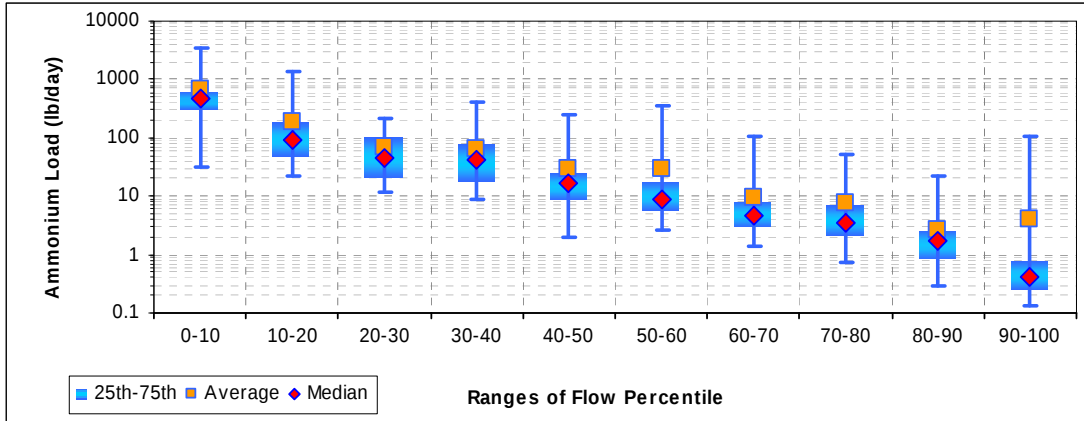


Figure J-131. Ammonium loads by flow percentile for Poplar Lick Run (POP0065/WM-96)

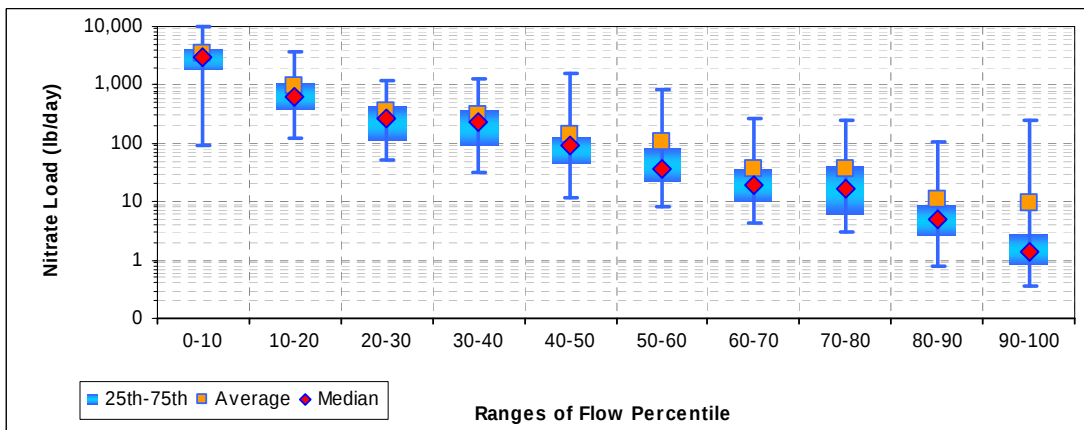


Figure J-132. Nitrate loads by flow percentile for Poplar Lick Run (POP0065/WM-96)

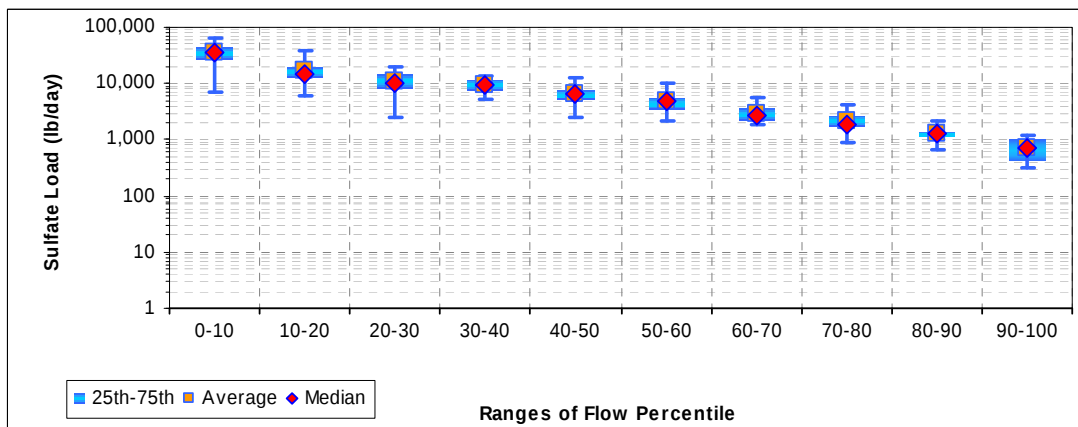


Figure J-133. Sulfate loads by flow percentile for Poplar Lick Run (POP0065/WM-96)

\*\* These plots include upstream loads from Poplar Lick Run (WM-97/POP0071).

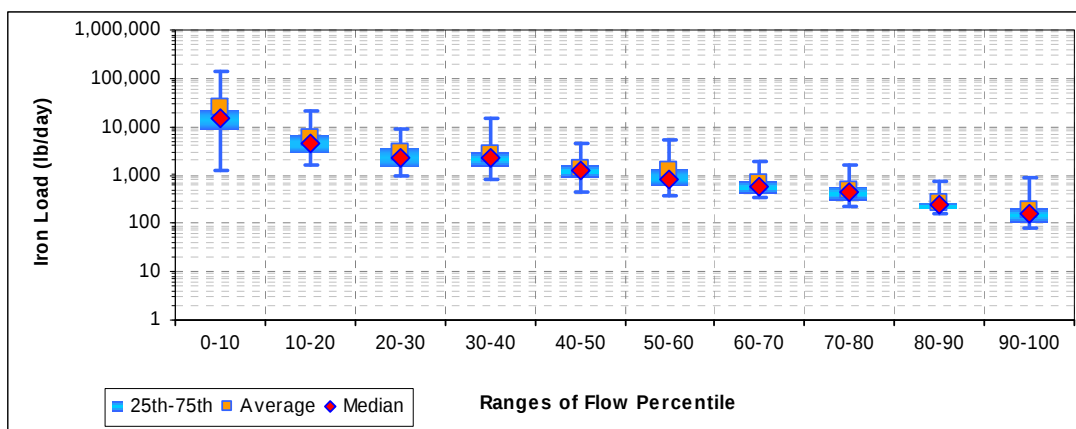


Figure J-134. Iron loads by flow percentile for Poplar Lick Run (POP0065/WM-96)

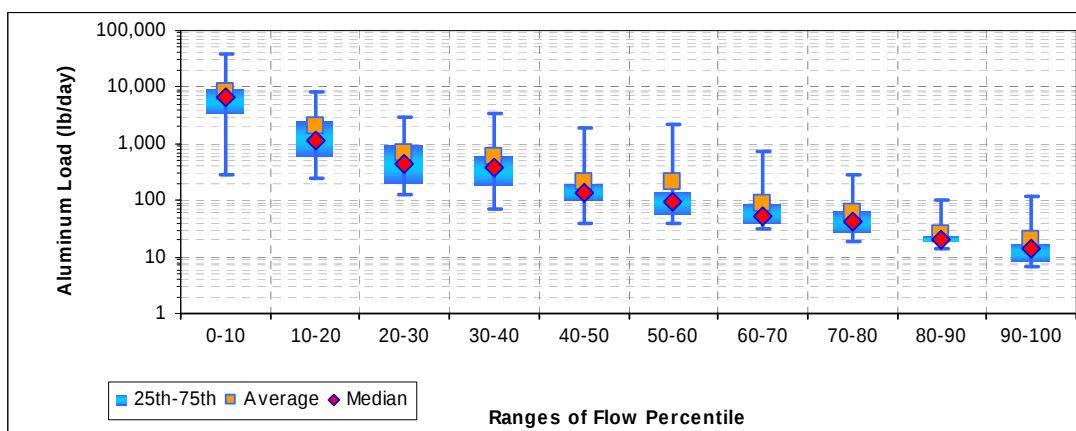


Figure J-135. Aluminum loads by flow percentile for Poplar Lick Run (POP0065/WM-96)

\*\* These plots include upstream loads from Poplar Lick Run (WM-97/POP0071).

Table J-131. Ammonium loads (lb/d) by flow percentile for Poplar Lick Run (POP0065/WM-96)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 32.6    | 21.9    | 11.4  | 8.9   | 1.9   | 2.6   | 1.4   | 0.7   | 0.3   | 0.1    |
| Average | 665.2   | 184.9   | 70.1  | 64.8  | 28.8  | 29.7  | 9.3   | 7.5   | 2.7   | 3.9    |
| Maximum | 3,435.1 | 1,329.7 | 218.8 | 411.2 | 243.1 | 350.9 | 109.7 | 51.9  | 22.8  | 108.8  |
| Median  | 454.6   | 90.2    | 46.3  | 40.6  | 16.6  | 8.8   | 4.7   | 3.4   | 1.7   | 0.4    |
| 25th    | 312.3   | 47.9    | 21.4  | 18.1  | 8.7   | 5.6   | 3.0   | 2.1   | 0.8   | 0.3    |
| 75th    | 637.1   | 184.0   | 102.5 | 77.4  | 26.4  | 18.0  | 8.3   | 6.9   | 2.6   | 0.8    |

Table J-132. Nitrate loads (lbs/d) by flow percentile for Poplar Lick Run (POP0065/WM-96)

|         | 0-10    | 10-20   | 20-30   | 30-40   | 40-50   | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|---------|---------|-------|-------|-------|-------|--------|
| Minimum | 93.5    | 121.2   | 52.0    | 31.6    | 12.1    | 8.4   | 4.4   | 2.9   | 0.8   | 0.4    |
| Average | 3,338.6 | 935.1   | 348.8   | 301.4   | 143.3   | 105.9 | 35.5  | 35.4  | 10.6  | 9.3    |
| Maximum | 9,704.7 | 3,712.2 | 1,189.7 | 1,233.3 | 1,540.9 | 817.2 | 266.3 | 245.8 | 107.3 | 244.3  |
| Median  | 2,987.5 | 619.6   | 266.8   | 225.9   | 90.1    | 35.6  | 18.7  | 17.2  | 5.1   | 1.4    |
| 25th    | 1,790.3 | 376.3   | 115.4   | 90.5    | 46.5    | 22.5  | 10.3  | 6.4   | 2.6   | 0.8    |
| 75th    | 4,396.6 | 1,126.1 | 449.1   | 382.0   | 131.8   | 86.5  | 37.5  | 42.6  | 9.1   | 2.7    |

Table J-133. Sulfate loads (lbs/d) by flow percentile for Poplar Lick Run (POP0065/WM-96)

|         | 0-10   | 10-20  | 20-30  | 30-40  | 40-50  | 50-60  | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|--------|--------|--------|--------|-------|-------|-------|--------|
| Minimum | 7,230  | 6,030  | 2,578  | 5,347  | 2,469  | 2,079  | 1,810 | 906   | 651   | 307    |
| Average | 35,445 | 17,163 | 11,276 | 9,505  | 6,704  | 4,717  | 2,958 | 2,148 | 1,278 | 728    |
| Maximum | 64,073 | 37,869 | 19,952 | 13,950 | 12,360 | 10,050 | 5,736 | 4,205 | 2,160 | 1,236  |
| Median  | 36,663 | 15,208 | 10,493 | 9,452  | 6,484  | 4,684  | 2,739 | 1,822 | 1,320 | 719    |
| 25th    | 26,253 | 12,554 | 7,930  | 7,347  | 5,314  | 3,261  | 2,083 | 1,668 | 1,125 | 431    |
| 75th    | 44,981 | 19,694 | 14,870 | 11,646 | 7,685  | 5,670  | 3,598 | 2,639 | 1,416 | 1,022  |

Table J-134. Iron loads (lbs/d) by flow percentile for Poplar Lick Run (POP0065/WM-96)

|         | 0-10      | 10-20    | 20-30   | 30-40    | 40-50   | 50-60   | 60-70   | 70-80   | 80-90 | 90-100 |
|---------|-----------|----------|---------|----------|---------|---------|---------|---------|-------|--------|
| Minimum | 1,285.1   | 1,659.9  | 991.4   | 805.6    | 440.8   | 373.1   | 333.6   | 214.6   | 160.1 | 77.0   |
| Average | 25,000.1  | 5,984.1  | 2,816.1 | 2,649.2  | 1,322.1 | 1,188.4 | 663.8   | 491.4   | 259.6 | 192.3  |
| Maximum | 141,647.6 | 21,768.5 | 9,305.3 | 14,878.7 | 4,677.2 | 5,144.0 | 1,965.9 | 1,591.7 | 768.8 | 848.4  |
| Median  | 14,980.0  | 4,466.1  | 2,247.6 | 2,278.5  | 1,229.4 | 826.0   | 577.4   | 460.8   | 238.1 | 159.2  |
| 25th    | 8,640.2   | 2,897.6  | 1,413.8 | 1,444.8  | 866.0   | 631.8   | 392.4   | 295.1   | 202.7 | 102.2  |
| 75th    | 22,630.2  | 6,768.1  | 3,864.3 | 2,825.5  | 1,665.8 | 1,349.5 | 728.7   | 563.1   | 264.8 | 202.8  |

Table J-135. Aluminum loads (lbs/d) by flow percentile for Poplar Lick Run (POP0065/WM-96)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50   | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|---------|---------|-------|-------|-------|--------|
| Minimum | 279.0    | 237.2   | 123.7   | 72.6    | 38.6    | 37.9    | 30.3  | 19.1  | 13.6  | 6.5    |
| Average | 8,554.9  | 1,978.4 | 670.3   | 598.7   | 204.2   | 212.5   | 87.0  | 59.5  | 25.7  | 20.6   |
| Maximum | 37,937.6 | 8,449.7 | 2,976.9 | 3,315.9 | 1,842.9 | 2,283.8 | 729.4 | 293.8 | 103.6 | 120.0  |
| Median  | 6,582.9  | 1,153.5 | 425.2   | 377.8   | 137.9   | 95.1    | 53.7  | 43.1  | 20.7  | 13.7   |
| 25th    | 3,528.4  | 593.6   | 199.0   | 185.4   | 103.5   | 58.5    | 39.8  | 27.1  | 18.5  | 8.7    |
| 75th    | 9,237.1  | 2,548.9 | 985.6   | 611.9   | 194.9   | 145.9   | 89.0  | 66.7  | 23.3  | 17.6   |

\*\* These tables include upstream loads from Poplar Lick Run (WM-97/POP0071).

### Poplar Lick Run (WM-97/POP0071) plots and tables

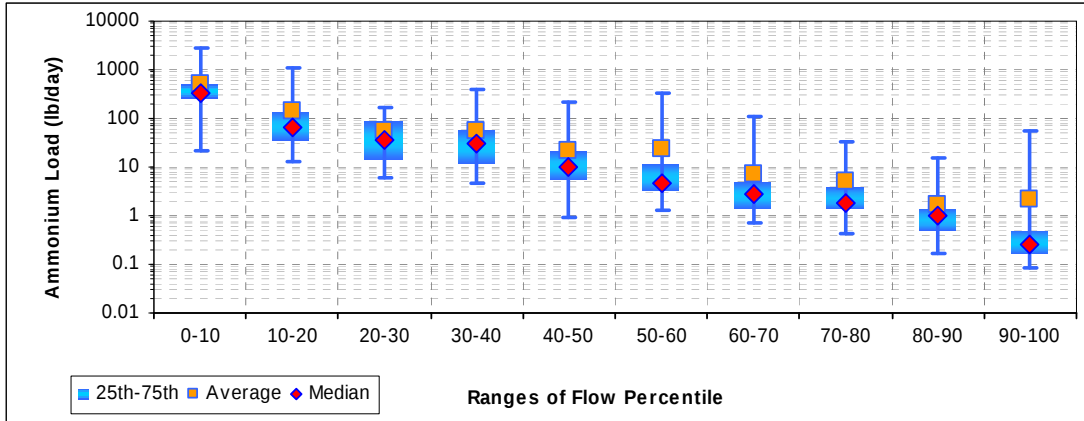


Figure J-136. Ammonium loads by flow percentile for Poplar Lick Run (POP0071/WM-97)

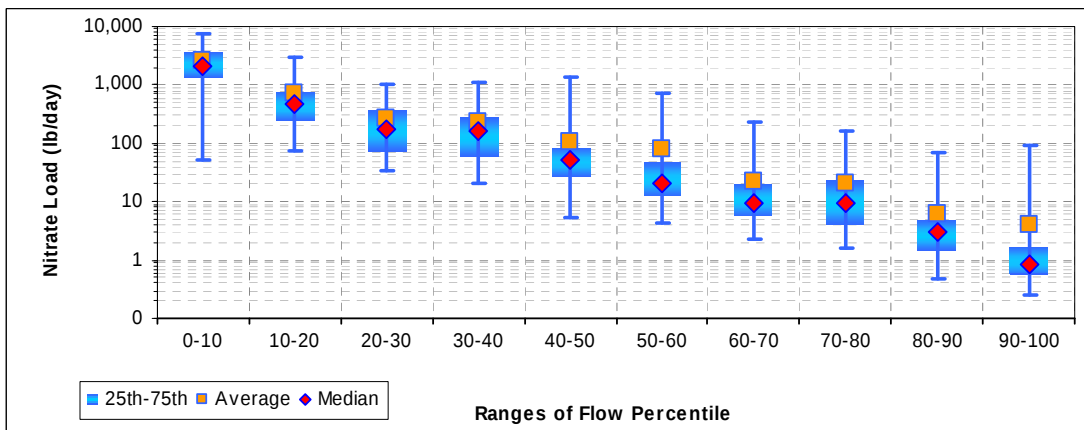


Figure J-137. Nitrate loads by flow percentile for Poplar Lick Run (POP0071/WM-97)

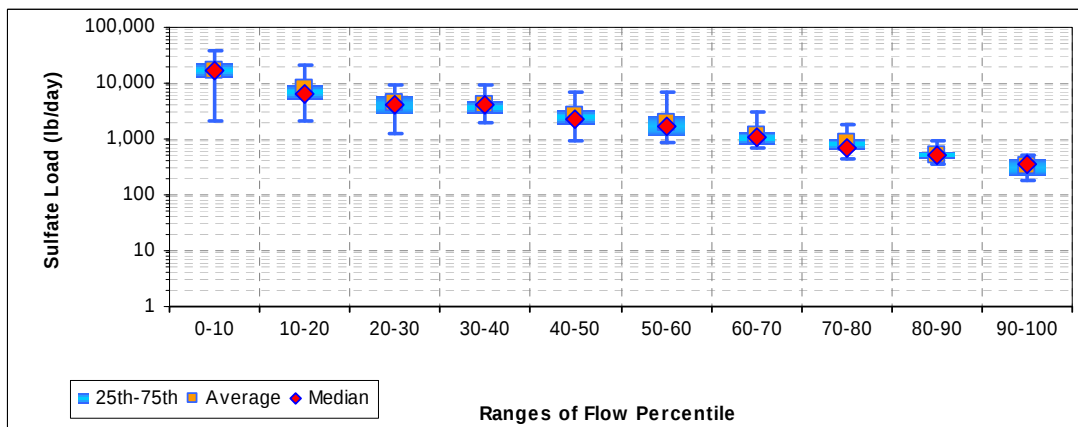


Figure J-138. Sulfate loads by flow percentile for Poplar Lick Run (POP0071/WM-97)

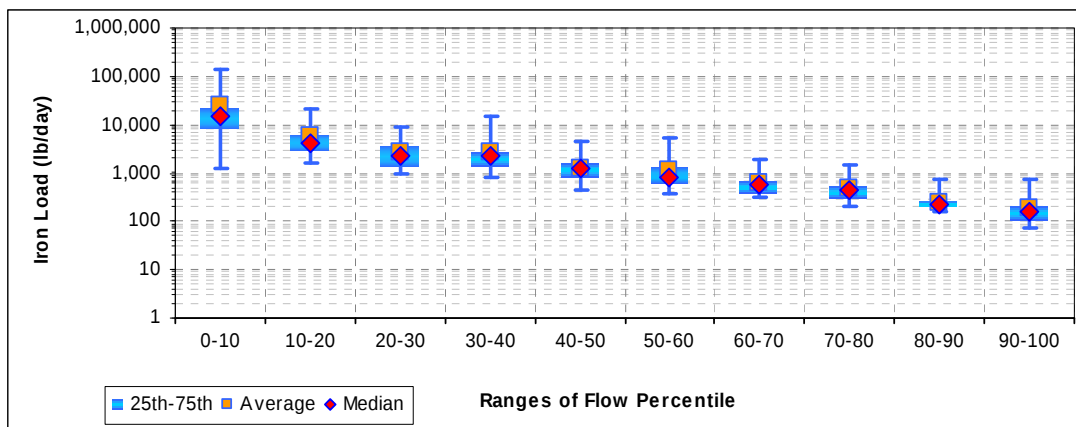


Figure J-139. Iron loads by flow percentile for Poplar Lick Run (POP0071/WM-97)

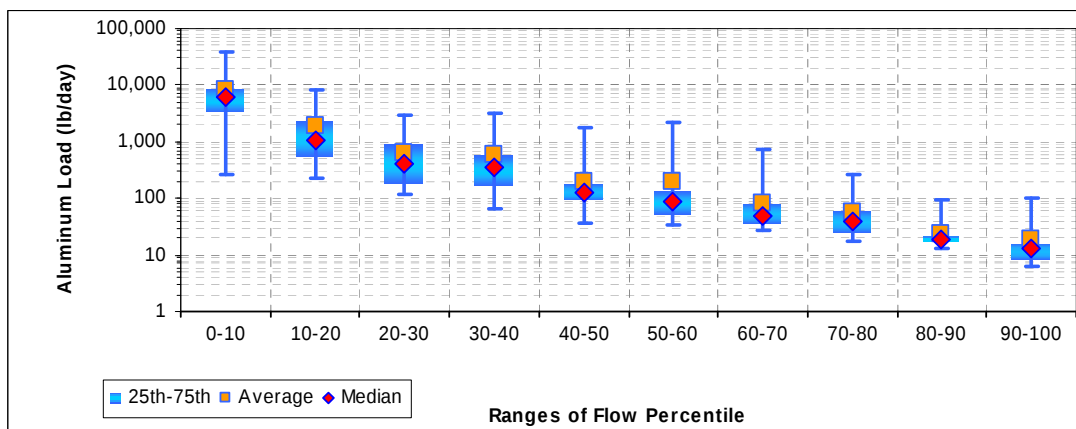


Figure J-140. Aluminum loads by flow percentile for Poplar Lick Run (POP0071/WM-97)

Table J-136. Ammonium loads (lb/d) by flow percentile for Poplar Lick Run (POP0071/WM-97)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 20.8    | 12.8    | 6.3   | 4.8   | 1.0   | 1.3   | 0.7   | 0.4   | 0.2   | 0.1    |
| Average | 518.3   | 143.1   | 54.1  | 53.5  | 21.8  | 23.6  | 6.9   | 4.9   | 1.7   | 2.1    |
| Maximum | 2,851.2 | 1,044.4 | 168.6 | 376.7 | 215.7 | 339.0 | 104.7 | 33.4  | 14.8  | 54.1   |
| Median  | 338.7   | 67.4    | 36.0  | 29.9  | 10.0  | 4.5   | 2.8   | 1.8   | 1.0   | 0.2    |
| 25th    | 245.9   | 34.8    | 13.8  | 11.7  | 5.7   | 3.2   | 1.4   | 1.4   | 0.5   | 0.2    |
| 75th    | 509.2   | 139.4   | 90.3  | 59.7  | 21.7  | 11.6  | 5.0   | 3.9   | 1.4   | 0.5    |

Table J-137. Nitrate loads (lbs/d) by flow percentile for Poplar Lick Run (POP0071/WM-97)

|         | 0-10    | 10-20   | 20-30   | 30-40   | 40-50   | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|---------|---------|-------|-------|-------|-------|--------|
| Minimum | 53.3    | 76.0    | 33.0    | 20.7    | 5.3     | 4.4   | 2.4   | 1.6   | 0.5   | 0.3    |
| Average | 2,571.3 | 709.5   | 258.8   | 233.5   | 105.0   | 77.4  | 22.5  | 20.8  | 6.0   | 4.1    |
| Maximum | 7,795.1 | 2,890.8 | 1,002.4 | 1,092.3 | 1,335.1 | 741.8 | 234.5 | 166.9 | 70.9  | 92.5   |
| Median  | 2,138.4 | 475.8   | 172.7   | 161.4   | 53.1    | 20.8  | 9.8   | 9.7   | 2.9   | 0.8    |
| 25th    | 1,375.2 | 246.9   | 74.4    | 59.2    | 27.5    | 12.7  | 5.7   | 4.0   | 1.5   | 0.5    |
| 75th    | 3,663.8 | 797.5   | 369.1   | 278.4   | 86.4    | 49.9  | 20.6  | 23.2  | 4.9   | 1.7    |

Table J-138. Sulfate loads (lbs/d) by flow percentile for Poplar Lick Run (POP0071/WM-97)

|         | 0-10   | 10-20  | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 2,062  | 2,179  | 1,247 | 2,003 | 957   | 852   | 688   | 441   | 346   | 175    |
| Average | 17,411 | 7,782  | 4,563 | 4,002 | 2,569 | 1,954 | 1,180 | 859   | 520   | 337    |
| Maximum | 37,260 | 21,787 | 9,302 | 9,268 | 6,885 | 6,851 | 2,953 | 1,795 | 911   | 521    |
| Median  | 17,384 | 6,603  | 4,182 | 3,956 | 2,309 | 1,629 | 1,041 | 702   | 520   | 349    |
| 25th    | 12,046 | 5,099  | 2,920 | 2,726 | 1,815 | 1,133 | 804   | 658   | 451   | 233    |
| 75th    | 22,685 | 9,321  | 6,086 | 4,883 | 3,357 | 2,644 | 1,303 | 1,020 | 574   | 439    |

Table J-139. Iron loads (lbs/d) by flow percentile for Poplar Lick Run (POP0071/WM-97)

|         | 0-10      | 10-20    | 20-30   | 30-40    | 40-50   | 50-60   | 60-70   | 70-80   | 80-90 | 90-100 |
|---------|-----------|----------|---------|----------|---------|---------|---------|---------|-------|--------|
| Minimum | 1,236.2   | 1,622.0  | 958.6   | 780.0    | 425.1   | 361.9   | 323.2   | 209.1   | 157.7 | 76.0   |
| Average | 24,588.9  | 5,812.4  | 2,719.6 | 2,575.6  | 1,274.6 | 1,133.6 | 634.1   | 467.4   | 250.0 | 181.7  |
| Maximum | 139,795.4 | 21,111.7 | 8,843.9 | 14,639.3 | 4,627.4 | 5,116.8 | 1,943.1 | 1,418.7 | 714.1 | 718.0  |
| Median  | 14,712.2  | 4,295.7  | 2,192.4 | 2,196.5  | 1,194.9 | 799.8   | 560.2   | 449.3   | 232.2 | 156.0  |
| 25th    | 8,441.4   | 2,819.2  | 1,357.0 | 1,394.9  | 840.0   | 607.6   | 380.5   | 286.2   | 197.0 | 100.7  |
| 75th    | 22,238.9  | 6,588.3  | 3,788.0 | 2,731.5  | 1,555.9 | 1,296.6 | 692.9   | 542.9   | 257.4 | 198.0  |

Table J-140. Aluminum loads (lbs/d) by flow percentile for Poplar Lick Run (POP0071/WM-97)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50   | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|---------|---------|-------|-------|-------|--------|
| Minimum | 261.1    | 219.5   | 113.9   | 65.3    | 35.2    | 33.5    | 27.1  | 17.9  | 12.9  | 6.2    |
| Average | 8,258.1  | 1,901.8 | 638.5   | 575.9   | 192.0   | 201.4   | 81.0  | 54.8  | 23.6  | 18.7   |
| Maximum | 37,222.3 | 8,276.3 | 2,885.0 | 3,259.6 | 1,810.0 | 2,271.1 | 721.5 | 270.2 | 95.9  | 103.6  |
| Median  | 6,253.6  | 1,085.9 | 395.7   | 352.1   | 128.8   | 87.8    | 48.3  | 39.5  | 19.1  | 12.8   |
| 25th    | 3,360.2  | 560.3   | 183.0   | 173.3   | 95.2    | 52.8    | 36.1  | 24.5  | 16.9  | 8.3    |
| 75th    | 8,941.6  | 2,419.4 | 922.6   | 587.8   | 177.3   | 134.6   | 79.5  | 63.0  | 21.2  | 16.2   |

## UT to Georges Creek (WM-110/UGQ0000) plots and tables

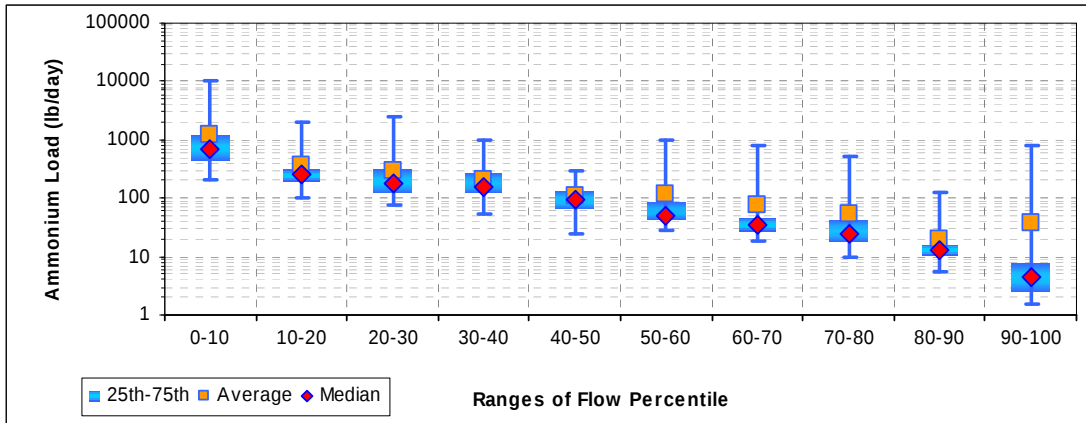


Figure J-141. Ammonium loads by flow percentile for UT to Georges Creek (UGQ0000/WM-110)

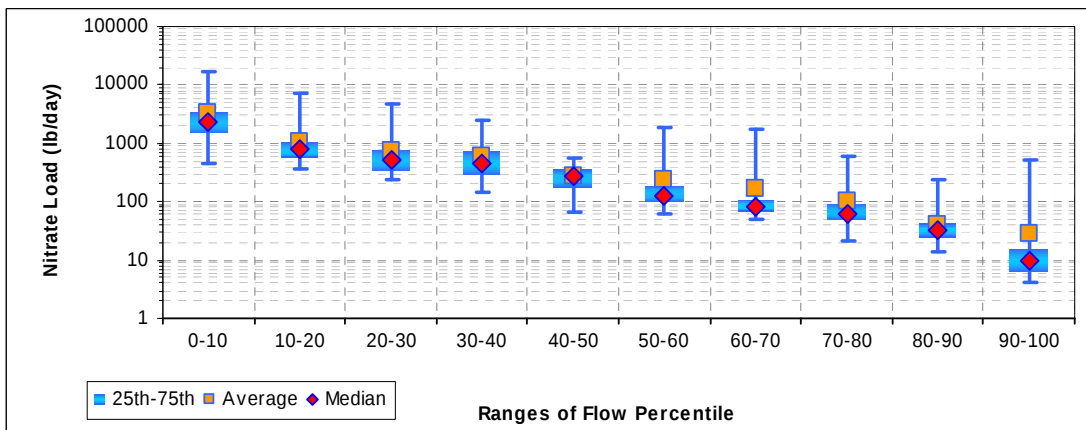


Figure J-142. Nitrate loads by flow percentile for UT to Georges Creek (UGQ0000/WM-110)

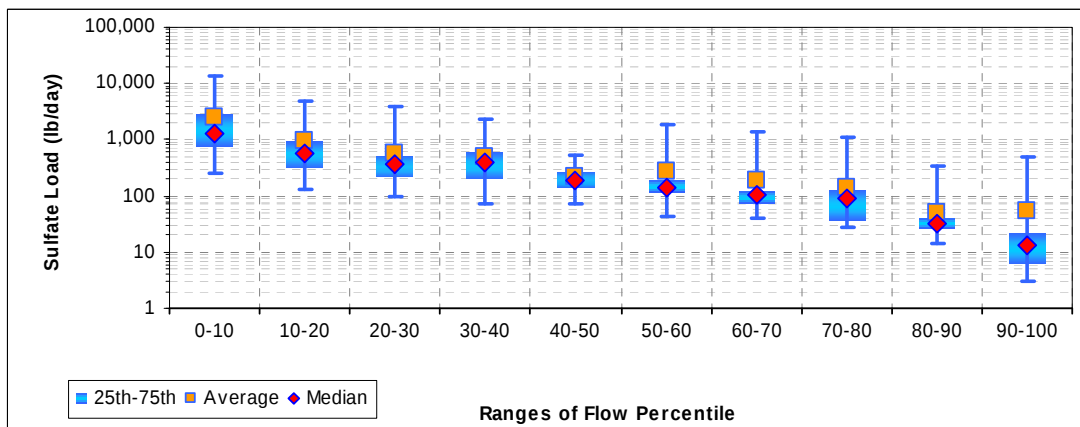


Figure J-143. Sulfate loads by flow percentile for UT to Georges Creek (UGQ0000/WM-110)

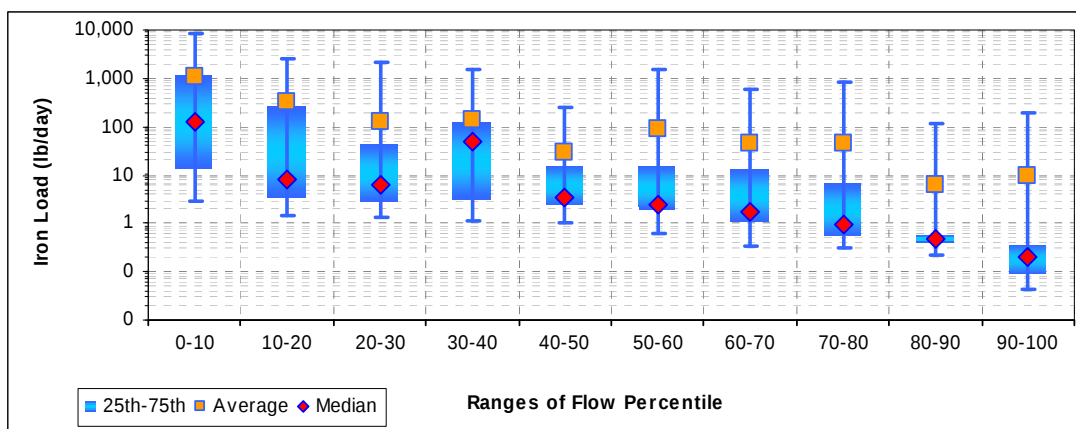


Figure J-144. Iron loads by flow percentile for UT to Georges Creek (UGQ0000/WM-110)

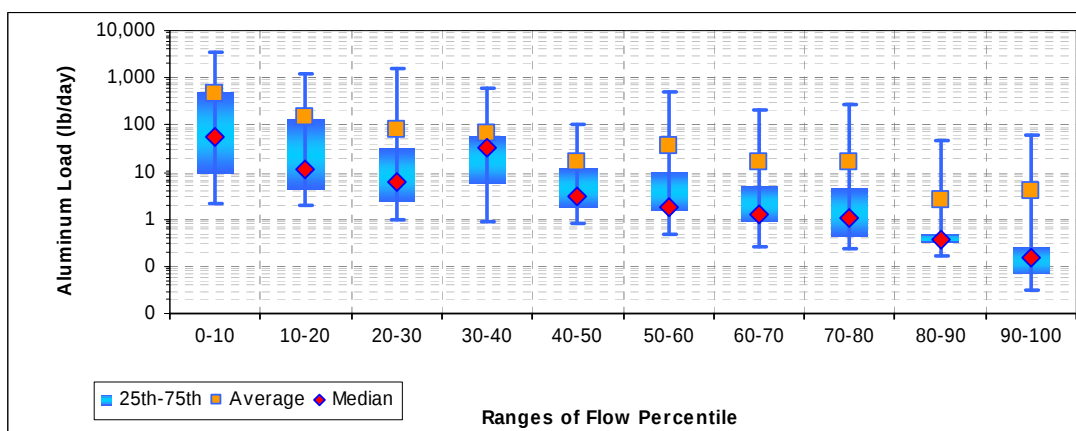


Figure J-145. Aluminum loads by flow percentile for UT to Georges Creek (UGQ0000/WM-110)

Table J-141. Ammonium loads (lb/d) by flow percentile for UT to Georges Creek (UGQ0000/WM-110)

|         | 0-10     | 10-20   | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 204.4    | 103.4   | 75.8    | 53.8  | 24.0  | 27.6  | 18.8  | 9.4   | 5.3   | 1.6    |
| Average | 1,250.8  | 371.2   | 295.2   | 213.7 | 107.9 | 119.7 | 78.9  | 54.6  | 20.4  | 36.8   |
| Maximum | 10,488.5 | 2,060.2 | 2,552.6 | 970.8 | 303.7 | 964.4 | 804.1 | 507.6 | 128.5 | 814.8  |
| Median  | 704.3    | 259.2   | 184.8   | 158.1 | 96.4  | 50.8  | 34.1  | 24.7  | 12.8  | 4.5    |
| 25th    | 441.8    | 197.9   | 125.1   | 123.1 | 67.6  | 42.3  | 26.5  | 18.3  | 10.4  | 2.6    |
| 75th    | 1,208.2  | 310.8   | 319.7   | 271.7 | 138.7 | 86.9  | 46.5  | 43.7  | 15.7  | 8.0    |

Table J-142. Nitrate loads (lbs/d) by flow percentile for UT to Georges Creek (UGQ0000/WM-110)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|---------|---------|-------|-------|--------|
| Minimum | 455.6    | 356.4   | 232.9   | 140.9   | 64.8  | 60.7    | 48.9    | 21.2  | 13.5  | 4.0    |
| Average | 3,291.2  | 1,063.9 | 738.8   | 603.5   | 282.9 | 242.9   | 163.6   | 99.6  | 41.5  | 29.0   |
| Maximum | 16,802.6 | 7,363.8 | 4,716.8 | 2,488.5 | 557.1 | 1,834.0 | 1,762.3 | 621.0 | 237.2 | 520.6  |
| Median  | 2,293.5  | 792.4   | 533.6   | 467.0   | 279.5 | 123.8   | 83.2    | 63.3  | 32.4  | 10.0   |
| 25th    | 1,563.4  | 570.8   | 342.1   | 284.4   | 179.0 | 102.5   | 67.6    | 49.6  | 24.6  | 6.2    |
| 75th    | 3,548.0  | 1,041.3 | 780.7   | 766.7   | 375.1 | 197.0   | 107.4   | 91.9  | 43.2  | 16.4   |

Table J-143. Sulfate loads (lbs/d) by flow percentile for UT to Georges Creek (UGQ0000/WM-110)

|         | 0-10   | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 255    | 135   | 100   | 75    | 71    | 43    | 40    | 27    | 14    | 3      |
| Average | 2,528  | 959   | 563   | 491   | 226   | 280   | 183   | 139   | 51    | 53     |
| Maximum | 13,880 | 4,895 | 3,943 | 2,247 | 538   | 1,874 | 1,405 | 1,121 | 335   | 503    |
| Median  | 1,278  | 564   | 355   | 397   | 183   | 141   | 108   | 87    | 32    | 13     |
| 25th    | 793    | 310   | 211   | 198   | 142   | 115   | 70    | 38    | 26    | 6      |
| 75th    | 2,799  | 990   | 543   | 629   | 264   | 192   | 124   | 128   | 40    | 23     |

Table J-144. Iron loads (lbs/d) by flow percentile for UT to Georges Creek (UGQ0000/WM-110)

|         | 0-10    | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|---------|-------|---------|-------|-------|-------|--------|
| Minimum | 2.9     | 1.5     | 1.3     | 1.1     | 1.1   | 0.6     | 0.3   | 0.3   | 0.2   | 0.0    |
| Average | 1,049.7 | 331.0   | 121.3   | 138.9   | 28.2  | 91.1    | 45.7  | 43.4  | 6.1   | 9.3    |
| Maximum | 8,362.9 | 2,523.1 | 2,148.8 | 1,486.4 | 257.2 | 1,461.6 | 582.7 | 823.2 | 119.9 | 186.3  |
| Median  | 124.0   | 8.0     | 6.5     | 48.3    | 3.5   | 2.4     | 1.7   | 0.9   | 0.5   | 0.2    |
| 25th    | 13.4    | 3.4     | 3.0     | 3.3     | 2.3   | 1.9     | 1.1   | 0.6   | 0.4   | 0.1    |
| 75th    | 1,170.4 | 270.8   | 44.4    | 131.1   | 16.2  | 15.6    | 14.0  | 6.7   | 0.6   | 0.4    |

Table J-145. Aluminum loads (lbs/d) by flow percentile for UT to Georges Creek (UGQ0000/WM-110)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 2.2     | 2.0     | 1.0     | 0.9   | 0.8   | 0.5   | 0.2   | 0.2   | 0.2   | 0.0    |
| Average | 460.7   | 152.7   | 78.2    | 67.3  | 15.7  | 35.2  | 16.5  | 15.7  | 2.6   | 4.0    |
| Maximum | 3,440.8 | 1,161.2 | 1,575.9 | 603.1 | 106.2 | 499.8 | 203.7 | 279.6 | 44.8  | 62.8   |
| Median  | 53.7    | 11.7    | 6.1     | 34.1  | 3.0   | 1.7   | 1.3   | 1.1   | 0.4   | 0.2    |
| 25th    | 9.5     | 4.3     | 2.3     | 5.5   | 1.8   | 1.5   | 0.9   | 0.4   | 0.3   | 0.1    |
| 75th    | 492.2   | 131.3   | 34.1    | 60.9  | 12.0  | 10.6  | 5.0   | 4.9   | 0.5   | 0.3    |

### Mill Run (WM-111/MIL0001) plots and tables

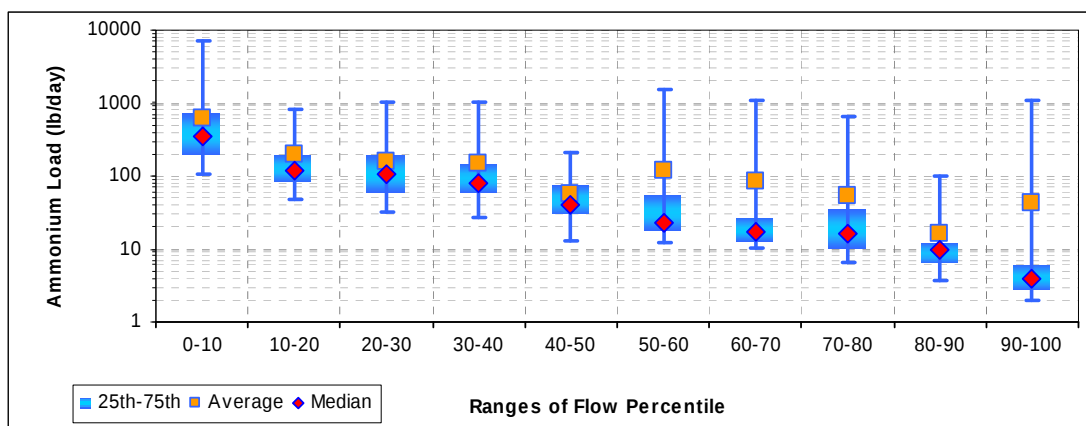


Figure J-146. Ammonium loads by flow percentile for Mill Run (MIL0001/WM-111)

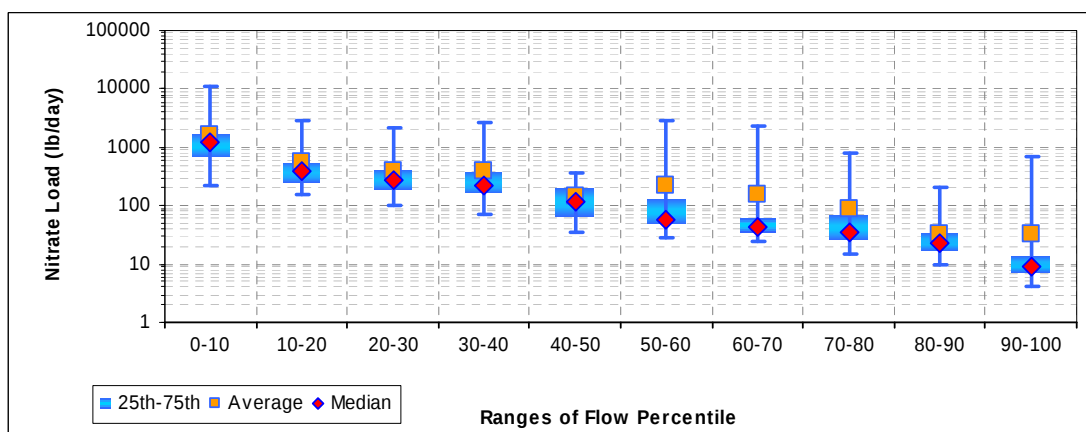


Figure J-147. Nitrate loads by flow percentile for Mill Run (MIL0001/WM-111)

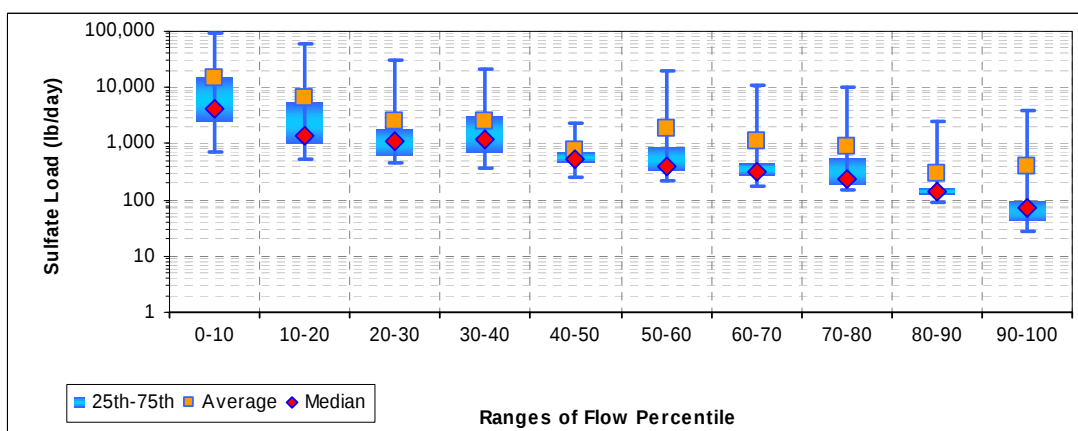


Figure J-148. Sulfate loads by flow percentile for Mill Run (MIL0001/WM-111)

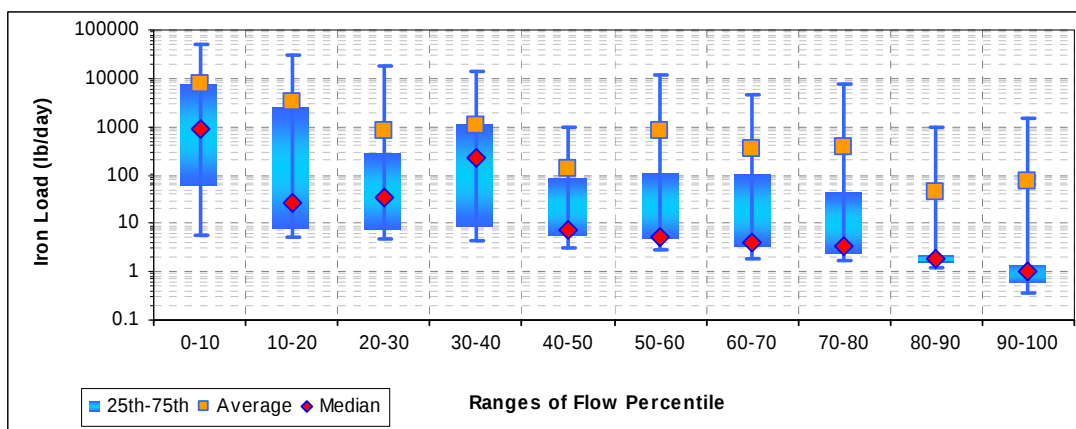


Figure J-149. Iron loads by flow percentile for Mill Run (MIL0001/WM-111)

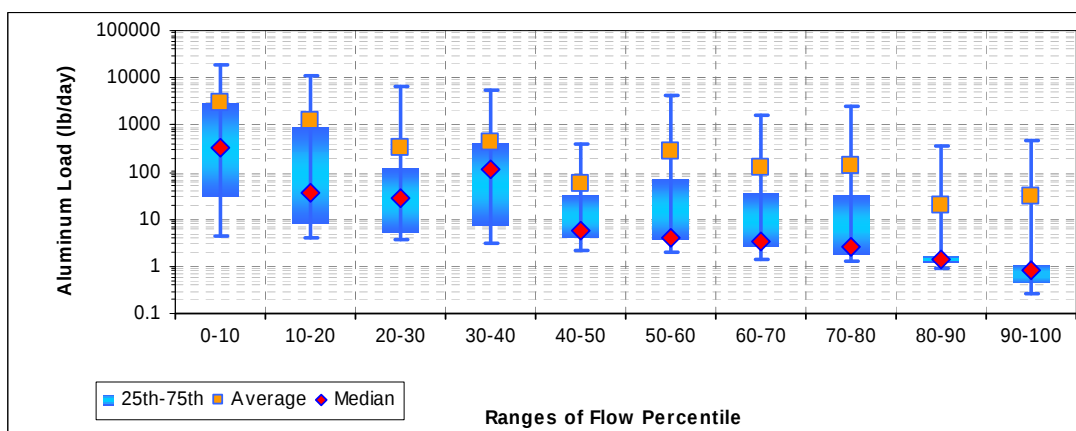


Figure J-150. Aluminum loads by flow percentile for Mill Run (MIL0001/WM-111)

Table J-146. Ammonium loads (lb/d) by flow percentile for Mill Run (MIL0001/WM-111)

|         | 0-10    | 10-20 | 20-30   | 30-40   | 40-50 | 50-60   | 60-70   | 70-80 | 80-90 | 90-100  |
|---------|---------|-------|---------|---------|-------|---------|---------|-------|-------|---------|
| Minimum | 108.0   | 47.6  | 32.3    | 26.4    | 12.7  | 12.3    | 10.5    | 6.5   | 3.7   | 2.0     |
| Average | 633.0   | 196.1 | 159.0   | 150.4   | 58.2  | 120.0   | 82.8    | 54.4  | 16.0  | 43.6    |
| Maximum | 6,924.5 | 813.6 | 1,020.0 | 1,015.2 | 210.4 | 1,533.9 | 1,063.1 | 653.3 | 99.4  | 1,060.1 |
| Median  | 345.2   | 120.5 | 103.9   | 80.9    | 41.1  | 23.2    | 16.9    | 16.2  | 9.6   | 4.0     |
| 25th    | 203.1   | 82.8  | 61.1    | 60.2    | 30.8  | 18.2    | 13.1    | 10.1  | 6.6   | 2.8     |
| 75th    | 715.5   | 194.8 | 194.0   | 146.3   | 73.5  | 57.8    | 27.2    | 36.0  | 12.5  | 6.1     |

Table J-147. Nitrate loads (lbs/d) by flow percentile for Mill Run (MIL0001/WM-111)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|---------|---------|-------|-------|--------|
| Minimum | 227.5    | 159.9   | 103.5   | 73.5    | 34.8  | 27.9    | 24.9    | 14.6  | 9.8   | 4.2    |
| Average | 1,660.3  | 540.4   | 387.2   | 404.6   | 145.8 | 226.7   | 158.8   | 86.8  | 32.6  | 32.7   |
| Maximum | 10,958.7 | 2,897.9 | 2,221.2 | 2,610.1 | 376.4 | 2,943.1 | 2,332.4 | 794.0 | 201.1 | 671.9  |
| Median  | 1,181.4  | 398.7   | 269.1   | 228.4   | 114.5 | 59.3    | 42.5    | 35.9  | 23.6  | 9.3    |
| 25th    | 713.3    | 262.0   | 189.4   | 167.5   | 68.5  | 49.2    | 34.5    | 25.6  | 17.1  | 7.1    |
| 75th    | 1,739.1  | 549.4   | 431.7   | 399.6   | 200.6 | 131.4   | 61.4    | 71.9  | 35.9  | 13.5   |

Table J-148. Sulfate loads (lbs/d) by flow percentile for Mill Run (MIL0001/WM-111)

|         | 0-10   | 10-20  | 20-30  | 30-40  | 40-50 | 50-60  | 60-70  | 70-80  | 80-90 | 90-100 |
|---------|--------|--------|--------|--------|-------|--------|--------|--------|-------|--------|
| Minimum | 686    | 542    | 457    | 365    | 252   | 212    | 173    | 146    | 91    | 28     |
| Average | 15,152 | 6,363  | 2,558  | 2,581  | 740   | 1,831  | 1,074  | 917    | 287   | 381    |
| Maximum | 94,367 | 60,280 | 31,110 | 20,883 | 2,377 | 19,123 | 11,105 | 10,159 | 2,509 | 3,878  |
| Median  | 4,243  | 1,421  | 1,132  | 1,210  | 525   | 388    | 312    | 242    | 140   | 73     |
| 25th    | 2,456  | 1,031  | 635    | 707    | 449   | 345    | 266    | 187    | 117   | 44     |
| 75th    | 15,541 | 5,537  | 1,877  | 3,055  | 697   | 868    | 446    | 558    | 164   | 100    |

Table J-149. Iron loads (lbs/d) by flow percentile for Mill Run (MIL0001/WM-111)

|         | 0-10     | 10-20    | 20-30    | 30-40    | 40-50 | 50-60    | 60-70   | 70-80   | 80-90 | 90-100  |
|---------|----------|----------|----------|----------|-------|----------|---------|---------|-------|---------|
| Minimum | 5.8      | 5.3      | 4.8      | 4.2      | 3.0   | 2.7      | 1.9     | 1.7     | 1.2   | 0.3     |
| Average | 7,368.0  | 3,166.2  | 810.5    | 1,059.3  | 130.7 | 794.0    | 353.8   | 384.5   | 46.1  | 71.9    |
| Maximum | 50,901.0 | 30,300.0 | 18,389.4 | 14,180.4 | 956.9 | 11,846.4 | 4,633.1 | 7,583.7 | 943.5 | 1,448.8 |
| Median  | 858.3    | 26.7     | 33.5     | 225.0    | 7.2   | 5.3      | 4.2     | 3.3     | 1.8   | 1.0     |
| 25th    | 63.9     | 7.9      | 7.2      | 8.8      | 5.7   | 4.7      | 3.5     | 2.3     | 1.6   | 0.6     |
| 75th    | 7,592.6  | 2,409.8  | 287.2    | 1,178.9  | 89.0  | 117.3    | 106.2   | 45.6    | 2.3   | 1.4     |

Table J-150. Aluminum loads (lbs/d) by flow percentile for Mill Run (MIL0001/WM-111)

|         | 0-10     | 10-20    | 20-30   | 30-40   | 40-50 | 50-60   | 60-70   | 70-80   | 80-90 | 90-100 |
|---------|----------|----------|---------|---------|-------|---------|---------|---------|-------|--------|
| Minimum | 4.3      | 4.0      | 3.6     | 3.2     | 2.3   | 2.0     | 1.4     | 1.3     | 0.9   | 0.3    |
| Average | 2,845.1  | 1,240.9  | 316.3   | 420.3   | 56.0  | 286.8   | 124.4   | 133.6   | 18.8  | 30.3   |
| Maximum | 19,395.4 | 11,332.5 | 6,632.3 | 5,289.9 | 408.3 | 4,042.6 | 1,608.6 | 2,521.6 | 350.8 | 481.9  |
| Median  | 330.9    | 37.0     | 27.5    | 113.3   | 5.8   | 4.1     | 3.2     | 2.6     | 1.4   | 0.8    |
| 25th    | 30.5     | 8.4      | 5.4     | 7.3     | 4.2   | 3.6     | 2.6     | 1.8     | 1.2   | 0.4    |
| 75th    | 2,852.6  | 971.3    | 125.1   | 436.8   | 32.0  | 75.5    | 36.0    | 33.9    | 1.7   | 1.0    |

## Jackson Run (WM-113/JAC0001) plots and tables

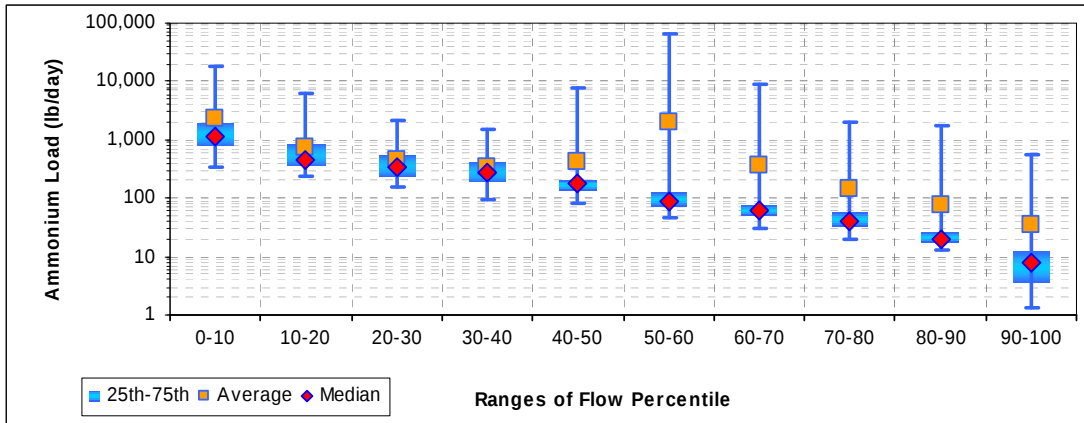


Figure J-151. Ammonium loads by flow percentile for Jackson Run (JAC0001/WM-113)

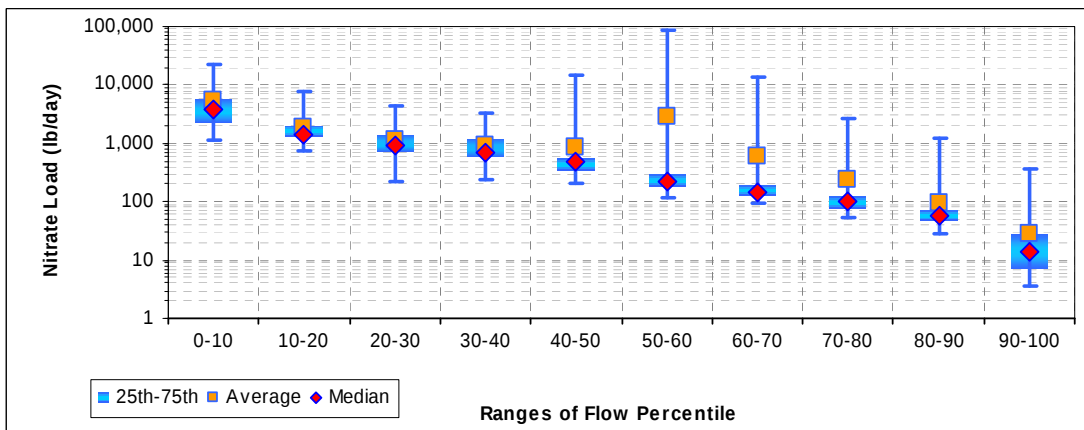


Figure J-152. Nitrate loads by flow percentile for Jackson Run (JAC0001/WM-113)

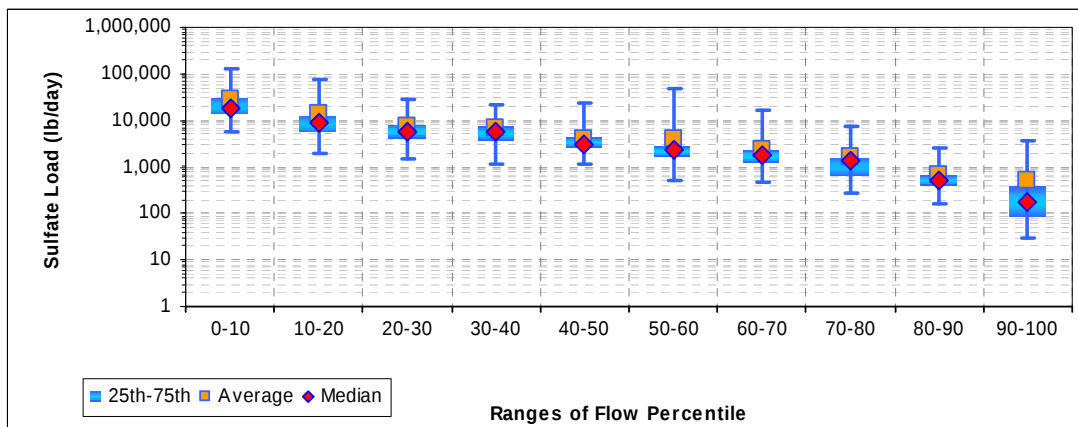


Figure J-153. Sulfate loads by flow percentile for Jackson Run (JAC0001/WM-113)

\*\* Plots include upstream loads from UT to Jackson Run (WM-118/UJB0000) and Jackson Run (WM-125/JAC0

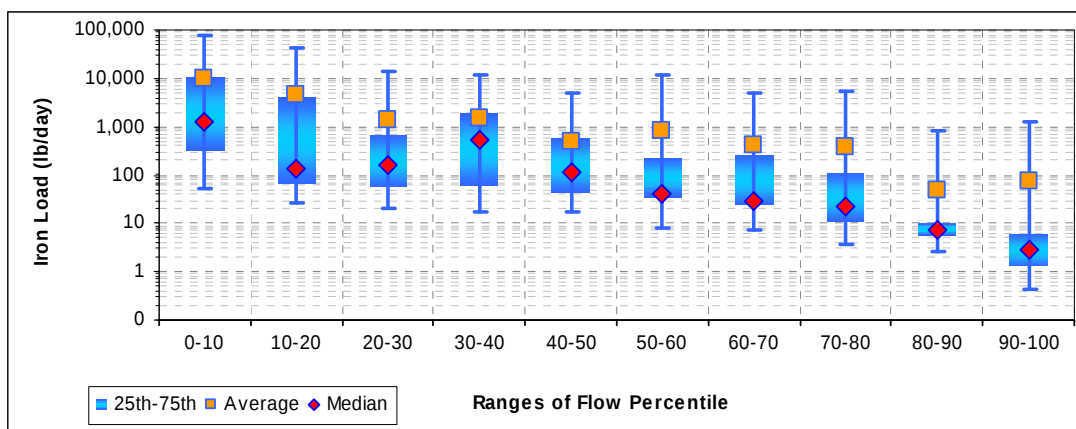


Figure J-154. Iron loads by flow percentile for Jackson Run (JAC0001/WM-113)

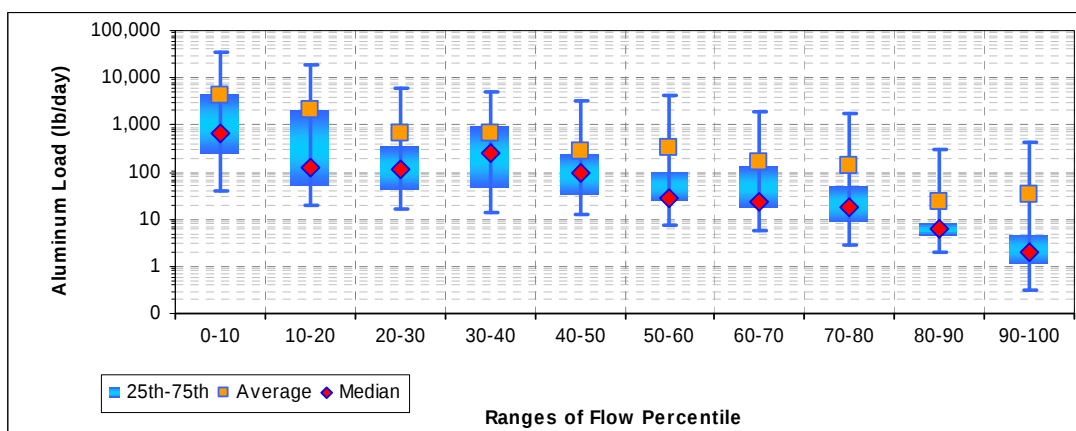


Figure J-155. Aluminum loads by flow percentile for Jackson Run (JAC0001/WM-113)

\*\* Plots include upstream loads from UT to Jackson Run (WM-118/UJB0000) and Jackson Run (WM-125/JAC0

Table J-151. Ammonium loads (lb/d) by flow percentile for Jackson Run (JAC0001/WM-113)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50   | 50-60    | 60-70   | 70-80   | 80-90   | 90-100 |
|---------|----------|---------|---------|---------|---------|----------|---------|---------|---------|--------|
| Minimum | 350.0    | 235.2   | 155.2   | 92.1    | 82.6    | 46.5     | 29.7    | 19.9    | 12.6    | 1.4    |
| Average | 2,274.7  | 760.7   | 460.6   | 350.5   | 421.7   | 2,018.0  | 372.5   | 146.2   | 75.8    | 34.8   |
| Maximum | 18,791.4 | 6,148.4 | 2,228.2 | 1,554.0 | 7,601.6 | 67,213.6 | 8,790.4 | 2,074.4 | 1,769.2 | 573.5  |
| Median  | 1,121.2  | 441.1   | 349.4   | 269.7   | 172.9   | 90.6     | 63.4    | 40.4    | 20.3    | 7.7    |
| 25th    | 801.0    | 365.4   | 242.2   | 193.0   | 135.0   | 72.1     | 49.6    | 31.9    | 17.6    | 3.6    |
| 75th    | 2,073.5  | 833.1   | 569.2   | 422.2   | 208.1   | 122.2    | 77.7    | 56.6    | 25.8    | 13.3   |

Table J-152. Nitrate loads (lbs/d) by flow percentile for Jackson Run (JAC0001/WM-113)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50    | 50-60    | 60-70    | 70-80   | 80-90   | 90-100 |
|---------|----------|---------|---------|---------|----------|----------|----------|---------|---------|--------|
| Minimum | 1,139.7  | 765.4   | 215.6   | 236.7   | 200.2    | 120.7    | 93.4     | 52.3    | 28.3    | 3.5    |
| Average | 5,301.6  | 1,853.2 | 1,173.5 | 923.8   | 876.2    | 2,792.3  | 590.1    | 231.4   | 96.5    | 28.8   |
| Maximum | 21,742.5 | 8,016.3 | 4,430.4 | 3,396.9 | 14,809.5 | 88,918.8 | 13,465.8 | 2,624.3 | 1,256.6 | 377.0  |
| Median  | 3,722.4  | 1,414.6 | 930.2   | 714.5   | 476.3    | 221.5    | 143.4    | 98.5    | 55.7    | 14.0   |
| 25th    | 2,338.6  | 1,272.4 | 748.8   | 588.9   | 341.8    | 180.3    | 123.2    | 78.7    | 46.3    | 7.2    |
| 75th    | 5,624.7  | 1,953.9 | 1,386.7 | 1,232.1 | 564.4    | 287.8    | 188.5    | 123.3   | 69.2    | 28.1   |

Table J-153. Sulfate loads (lbs/d) by flow percentile for Jackson Run (JAC0001/WM-113)

|         | 0-10    | 10-20  | 20-30  | 30-40  | 40-50  | 50-60  | 60-70  | 70-80 | 80-90 | 90-100 |
|---------|---------|--------|--------|--------|--------|--------|--------|-------|-------|--------|
| Minimum | 5,634   | 1,995  | 1,491  | 1,184  | 1,124  | 535    | 485    | 281   | 167   | 29     |
| Average | 28,205  | 13,497 | 7,658  | 6,572  | 3,914  | 3,939  | 2,328  | 1,566 | 666   | 493    |
| Maximum | 132,640 | 72,998 | 28,013 | 22,118 | 22,649 | 47,566 | 16,036 | 7,403 | 2,624 | 3,550  |
| Median  | 17,840  | 8,718  | 5,540  | 5,631  | 2,986  | 2,262  | 1,852  | 1,418 | 522   | 177    |
| 25th    | 13,450  | 5,533  | 4,087  | 3,624  | 2,528  | 1,682  | 1,290  | 667   | 387   | 83     |
| 75th    | 29,914  | 13,096 | 8,018  | 7,765  | 4,272  | 2,718  | 2,252  | 1,686 | 675   | 390    |

Table J-154. Iron loads (lbs/d) by flow percentile for Jackson Run (JAC0001/WM-113)

|         | 0-10     | 10-20    | 20-30    | 30-40    | 40-50   | 50-60    | 60-70   | 70-80   | 80-90 | 90-100  |
|---------|----------|----------|----------|----------|---------|----------|---------|---------|-------|---------|
| Minimum | 52.7     | 26.9     | 20.3     | 17.6     | 17.3    | 8.1      | 7.5     | 3.8     | 2.6   | 0.4     |
| Average | 9,711.3  | 4,520.8  | 1,406.1  | 1,502.1  | 503.6   | 787.0    | 427.4   | 367.0   | 47.6  | 72.2    |
| Maximum | 79,526.5 | 43,939.7 | 14,137.4 | 11,737.9 | 5,121.0 | 11,266.4 | 5,143.1 | 5,187.8 | 837.2 | 1,306.8 |
| Median  | 1,262.3  | 129.8    | 159.1    | 534.4    | 116.3   | 38.9     | 29.2    | 23.0    | 7.6   | 2.7     |
| 25th    | 306.0    | 66.1     | 56.2     | 64.4     | 42.9    | 33.6     | 24.2    | 11.3    | 5.8   | 1.3     |
| 75th    | 10,615.8 | 4,288.5  | 691.2    | 1,967.3  | 557.1   | 226.2    | 264.9   | 112.8   | 9.9   | 6.0     |

Table J-155. Aluminum loads (lbs/d) by flow percentile for Jackson Run (JAC0001/WM-113)

|         | 0-10     | 10-20    | 20-30   | 30-40   | 40-50   | 50-60   | 60-70   | 70-80   | 80-90 | 90-100 |
|---------|----------|----------|---------|---------|---------|---------|---------|---------|-------|--------|
| Minimum | 39.8     | 19.3     | 16.2    | 13.3    | 13.1    | 7.3     | 5.8     | 2.8     | 1.9   | 0.3    |
| Average | 4,269.5  | 2,052.4  | 635.9   | 675.3   | 264.2   | 315.9   | 163.1   | 138.9   | 22.6  | 33.5   |
| Maximum | 34,664.1 | 19,202.1 | 5,736.0 | 5,000.1 | 3,154.0 | 4,397.8 | 1,833.0 | 1,763.7 | 313.7 | 436.7  |
| Median  | 680.3    | 123.3    | 110.4   | 257.0   | 93.6    | 28.4    | 22.5    | 18.2    | 6.1   | 2.1    |
| 25th    | 254.7    | 54.0     | 43.7    | 48.0    | 32.4    | 25.4    | 18.3    | 8.6     | 4.5   | 1.2    |
| 75th    | 4,655.3  | 2,096.3  | 352.1   | 973.3   | 251.5   | 100.6   | 138.2   | 49.5    | 8.0   | 4.9    |

\*\* These tables include upstream loads from UT to Jackson Run (WM-118/UJB0000) and Jackson Run (WM-125/JAC0006).

## Matthew Run (WM-116/MTH0000) plots and tables

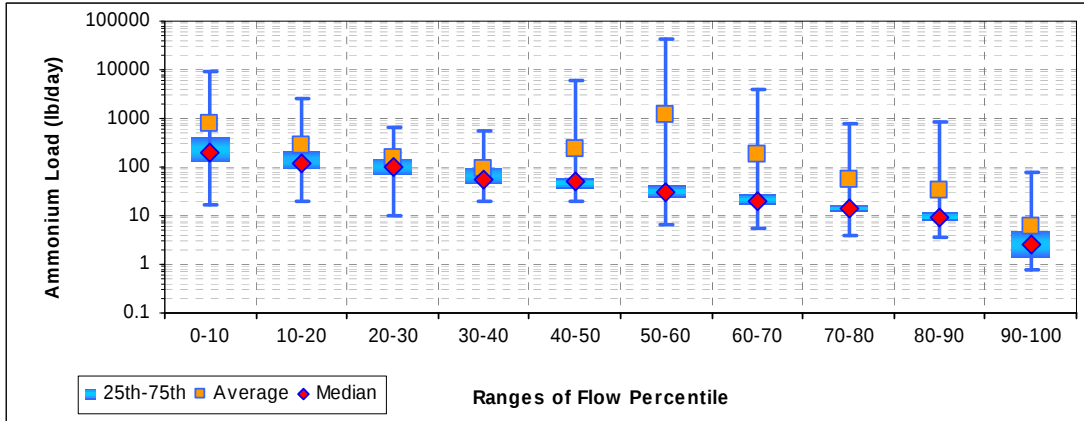


Figure J-156. Ammonium loads by flow percentile for Matthew Run (MTH0000/WM-116)

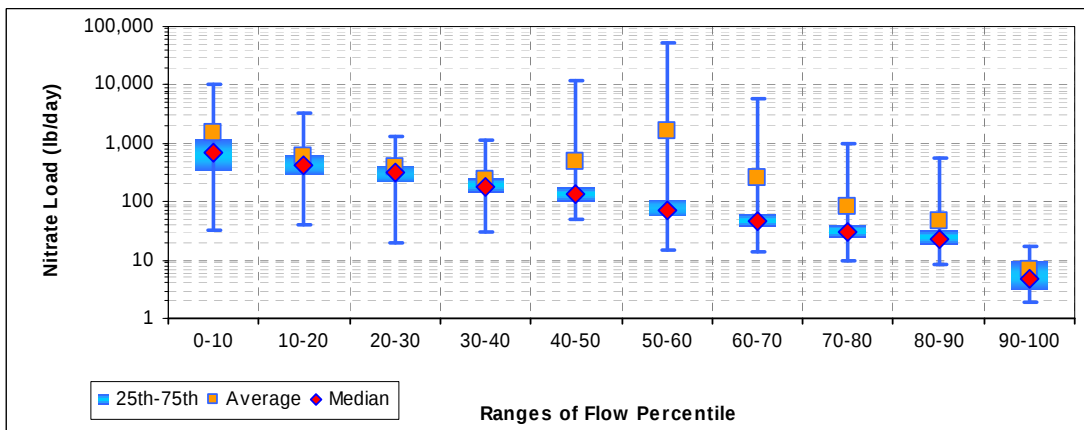


Figure J-157. Nitrate loads by flow percentile for Matthew Run (MTH0000/WM-116)

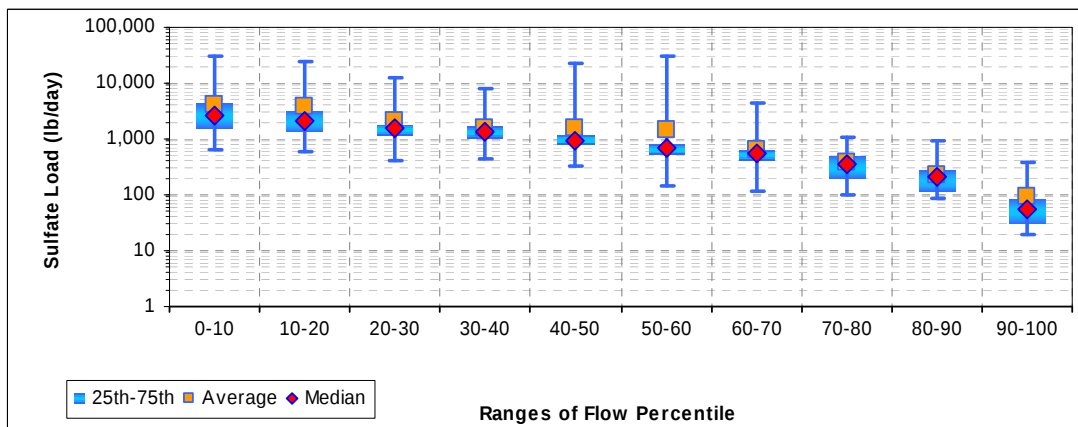


Figure J-158. Sulfate loads by flow percentile for Matthew Run (MTH0000/WM-116)

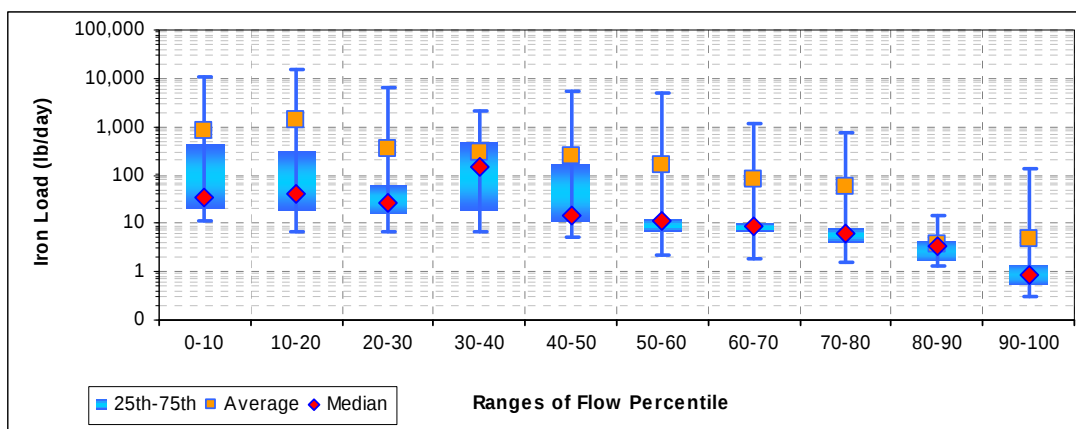


Figure J-159. Iron loads by flow percentile for Matthew Run (MTH0000/WM-116)

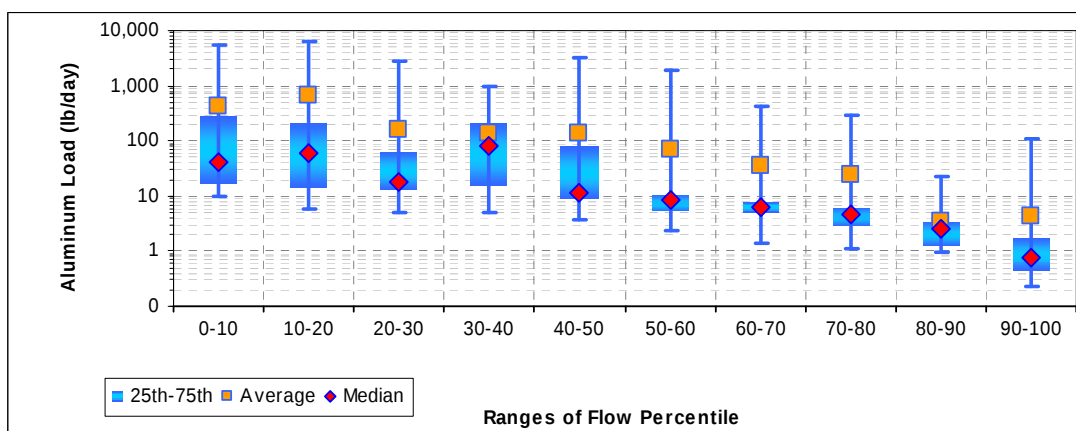


Figure J-160. Aluminum loads by flow percentile for Matthew Run (MTH0000/WM-116)

Table J-156. Ammonium loads (lb/d) by flow percentile for Matthew Run (MTH0000/WM-116)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50   | 50-60    | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|---------|----------|---------|-------|-------|--------|
| Minimum | 17.0    | 19.5    | 9.8   | 19.8  | 20.4    | 6.3      | 5.4     | 4.0   | 3.7   | 0.8    |
| Average | 770.3   | 271.8   | 155.7 | 91.5  | 236.6   | 1,199.1  | 174.7   | 54.6  | 33.9  | 5.8    |
| Maximum | 9,082.6 | 2,609.5 | 627.6 | 565.7 | 6,038.5 | 41,330.2 | 4,065.3 | 795.4 | 816.0 | 79.6   |
| Median  | 195.3   | 122.7   | 102.7 | 55.9  | 49.9    | 29.5     | 20.4    | 13.6  | 9.3   | 2.6    |
| 25th    | 124.8   | 90.6    | 68.5  | 47.9  | 36.6    | 24.3     | 17.2    | 11.9  | 8.0   | 1.4    |
| 75th    | 414.8   | 222.5   | 159.3 | 98.7  | 59.4    | 41.1     | 28.6    | 16.3  | 12.0  | 5.0    |

Table J-157. Nitrate loads (lbs/d) by flow percentile for Matthew Run (MTH0000/WM-116)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50    | 50-60    | 60-70   | 70-80   | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|----------|----------|---------|---------|-------|--------|
| Minimum | 32.5     | 39.9    | 19.9    | 29.6    | 48.8     | 14.7     | 13.4    | 9.5     | 8.6   | 1.9    |
| Average | 1,484.9  | 615.8   | 388.3   | 233.9   | 468.4    | 1,608.3  | 248.3   | 83.7    | 45.1  | 6.7    |
| Maximum | 10,048.2 | 3,306.1 | 1,347.2 | 1,176.7 | 11,665.3 | 53,855.5 | 5,824.7 | 1,014.0 | 566.0 | 17.7   |
| Median  | 693.9    | 422.5   | 309.9   | 176.0   | 136.4    | 71.2     | 47.2    | 30.5    | 23.4  | 4.8    |
| 25th    | 332.5    | 294.4   | 224.5   | 141.3   | 98.9     | 55.9     | 36.8    | 24.8    | 18.8  | 3.0    |
| 75th    | 1,185.1  | 655.6   | 411.5   | 247.4   | 175.2    | 110.5    | 60.1    | 39.8    | 32.6  | 9.9    |

Table J-158. Sulfate loads (lbs/d) by flow percentile for Matthew Run (MTH0000/WM-116)

|         | 0-10   | 10-20  | 20-30  | 30-40 | 40-50  | 50-60  | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|--------|-------|--------|--------|-------|-------|-------|--------|
| Minimum | 665    | 585    | 420    | 453   | 328    | 140    | 116   | 98    | 84    | 20     |
| Average | 4,157  | 3,847  | 2,083  | 1,564 | 1,540  | 1,492  | 660   | 391   | 231   | 91     |
| Maximum | 31,580 | 24,934 | 12,793 | 7,783 | 22,666 | 31,422 | 4,563 | 1,071 | 916   | 388    |
| Median  | 2,603  | 2,084  | 1,547  | 1,323 | 935    | 688    | 540   | 364   | 214   | 53     |
| 25th    | 1,534  | 1,347  | 1,175  | 1,037 | 774    | 495    | 423   | 194   | 113   | 31     |
| 75th    | 4,522  | 3,323  | 1,840  | 1,633 | 1,174  | 774    | 624   | 495   | 286   | 89     |

Table J-159. Iron loads (lbs/d) by flow percentile for Matthew Run (MTH0000/WM-116)

|         | 0-10     | 10-20    | 20-30   | 30-40   | 40-50   | 50-60   | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|----------|----------|---------|---------|---------|---------|---------|-------|-------|--------|
| Minimum | 11.7     | 6.8      | 6.5     | 6.6     | 5.1     | 2.1     | 1.8     | 1.5   | 1.3   | 0.3    |
| Average | 816.0    | 1,397.6  | 335.0   | 287.4   | 245.5   | 167.3   | 84.0    | 55.3  | 3.7   | 5.0    |
| Maximum | 10,679.4 | 14,674.3 | 6,221.7 | 2,095.4 | 5,198.5 | 4,916.8 | 1,141.6 | 740.2 | 15.1  | 139.0  |
| Median  | 34.2     | 41.0     | 25.9    | 145.4   | 15.0    | 10.9    | 8.6     | 6.2   | 3.2   | 0.9    |
| 25th    | 20.5     | 18.9     | 16.5    | 18.9    | 11.7    | 6.9     | 6.5     | 3.8   | 1.6   | 0.5    |
| 75th    | 448.7    | 320.9    | 65.1    | 485.4   | 169.6   | 12.2    | 9.9     | 8.0   | 4.4   | 1.4    |

Table J-160. Aluminum loads (lbs/d) by flow percentile for Matthew Run (MTH0000/WM-116)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50   | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|---------|---------|-------|-------|-------|--------|
| Minimum | 9.8     | 5.6     | 4.9     | 5.0   | 3.8     | 2.4     | 1.4   | 1.2   | 1.0   | 0.2    |
| Average | 424.6   | 646.0   | 161.1   | 141.8 | 137.8   | 68.2    | 35.5  | 24.2  | 3.4   | 4.3    |
| Maximum | 5,475.7 | 6,510.5 | 2,712.9 | 969.2 | 3,216.6 | 1,927.5 | 429.9 | 297.7 | 23.3  | 107.8  |
| Median  | 40.3    | 60.0    | 18.2    | 81.1  | 11.4    | 8.2     | 6.5   | 4.7   | 2.5   | 0.8    |
| 25th    | 16.7    | 14.4    | 13.4    | 15.6  | 8.8     | 5.4     | 4.9   | 2.9   | 1.3   | 0.4    |
| 75th    | 293.3   | 208.3   | 65.4    | 219.4 | 83.1    | 10.5    | 7.8   | 6.1   | 3.4   | 1.8    |

### Staub Run (WM-117/STA0024) plots and tables

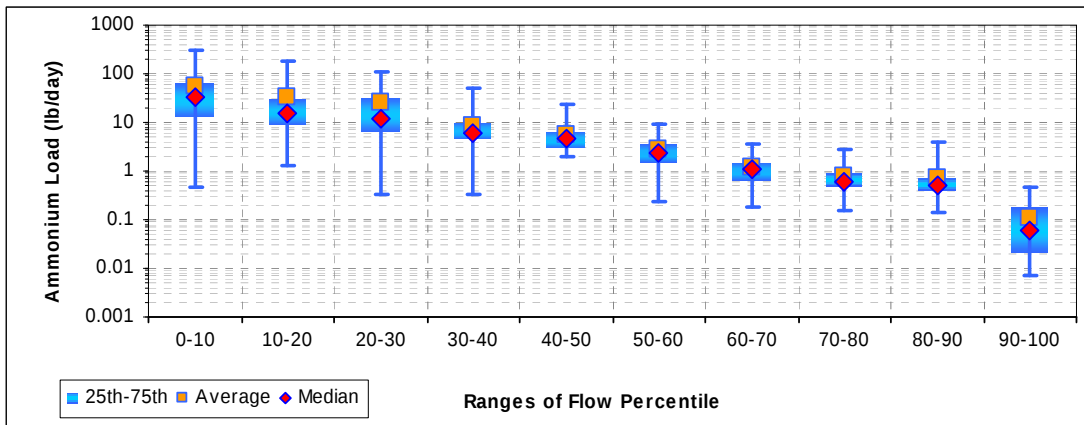


Figure J-161. Ammonium loads by flow percentile for Staub Run (STA0024/WM-117)

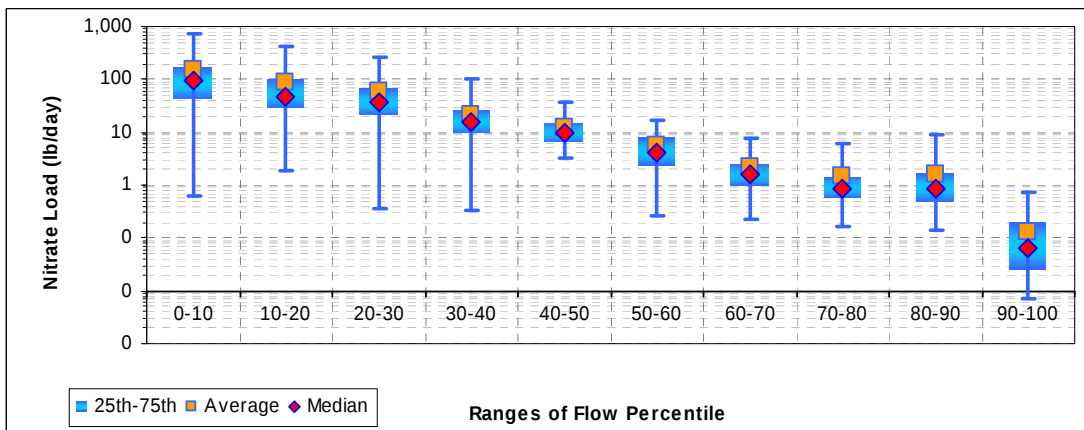


Figure J-162. Nitrate loads by flow percentile for Staub Run (STA0024/WM-117)

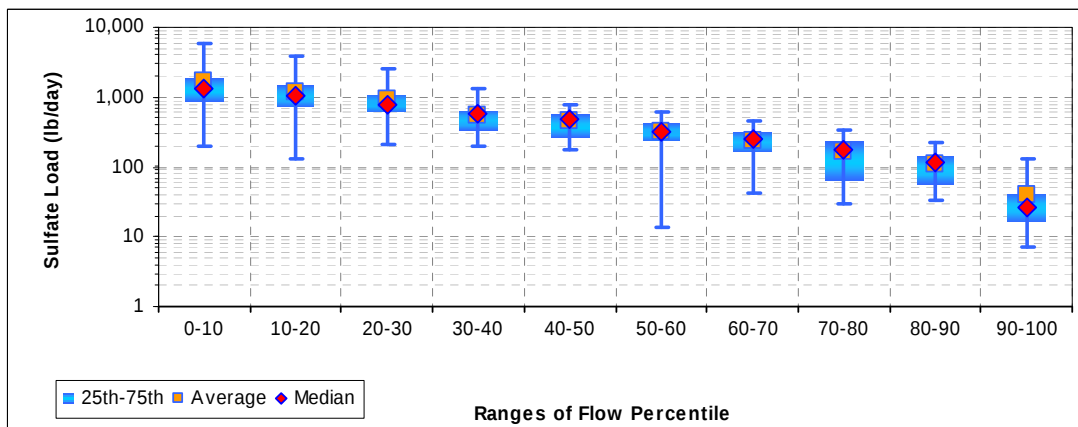


Figure J-163. Sulfate loads by flow percentile for Staub Run (STA0024/WM-117)

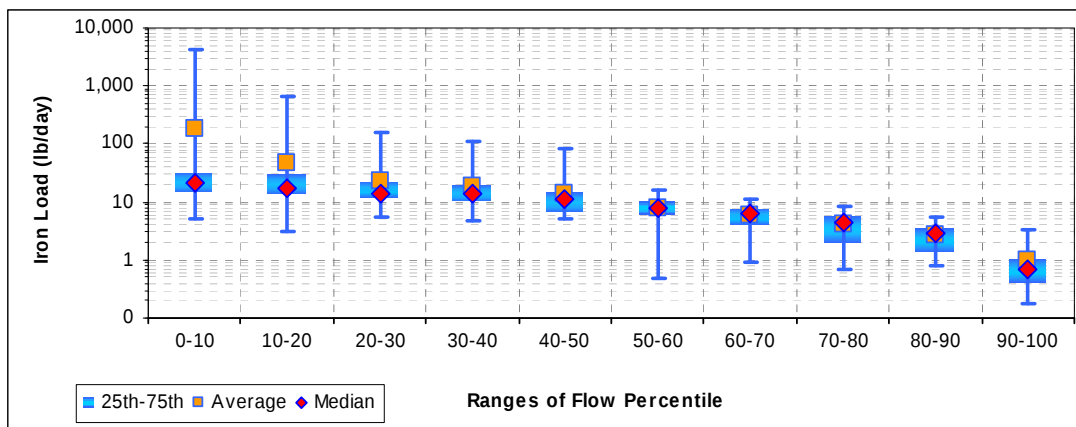


Figure J-164. Iron loads by flow percentile for Staub Run (STA0024/WM-117)

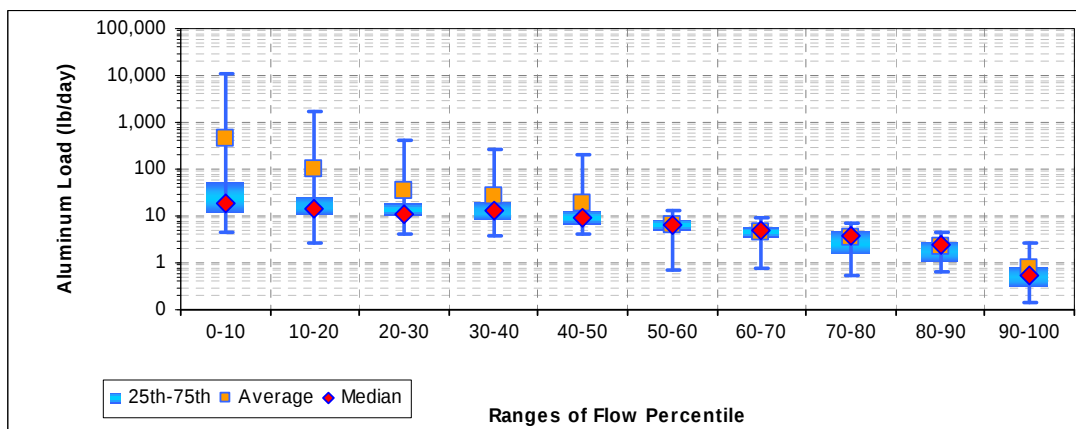


Figure J-165. Aluminum loads by flow percentile for Staub Run (STA0024/WM-117)

# FINAL

Table J-161. Ammonium loads (lb/d) by flow percentile for Staub Run (STA0024/WM-117)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 0.5   | 1.3   | 0.3   | 0.3   | 2.0   | 0.2   | 0.2   | 0.2   | 0.1   | 0.0    |
| Average | 53.0  | 33.3  | 24.9  | 8.6   | 5.7   | 2.9   | 1.2   | 0.8   | 0.7   | 0.1    |
| Maximum | 299.0 | 179.7 | 108.4 | 51.0  | 23.0  | 9.4   | 3.7   | 2.7   | 3.9   | 0.5    |
| Median  | 34.2  | 15.1  | 12.2  | 6.2   | 4.5   | 2.4   | 1.1   | 0.6   | 0.5   | 0.1    |
| 25th    | 12.9  | 9.2   | 6.7   | 4.5   | 2.9   | 1.6   | 0.7   | 0.5   | 0.4   | 0.0    |
| 75th    | 63.3  | 29.9  | 32.2  | 10.0  | 6.3   | 3.7   | 1.5   | 0.9   | 0.7   | 0.2    |

Table J-162. Nitrate loads (lbs/d) by flow percentile for Staub Run (STA0024/WM-117)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 0.6   | 1.9   | 0.4   | 0.3   | 3.2   | 0.3   | 0.2   | 0.2   | 0.1   | 0.0    |
| Average | 151.9 | 88.5  | 57.8  | 21.4  | 12.7  | 5.6   | 2.1   | 1.4   | 1.7   | 0.1    |
| Maximum | 718.6 | 432.6 | 260.4 | 106.3 | 38.1  | 17.2  | 7.8   | 6.0   | 9.0   | 0.7    |
| Median  | 92.5  | 48.6  | 37.3  | 15.9  | 10.1  | 4.3   | 1.6   | 0.9   | 0.9   | 0.1    |
| 25th    | 43.6  | 29.5  | 20.8  | 9.9   | 6.4   | 2.5   | 1.0   | 0.6   | 0.5   | 0.0    |
| 75th    | 180.8 | 103.7 | 68.7  | 27.1  | 15.6  | 8.3   | 2.6   | 1.5   | 1.8   | 0.2    |

Table J-163. Sulfate loads (lbs/d) by flow percentile for Staub Run (STA0024/WM-117)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 197   | 129   | 214   | 197   | 174   | 14    | 42    | 30    | 32    | 7      |
| Average | 1,725 | 1,203 | 903   | 557   | 446   | 325   | 236   | 166   | 107   | 39     |
| Maximum | 6,034 | 3,826 | 2,488 | 1,325 | 780   | 626   | 447   | 348   | 228   | 128    |
| Median  | 1,333 | 1,029 | 796   | 561   | 486   | 319   | 255   | 172   | 117   | 27     |
| 25th    | 867   | 720   | 619   | 340   | 268   | 237   | 171   | 66    | 57    | 16     |
| 75th    | 1,930 | 1,474 | 1,080 | 656   | 580   | 432   | 312   | 241   | 146   | 42     |

Table J-164. Iron loads (lbs/d) by flow percentile for Staub Run (STA0024/WM-117)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 5.0     | 3.2   | 5.3   | 4.9   | 5.0   | 0.5   | 0.9   | 0.7   | 0.8   | 0.2    |
| Average | 179.1   | 48.1  | 22.3  | 18.5  | 14.2  | 7.8   | 5.9   | 4.2   | 2.7   | 1.0    |
| Maximum | 4,094.1 | 658.3 | 160.8 | 112.6 | 84.9  | 15.6  | 11.2  | 8.7   | 5.7   | 3.2    |
| Median  | 21.8    | 17.4  | 13.6  | 14.1  | 11.4  | 7.7   | 6.3   | 4.3   | 2.9   | 0.7    |
| 25th    | 14.5    | 13.7  | 12.0  | 10.3  | 6.7   | 5.9   | 4.3   | 2.0   | 1.4   | 0.4    |
| 75th    | 33.9    | 30.8  | 23.1  | 19.7  | 14.9  | 10.1  | 7.6   | 6.0   | 3.6   | 1.1    |

Table J-165. Aluminum loads (lbs/d) by flow percentile for Staub Run (STA0024/WM-117)

|         | 0-10     | 10-20   | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 4.3      | 2.6     | 4.3   | 3.9   | 4.0   | 0.7   | 0.8   | 0.6   | 0.6   | 0.1    |
| Average | 445.9    | 99.9    | 33.2  | 27.2  | 18.6  | 6.4   | 4.7   | 3.4   | 2.1   | 0.8    |
| Maximum | 10,821.7 | 1,773.3 | 401.9 | 271.7 | 202.0 | 12.5  | 8.9   | 7.0   | 4.5   | 2.6    |
| Median  | 18.6     | 14.0    | 11.0  | 12.8  | 9.3   | 6.2   | 5.1   | 3.6   | 2.3   | 0.5    |
| 25th    | 11.7     | 10.9    | 9.6   | 8.6   | 6.2   | 4.7   | 3.4   | 1.6   | 1.1   | 0.3    |
| 75th    | 54.5     | 27.5    | 19.4  | 19.9  | 13.4  | 8.1   | 6.1   | 4.8   | 2.9   | 0.8    |

UT to Jackson Run (WM-118/UJB0000) plots and tables

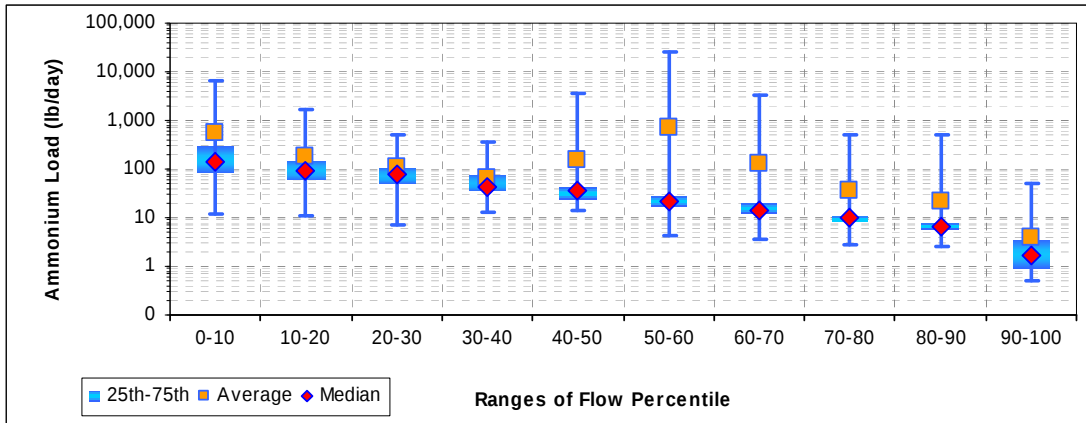


Figure J-166. Ammonium loads by flow percentile for UT to Jackson Run (UJB0000/WM-118)

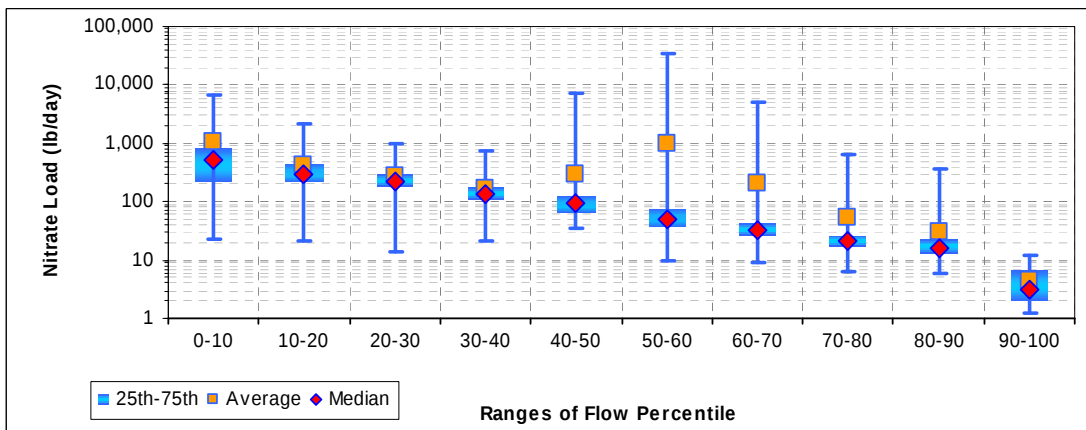


Figure J-167. Nitrate loads by flow percentile for UT to Jackson Run (UJB0000/WM-118)

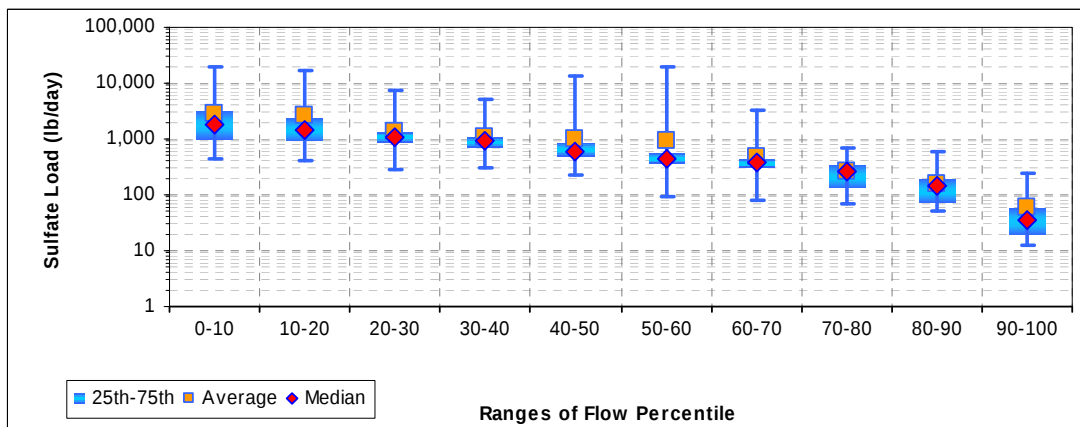


Figure J-168. Sulfate loads by flow percentile for UT to Jackson Run (UJB0000/WM-118)

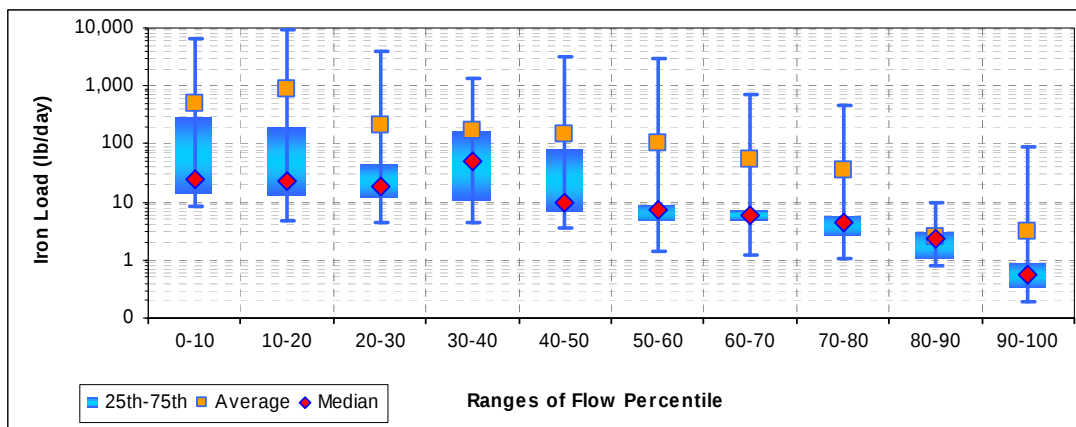


Figure J-169. Iron loads by flow percentile for UT to Jackson Run (UJB0000/WM-118)

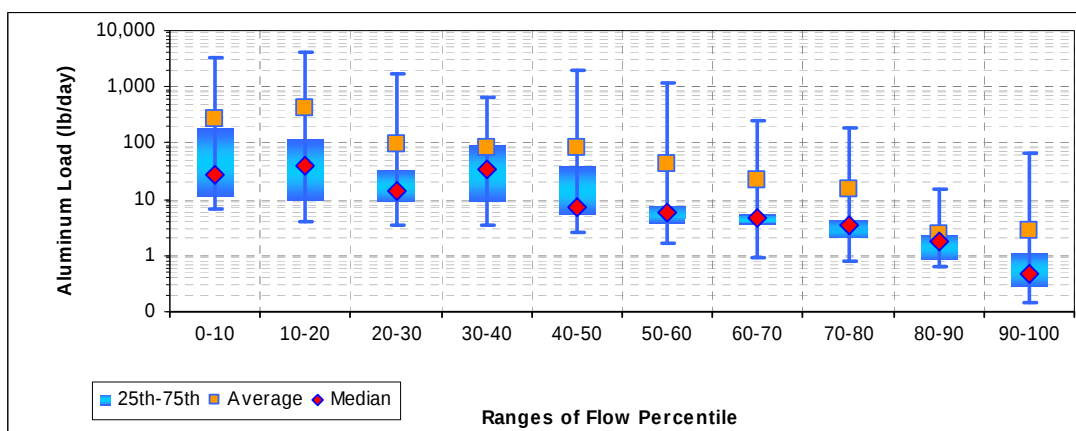


Figure J-170. Aluminum loads by flow percentile for UT to Jackson Run (UJB0000/WM-118)

Table J-166. Ammonium loads (lb/d) by flow percentile for UT to Jackson Run (UJB0000/WM-118)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50   | 50-60    | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|---------|----------|---------|-------|-------|--------|
| Minimum | 11.7    | 11.3    | 6.9   | 13.5  | 14.2    | 4.3      | 3.7     | 2.7   | 2.5   | 0.5    |
| Average | 532.5   | 187.4   | 111.2 | 66.0  | 148.2   | 740.7    | 133.6   | 35.6  | 22.0  | 3.8    |
| Maximum | 6,393.6 | 1,686.2 | 492.9 | 361.1 | 3,648.1 | 25,450.2 | 3,341.6 | 512.1 | 518.4 | 51.1   |
| Median  | 137.6   | 94.1    | 75.9  | 42.0  | 36.7    | 20.8     | 14.6    | 9.8   | 6.5   | 1.7    |
| 25th    | 87.4    | 59.8    | 49.8  | 34.5  | 24.5    | 16.9     | 12.3    | 8.4   | 5.3   | 0.9    |
| 75th    | 315.8   | 158.9   | 106.1 | 80.3  | 43.6    | 28.5     | 20.3    | 11.2  | 8.0   | 3.6    |

Table J-167. Nitrate loads (lbs/d) by flow percentile for UT to Jackson Run (UJB0000/WM-118)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50   | 50-60    | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|---------|----------|---------|-------|-------|--------|
| Minimum | 22.9    | 21.1    | 13.9    | 21.0  | 33.8    | 10.0     | 9.2     | 6.5   | 5.9   | 1.2    |
| Average | 1,031.3 | 430.1   | 276.2   | 172.1 | 295.7   | 998.7    | 202.0   | 55.0  | 30.0  | 4.5    |
| Maximum | 6,633.7 | 2,141.5 | 1,010.3 | 752.1 | 7,058.9 | 33,270.1 | 5,175.2 | 653.3 | 361.6 | 12.1   |
| Median  | 521.8   | 300.2   | 224.3   | 132.1 | 96.1    | 51.1     | 33.3    | 20.6  | 16.0  | 3.2    |
| 25th    | 227.7   | 226.7   | 176.0   | 105.1 | 67.4    | 36.5     | 25.8    | 17.6  | 13.2  | 2.0    |
| 75th    | 831.7   | 460.3   | 291.0   | 178.9 | 124.2   | 77.8     | 42.5    | 26.0  | 22.3  | 7.0    |

Table J-168. Sulfate loads (lbs/d) by flow percentile for UT to Jackson Run (UJB0000/WM-118)

|         | 0-10   | 10-20  | 20-30 | 30-40 | 40-50  | 50-60  | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|-------|-------|--------|--------|-------|-------|-------|--------|
| Minimum | 457    | 402    | 288   | 312   | 228    | 95     | 80    | 67    | 53    | 13     |
| Average | 2,816  | 2,580  | 1,382 | 1,060 | 1,010  | 959    | 458   | 268   | 159   | 61     |
| Maximum | 20,042 | 16,298 | 7,437 | 5,100 | 13,702 | 19,327 | 3,246 | 697   | 599   | 246    |
| Median  | 1,846  | 1,491  | 1,067 | 908   | 613    | 442    | 377   | 259   | 147   | 35     |
| 25th    | 1,036  | 903    | 857   | 681   | 466    | 342    | 298   | 134   | 73    | 20     |
| 75th    | 3,184  | 2,401  | 1,313 | 1,080 | 848    | 554    | 445   | 347   | 199   | 59     |

Table J-169. Iron loads (lbs/d) by flow percentile for UT to Jackson Run (UJB0000/WM-118)

|         | 0-10    | 10-20   | 20-30   | 30-40   | 40-50   | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|---------|---------|---------|-------|-------|-------|--------|
| Minimum | 8.2     | 4.8     | 4.5     | 4.6     | 3.5     | 1.4     | 1.2   | 1.0   | 0.8   | 0.2    |
| Average | 509.3   | 899.5   | 208.2   | 164.9   | 151.2   | 103.9   | 53.4  | 35.4  | 2.5   | 3.2    |
| Maximum | 6,628.8 | 9,497.0 | 4,046.0 | 1,384.2 | 3,137.0 | 3,019.4 | 713.0 | 468.7 | 9.7   | 88.0   |
| Median  | 25.1    | 22.3    | 18.3    | 51.9    | 9.4     | 7.2     | 6.1   | 4.3   | 2.3   | 0.6    |
| 25th    | 13.9    | 12.9    | 11.6    | 10.2    | 7.0     | 4.8     | 4.7   | 2.7   | 1.1   | 0.3    |
| 75th    | 294.4   | 197.3   | 46.9    | 166.4   | 85.0    | 8.8     | 7.1   | 5.7   | 3.2   | 0.9    |

Table J-170. Aluminum loads (lbs/d) by flow percentile for UT to Jackson Run (UJB0000/WM-118)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50   | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|---------|---------|-------|-------|-------|--------|
| Minimum | 6.9     | 3.9     | 3.4     | 3.5   | 2.7     | 1.6     | 0.9   | 0.8   | 0.6   | 0.1    |
| Average | 265.1   | 417.2   | 98.5    | 81.1  | 84.5    | 42.5    | 22.4  | 15.6  | 2.3   | 2.7    |
| Maximum | 3,426.2 | 4,221.8 | 1,703.7 | 655.3 | 1,941.8 | 1,184.2 | 258.6 | 188.5 | 15.0  | 68.2   |
| Median  | 27.5    | 38.2    | 14.2    | 33.2  | 7.1     | 5.7     | 4.6   | 3.4   | 1.7   | 0.5    |
| 25th    | 11.2    | 9.7     | 9.2     | 8.7   | 5.5     | 3.7     | 3.5   | 2.1   | 0.8   | 0.3    |
| 75th    | 182.5   | 119.6   | 34.0    | 92.7  | 38.9    | 7.6     | 5.5   | 4.3   | 2.4   | 1.2    |

## Winebrenner Run (WM-119/WBN0002) plots and tables

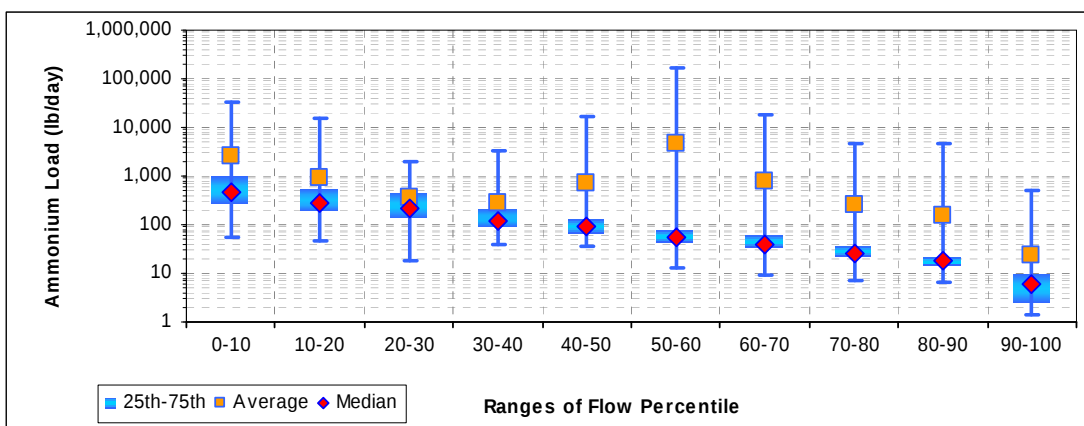


Figure J-171. Ammonium loads by flow percentile for Winebrenner Run (WBN0002/WM-119)

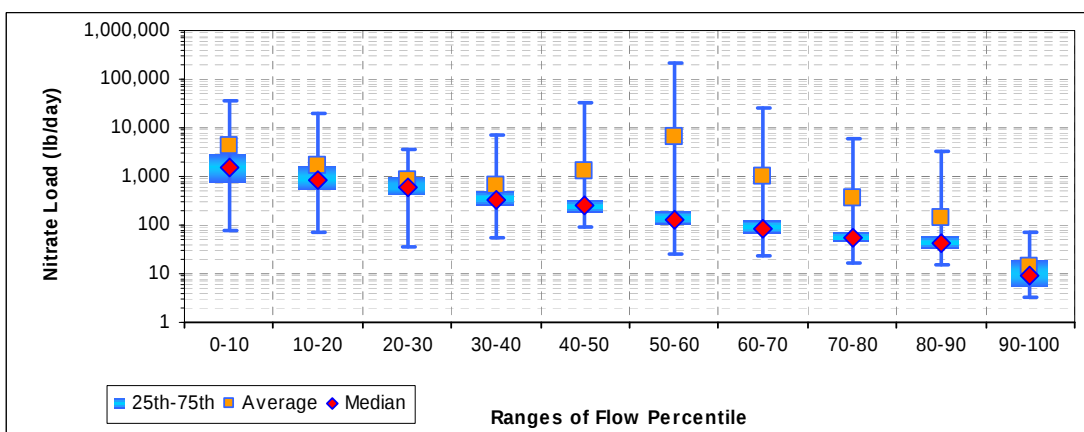


Figure J-172. Nitrate loads by flow percentile for Winebrenner Run (WBN0002/WM-119)

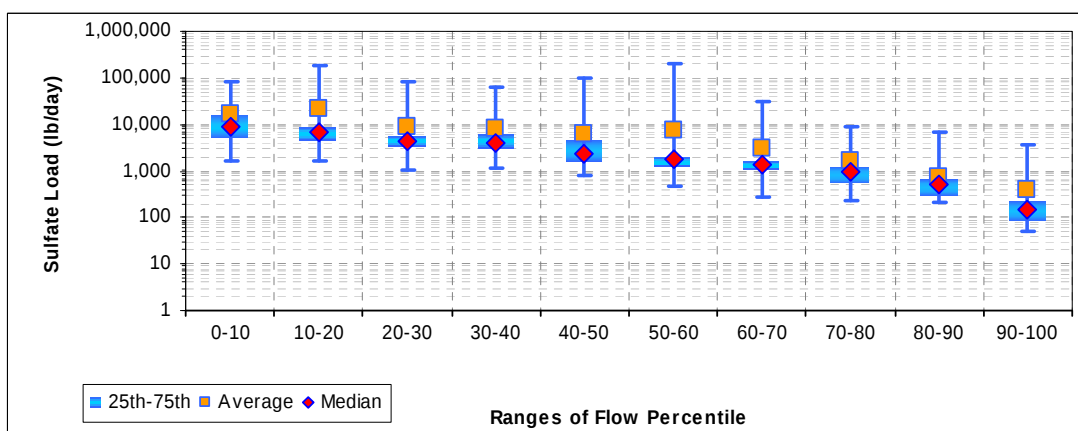


Figure J-173. Sulfate loads by flow percentile for Winebrenner Run (WBN0002/WM-119)

\*\* These plots include upstream loads from Winebrenner Run (WM-120/WBN0010).

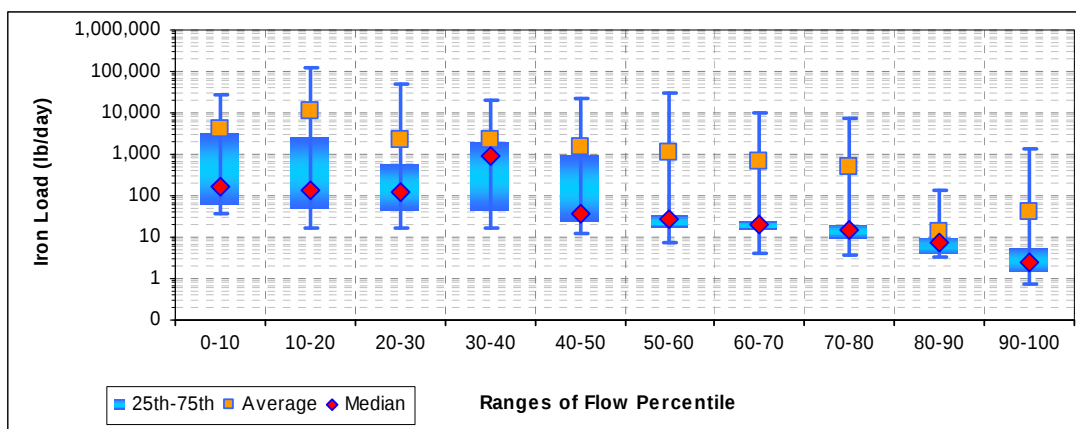


Figure J-174. Iron loads by flow percentile for Winebrenner Run (WBN0002/WM-119)

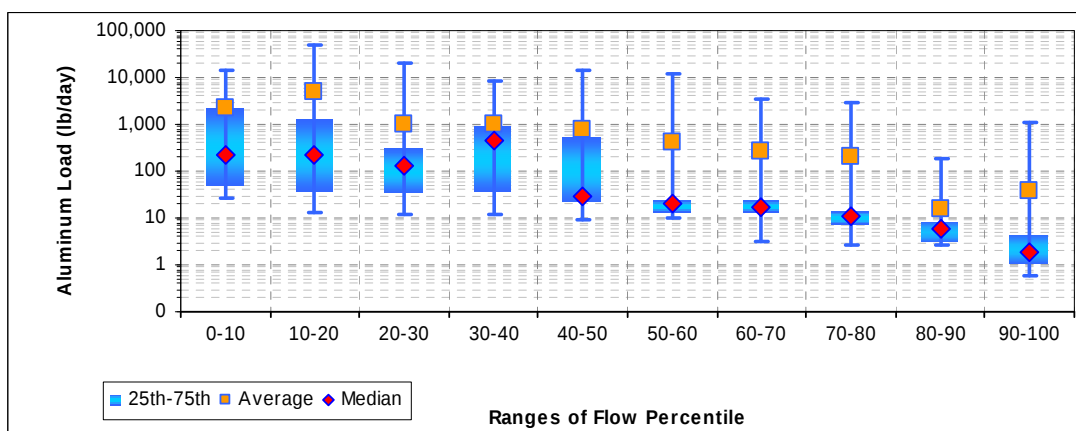


Figure J-175. Aluminum loads by flow percentile for Winebrenner Run (WBN0002/WM-119)

\*\* These plots include upstream loads from Winebrenner Run (WM-120/WBN0010).

Table J-171. Ammonium loads (lb/d) by flow percentile for Winebrenner Run (WBN0002/WM-119)

|         | 0-10     | 10-20    | 20-30   | 30-40   | 40-50    | 50-60     | 60-70    | 70-80   | 80-90   | 90-100 |
|---------|----------|----------|---------|---------|----------|-----------|----------|---------|---------|--------|
| Minimum | 55.6     | 44.7     | 18.0    | 40.0    | 36.9     | 12.4      | 9.2      | 6.9     | 6.4     | 1.4    |
| Average | 2,550.3  | 886.8    | 372.2   | 280.6   | 711.7    | 4,730.4   | 776.8    | 264.7   | 152.1   | 23.1   |
| Maximum | 34,085.0 | 15,185.2 | 1,934.0 | 3,388.6 | 16,899.3 | 164,129.0 | 17,597.1 | 4,610.4 | 4,675.7 | 488.7  |
| Median  | 454.3    | 269.8    | 207.7   | 114.0   | 92.1     | 56.5      | 38.5     | 25.6    | 17.5    | 5.8    |
| 25th    | 275.5    | 195.4    | 140.7   | 94.0    | 66.6     | 43.9      | 31.8     | 22.3    | 14.0    | 2.6    |
| 75th    | 1,021.8  | 556.8    | 468.2   | 221.4   | 128.0    | 79.3      | 58.5     | 34.7    | 22.3    | 9.6    |

Table J-172. Nitrate loads (lbs/d) by flow percentile for Winebrenner Run (WBN0002/WM-119)

|         | 0-10     | 10-20    | 20-30   | 30-40   | 40-50    | 50-60     | 60-70    | 70-80   | 80-90   | 90-100 |
|---------|----------|----------|---------|---------|----------|-----------|----------|---------|---------|--------|
| Minimum | 75.5     | 72.8     | 36.5    | 56.5    | 88.0     | 26.3      | 23.2     | 16.5    | 14.9    | 3.4    |
| Average | 4,147.1  | 1,671.8  | 874.3   | 628.3   | 1,282.1  | 6,305.0   | 1,028.9  | 363.1   | 143.2   | 14.6   |
| Maximum | 35,518.2 | 19,203.6 | 3,641.7 | 7,133.8 | 32,645.8 | 214,781.6 | 25,237.3 | 5,861.8 | 3,166.4 | 72.8   |
| Median  | 1,533.8  | 846.3    | 620.2   | 322.8   | 262.3    | 129.0     | 87.7     | 55.2    | 41.9    | 8.9    |
| 25th    | 798.9    | 567.4    | 438.8   | 265.9   | 179.9    | 98.6      | 67.1     | 46.2    | 34.1    | 5.7    |
| 75th    | 2,919.8  | 1,621.9  | 1,031.6 | 506.9   | 337.1    | 204.9     | 133.3    | 72.0    | 62.0    | 19.4   |

Table J-173. Sulfate loads (lbs/d) by flow percentile for Winebrenner Run (WBN0002/WM-119)

|         | 0-10   | 10-20   | 20-30  | 30-40  | 40-50  | 50-60   | 60-70  | 70-80 | 80-90 | 90-100 |
|---------|--------|---------|--------|--------|--------|---------|--------|-------|-------|--------|
| Minimum | 1,670  | 1,570   | 1,026  | 1,120  | 798    | 489     | 268    | 227   | 217   | 51     |
| Average | 15,938 | 21,991  | 8,666  | 7,787  | 6,204  | 7,568   | 3,004  | 1,642 | 758   | 393    |
| Maximum | 84,718 | 190,289 | 86,026 | 61,459 | 99,094 | 201,717 | 31,747 | 8,615 | 7,064 | 3,598  |
| Median  | 8,759  | 6,606   | 4,217  | 3,939  | 2,322  | 1,708   | 1,376  | 917   | 517   | 142    |
| 25th    | 5,394  | 4,357   | 3,390  | 2,957  | 1,696  | 1,202   | 1,085  | 576   | 297   | 86     |
| 75th    | 17,226 | 9,236   | 5,588  | 6,172  | 4,616  | 2,013   | 1,589  | 1,242 | 692   | 236    |

Table J-174. Iron loads (lbs/d) by flow percentile for Winebrenner Run (WBN0002/WM-119)

|         | 0-10     | 10-20     | 20-30    | 30-40    | 40-50    | 50-60    | 60-70   | 70-80   | 80-90 | 90-100  |
|---------|----------|-----------|----------|----------|----------|----------|---------|---------|-------|---------|
| Minimum | 36.1     | 16.4      | 15.9     | 16.3     | 12.3     | 7.1      | 4.2     | 3.5     | 3.4   | 0.8     |
| Average | 4,151.4  | 11,503.3  | 2,282.9  | 2,158.9  | 1,477.1  | 1,099.7  | 666.1   | 497.4   | 13.0  | 40.7    |
| Maximum | 28,510.3 | 118,787.3 | 47,847.4 | 20,508.3 | 22,934.2 | 31,514.6 | 9,980.2 | 7,086.9 | 129.7 | 1,347.6 |
| Median  | 157.2    | 134.3     | 117.2    | 932.1    | 36.1     | 26.4     | 20.9    | 14.9    | 7.6   | 2.4     |
| 25th    | 58.3     | 48.3      | 44.1     | 45.5     | 25.5     | 16.5     | 15.5    | 8.9     | 4.2   | 1.5     |
| 75th    | 3,405.2  | 2,601.6   | 582.0    | 2,035.6  | 1,040.2  | 32.9     | 24.7    | 19.6    | 10.3  | 5.5     |

Table J-175. Aluminum loads (lbs/d) by flow percentile for Winebrenner Run (WBN0002/WM-119)

|         | 0-10     | 10-20    | 20-30    | 30-40   | 40-50    | 50-60    | 60-70   | 70-80   | 80-90 | 90-100  |
|---------|----------|----------|----------|---------|----------|----------|---------|---------|-------|---------|
| Minimum | 27.3     | 13.3     | 12.0     | 12.3    | 9.3      | 10.1     | 3.1     | 2.7     | 2.5   | 0.6     |
| Average | 2,154.3  | 4,962.6  | 1,031.0  | 970.2   | 747.8    | 427.4    | 268.4   | 206.4   | 15.6  | 36.9    |
| Maximum | 14,690.7 | 50,450.8 | 20,153.4 | 8,681.9 | 14,161.1 | 12,133.2 | 3,607.9 | 2,841.8 | 193.2 | 1,084.7 |
| Median  | 220.5    | 223.3    | 129.2    | 467.2   | 29.4     | 19.9     | 16.5    | 11.4    | 5.7   | 1.9     |
| 25th    | 50.6     | 36.5     | 34.3     | 37.5    | 22.3     | 12.7     | 13.1    | 6.7     | 3.2   | 1.1     |
| 75th    | 2,239.4  | 1,309.4  | 304.0    | 948.5   | 520.6    | 25.3     | 25.1    | 14.8    | 8.1   | 4.7     |

\*\* These tables include upstream loads from Winebrenner Run (WM-120/WBN0010).

## Winebrenner Run (WM-120/WBN0010) plots and tables

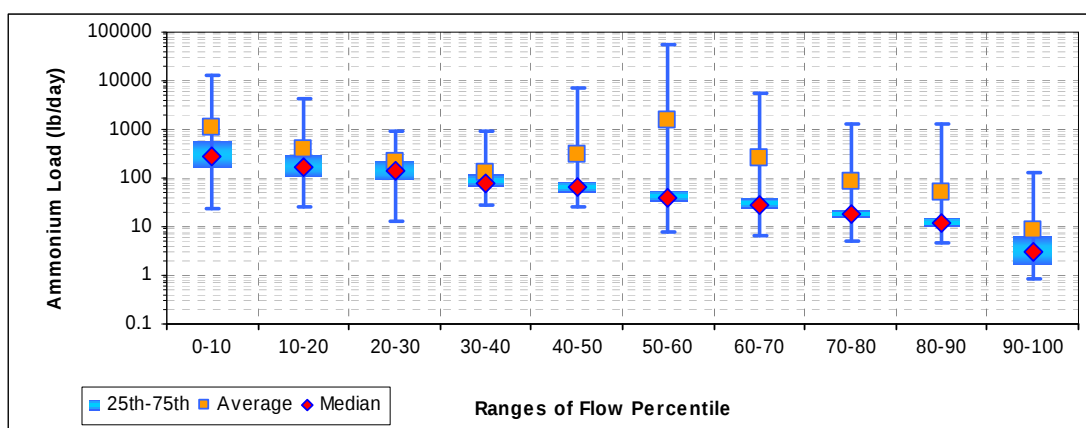


Figure J-. Ammonium loads by flow percentile for Winebrenner Run (WBN0010/WM-120)

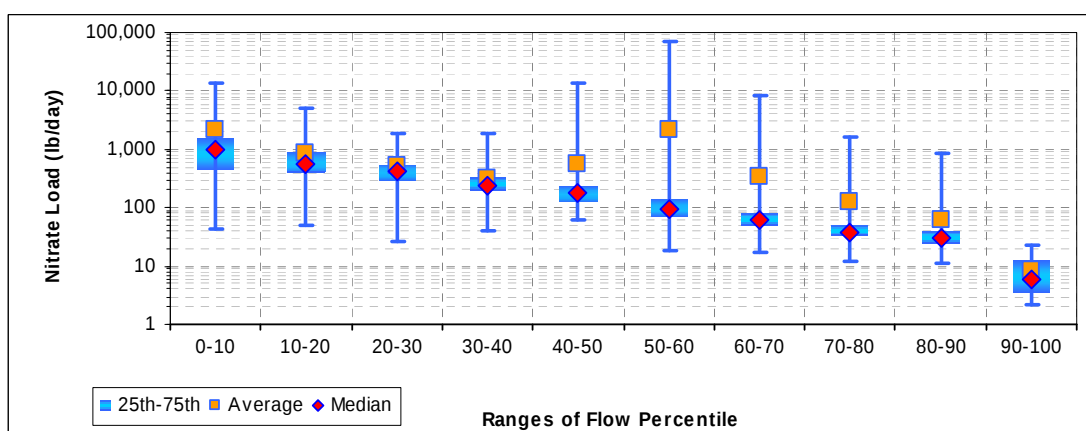


Figure J-1. Nitrate loads by flow percentile for Winebrenner Run (WBN0010/WM-120)

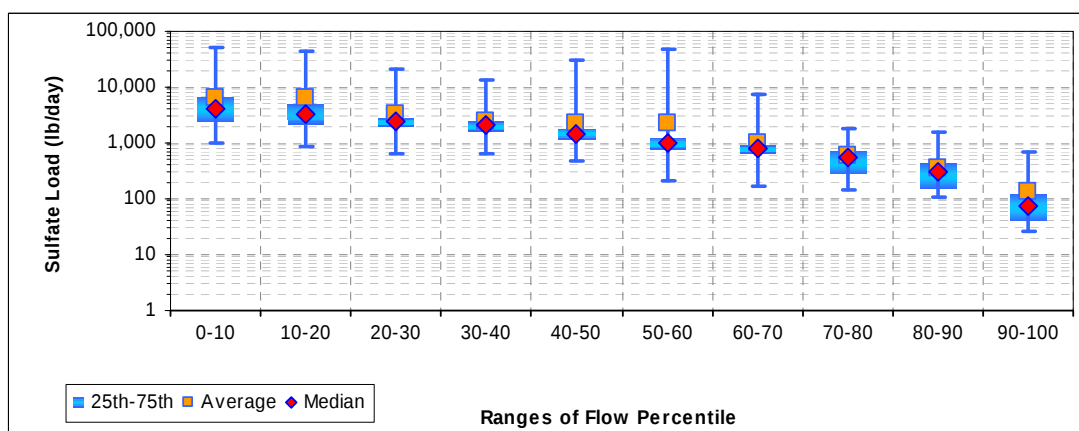


Figure J-2. Sulfate loads by flow percentile for Winebrenner Run (WBN0010/WM-120)

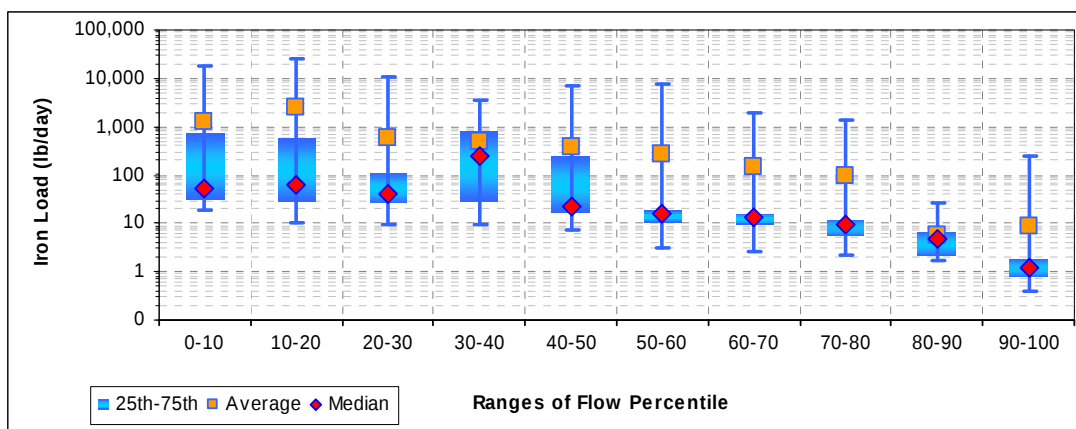


Figure J-3. Iron loads by flow percentile for Winebrenner Run (WBN0010/WM-120)

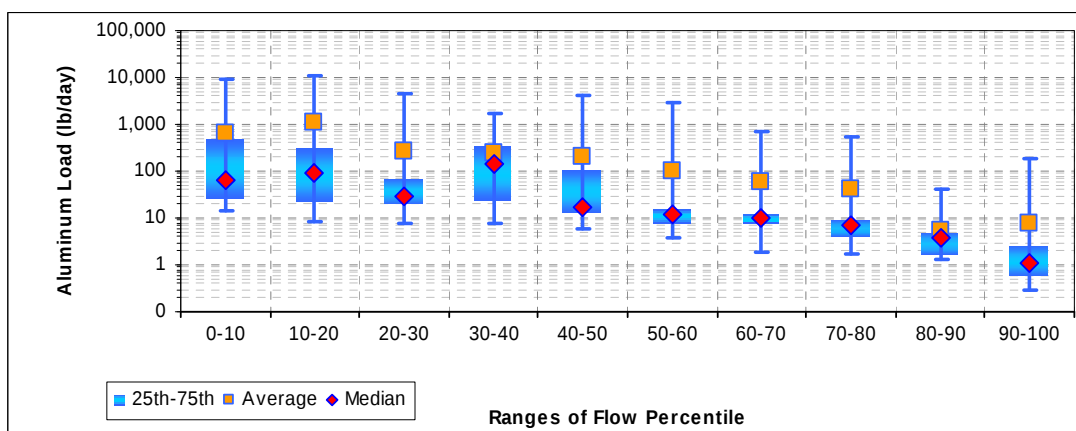


Figure J-4. Aluminum loads by flow percentile for Winebrenner Run (WBN0010/WM-120)

Table J-. Ammonium loads (lb/d) by flow percentile for Winebrenner Run (WBN0010/WM-120)

|         | 0-10     | 10-20   | 20-30 | 30-40 | 40-50   | 50-60    | 60-70   | 70-80   | 80-90   | 90-100 |
|---------|----------|---------|-------|-------|---------|----------|---------|---------|---------|--------|
| Minimum | 24.2     | 26.0    | 12.9  | 28.7  | 26.4    | 7.9      | 6.7     | 5.0     | 4.6     | 0.9    |
| Average | 1,114.0  | 386.2   | 213.1 | 124.6 | 292.6   | 1,586.0  | 248.5   | 81.8    | 49.7    | 8.1    |
| Maximum | 13,037.7 | 4,117.5 | 881.0 | 885.4 | 6,968.7 | 54,536.2 | 5,610.3 | 1,247.7 | 1,282.8 | 124.6  |
| Median  | 267.9    | 166.2   | 137.3 | 75.1  | 67.1    | 38.9     | 27.0    | 18.2    | 12.0    | 3.1    |
| 25th    | 168.1    | 111.8   | 95.7  | 63.5  | 48.8    | 31.6     | 22.8    | 15.8    | 9.7     | 1.7    |
| 75th    | 576.8    | 302.7   | 225.6 | 120.2 | 81.6    | 53.2     | 37.9    | 21.2    | 14.7    | 6.6    |

Table J-1. Nitrate loads (lbs/d) by flow percentile for Winebrenner Run (WBN0010/WM-120)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50    | 50-60    | 60-70   | 70-80   | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|----------|----------|---------|---------|-------|--------|
| Minimum | 44.5     | 51.6    | 26.1    | 40.8    | 63.1     | 18.4     | 16.8    | 11.9    | 10.8  | 2.2    |
| Average | 2,105.2  | 856.4   | 526.5   | 311.8   | 573.1    | 2,129.8  | 347.7   | 122.0   | 61.3  | 8.5    |
| Maximum | 14,151.9 | 5,213.0 | 1,862.6 | 1,840.9 | 13,466.5 | 71,145.2 | 8,037.6 | 1,588.3 | 884.5 | 22.2   |
| Median  | 953.6    | 573.7   | 412.7   | 235.9   | 179.7    | 95.6     | 61.5    | 38.2    | 29.6  | 5.9    |
| 25th    | 446.1    | 391.1   | 302.5   | 190.2   | 126.8    | 73.3     | 48.4    | 33.3    | 24.2  | 3.6    |
| 75th    | 1,620.1  | 912.9   | 558.9   | 331.1   | 230.2    | 144.3    | 80.6    | 48.2    | 40.7  | 12.9   |

Table J-2. Sulfate loads (lbs/d) by flow percentile for Winebrenner Run (WBN0010/WM-120)

|         | 0-10   | 10-20  | 20-30  | 30-40  | 40-50  | 50-60  | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|--------|--------|--------|--------|-------|-------|-------|--------|
| Minimum | 1,036  | 863    | 628    | 664    | 488    | 209    | 166   | 140   | 108   | 26     |
| Average | 6,562  | 6,361  | 3,327  | 2,521  | 2,254  | 2,262  | 1,035 | 612   | 346   | 138    |
| Maximum | 51,060 | 42,913 | 21,775 | 13,553 | 29,900 | 47,346 | 7,172 | 1,860 | 1,575 | 689    |
| Median  | 4,020  | 3,258  | 2,385  | 2,103  | 1,418  | 1,033  | 816   | 547   | 310   | 74     |
| 25th    | 2,394  | 2,080  | 1,883  | 1,553  | 1,161  | 720    | 635   | 279   | 152   | 42     |
| 75th    | 7,097  | 5,184  | 2,865  | 2,495  | 1,812  | 1,212  | 952   | 757   | 426   | 124    |

Table J-3. Iron loads (lbs/d) by flow percentile for Winebrenner Run (WBN0010/WM-120)

|         | 0-10     | 10-20    | 20-30    | 30-40   | 40-50   | 50-60   | 60-70   | 70-80   | 80-90 | 90-100 |
|---------|----------|----------|----------|---------|---------|---------|---------|---------|-------|--------|
| Minimum | 18.1     | 10.1     | 9.7      | 9.7     | 7.5     | 3.1     | 2.6     | 2.2     | 1.7   | 0.4    |
| Average | 1,278.2  | 2,431.9  | 575.2    | 491.2   | 367.8   | 258.0   | 141.0   | 98.2    | 5.6   | 8.5    |
| Maximum | 17,322.6 | 25,490.1 | 10,665.8 | 3,541.8 | 6,860.2 | 7,403.9 | 1,925.8 | 1,331.2 | 26.5  | 249.9  |
| Median  | 52.2     | 60.3     | 40.8     | 255.2   | 22.7    | 16.3    | 13.0    | 9.5     | 4.8   | 1.2    |
| 25th    | 30.7     | 28.3     | 25.9     | 29.1    | 17.6    | 10.1    | 9.8     | 5.7     | 2.2   | 0.8    |
| 75th    | 770.5    | 562.6    | 118.2    | 795.0   | 237.5   | 18.8    | 15.3    | 12.2    | 6.6   | 1.9    |

Table J-4. Aluminum loads (lbs/d) by flow percentile for Winebrenner Run (WBN0010/WM-120)

|         | 0-10    | 10-20    | 20-30   | 30-40   | 40-50   | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|----------|---------|---------|---------|---------|-------|-------|-------|--------|
| Minimum | 14.6    | 8.3      | 7.4     | 7.4     | 5.7     | 3.8     | 1.9   | 1.6   | 1.3   | 0.3    |
| Average | 662.8   | 1,102.9  | 270.4   | 241.3   | 200.0   | 104.3   | 59.1  | 42.4  | 5.3   | 7.4    |
| Maximum | 8,875.9 | 11,154.6 | 4,652.7 | 1,637.9 | 4,242.8 | 2,885.6 | 697.0 | 534.9 | 40.2  | 193.7  |
| Median  | 65.8    | 88.5     | 30.2    | 138.3   | 17.3    | 12.5    | 9.9   | 7.2   | 3.6   | 1.1    |
| 25th    | 26.6    | 21.4     | 20.4    | 24.1    | 13.3    | 7.8     | 7.4   | 4.3   | 1.7   | 0.6    |
| 75th    | 504.5   | 306.6    | 70.5    | 346.6   | 108.7   | 16.3    | 11.9  | 9.2   | 5.0   | 2.7    |

## UT to Moores Run (WM-122/UMD0000) plots and tables

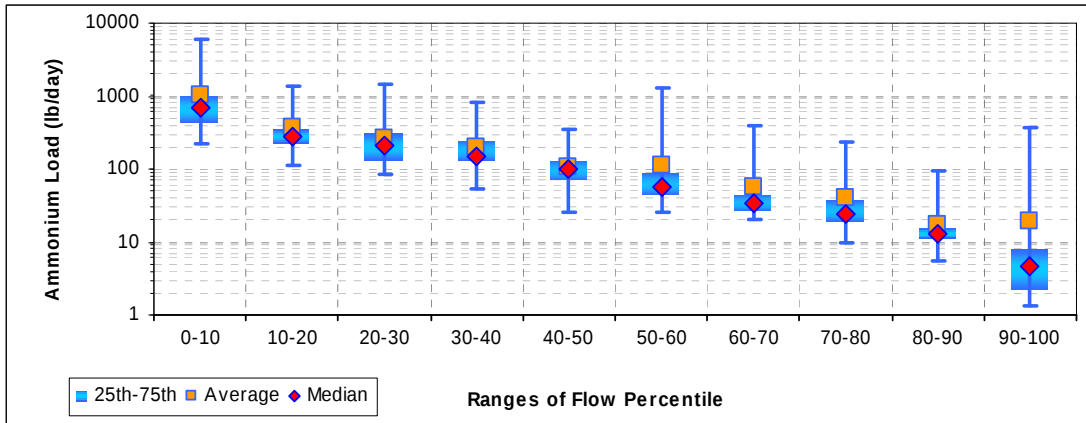


Figure J-181. Ammonium loads by flow percentile for UT to Moores Run (UMD0000/WM-122)

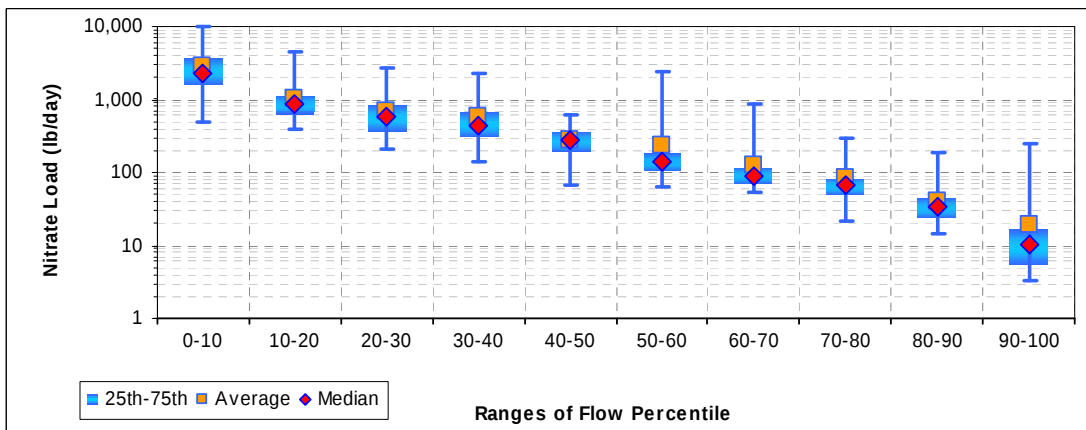


Figure J-182. Nitrate loads by flow percentile for UT to Moores Run (UMD0000/WM-122)

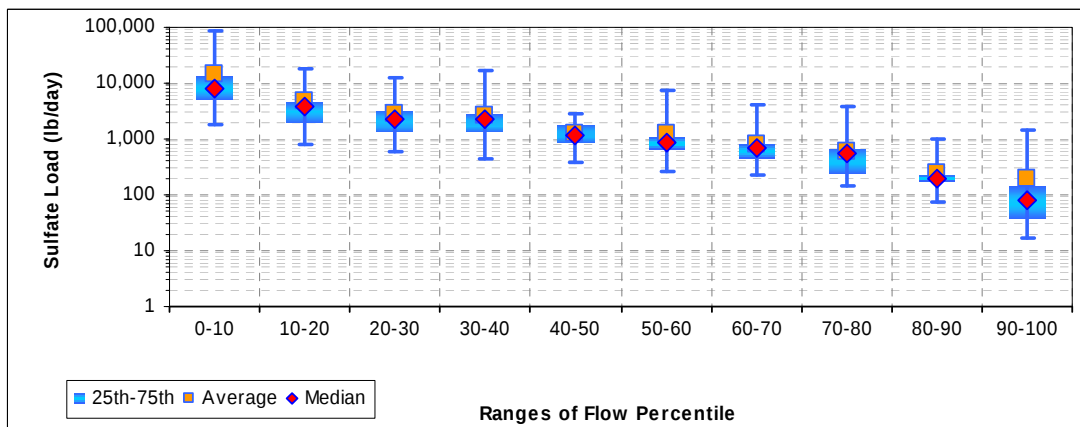


Figure J-183. Sulfate loads by flow percentile for UT to Moores Run (UMD0000/WM-122)

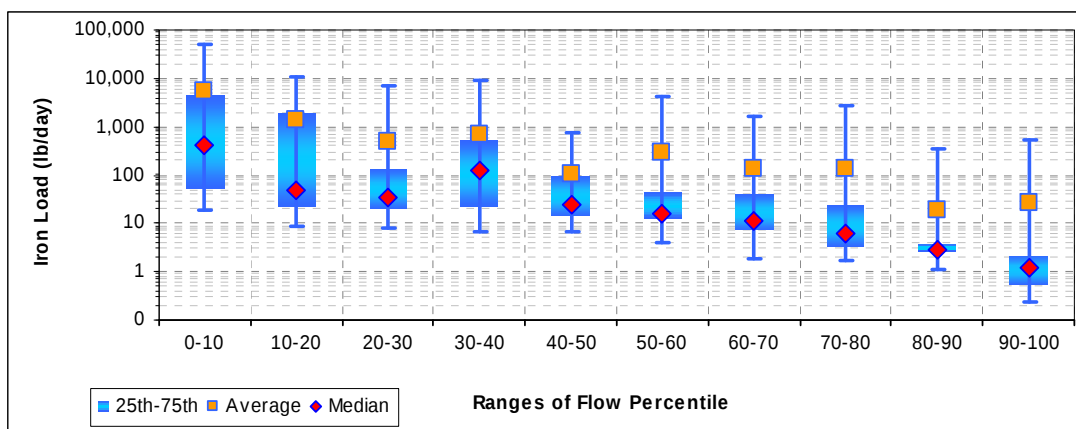


Figure J-184. Iron loads by flow percentile for UT to Moores Run (UMD0000/WM-122)

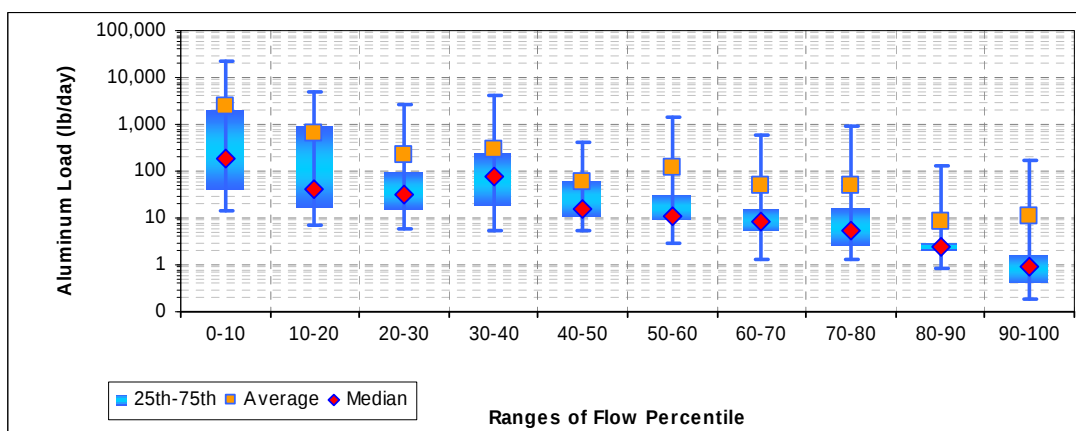


Figure J-185. Aluminum loads by flow percentile for UT to Moores Run (UMD0000/WM-122)

Table J-181. Ammonium loads (lb/d) by flow percentile for UT to Moores Run (UMD0000/WM-122)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50 | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|-------|---------|-------|-------|-------|--------|
| Minimum | 217.6   | 109.7   | 82.5    | 53.0  | 25.5  | 26.0    | 19.9  | 9.5   | 5.6   | 1.3    |
| Average | 1,025.9 | 363.2   | 269.0   | 203.2 | 107.5 | 110.6   | 55.5  | 41.1  | 17.4  | 19.3   |
| Maximum | 5,903.5 | 1,384.7 | 1,447.5 | 839.0 | 342.6 | 1,287.1 | 385.1 | 239.1 | 92.9  | 375.1  |
| Median  | 702.3   | 270.5   | 213.7   | 147.8 | 98.9  | 55.9    | 34.7  | 24.7  | 12.7  | 4.5    |
| 25th    | 449.6   | 216.9   | 135.2   | 129.4 | 72.0  | 44.7    | 27.7  | 19.2  | 10.6  | 2.2    |
| 75th    | 1,003.6 | 356.0   | 304.5   | 255.2 | 130.7 | 90.5    | 44.9  | 37.4  | 15.6  | 8.3    |

Table J-182. Nitrate loads (lbs/d) by flow percentile for UT to Moores Run (UMD0000/WM-122)

|         | 0-10    | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|---------|-------|---------|-------|-------|-------|--------|
| Minimum | 489.9   | 384.5   | 207.9   | 138.8   | 69.0  | 63.0    | 52.1  | 22.1  | 14.2  | 3.3    |
| Average | 2,907.7 | 1,046.7 | 700.3   | 571.0   | 282.8 | 234.9   | 125.9 | 85.4  | 39.4  | 18.9   |
| Maximum | 9,932.9 | 4,631.5 | 2,743.6 | 2,226.6 | 623.4 | 2,391.7 | 843.3 | 299.3 | 187.4 | 247.1  |
| Median  | 2,234.0 | 875.7   | 590.6   | 436.6   | 275.4 | 140.5   | 88.5  | 67.6  | 33.3  | 10.1   |
| 25th    | 1,613.5 | 630.8   | 364.0   | 303.2   | 192.4 | 106.3   | 70.4  | 51.9  | 24.2  | 5.5    |
| 75th    | 3,806.9 | 1,131.8 | 863.4   | 707.0   | 365.4 | 191.0   | 115.6 | 83.0  | 44.2  | 17.5   |

Table J-183. Sulfate loads (lbs/d) by flow percentile for UT to Moores Run (UMD0000/WM-122)

|         | 0-10   | 10-20  | 20-30  | 30-40  | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|--------|--------|-------|-------|-------|-------|-------|--------|
| Minimum | 1,754  | 780    | 582    | 438    | 389   | 268   | 234   | 148   | 77    | 17     |
| Average | 14,414 | 4,828  | 2,885  | 2,697  | 1,285 | 1,253 | 798   | 608   | 250   | 190    |
| Maximum | 84,808 | 18,473 | 12,905 | 16,654 | 2,928 | 7,495 | 3,991 | 3,780 | 1,022 | 1,398  |
| Median  | 7,971  | 3,800  | 2,339  | 2,334  | 1,127 | 872   | 687   | 544   | 199   | 77     |
| 25th    | 5,275  | 2,016  | 1,375  | 1,313  | 886   | 619   | 432   | 236   | 167   | 37     |
| 75th    | 13,489 | 4,715  | 3,322  | 2,911  | 1,762 | 1,112 | 789   | 668   | 235   | 143    |

Table J-184. Iron loads (lbs/d) by flow percentile for UT to Moores Run (UMD0000/WM-122)

|         | 0-10     | 10-20    | 20-30   | 30-40   | 40-50 | 50-60   | 60-70   | 70-80   | 80-90 | 90-100 |
|---------|----------|----------|---------|---------|-------|---------|---------|---------|-------|--------|
| Minimum | 19.5     | 8.5      | 7.7     | 6.6     | 6.9   | 3.9     | 1.8     | 1.8     | 1.1   | 0.2    |
| Average | 5,581.9  | 1,389.3  | 481.8   | 677.2   | 107.7 | 298.8   | 131.7   | 137.3   | 18.6  | 26.2   |
| Maximum | 49,772.6 | 10,945.4 | 6,904.4 | 9,365.3 | 725.1 | 4,327.3 | 1,627.9 | 2,699.1 | 335.9 | 513.1  |
| Median  | 414.2    | 46.4     | 34.8    | 121.9   | 24.8  | 15.3    | 10.9    | 5.9     | 3.0   | 1.2    |
| 25th    | 54.7     | 21.9     | 19.8    | 21.7    | 15.1  | 12.7    | 7.1     | 3.5     | 2.5   | 0.6    |
| 75th    | 4,620.9  | 1,870.7  | 139.3   | 529.9   | 93.4  | 45.8    | 41.3    | 23.3    | 3.5   | 2.2    |

Table J-185. Aluminum loads (lbs/d) by flow percentile for UT to Moores Run (UMD0000/WM-122)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|-------|---------|-------|-------|-------|--------|
| Minimum | 14.8     | 7.0     | 5.8     | 5.3     | 5.2   | 2.9     | 1.4   | 1.3   | 0.9   | 0.2    |
| Average | 2,433.2  | 638.5   | 222.8   | 302.3   | 58.0  | 115.1   | 49.4  | 50.7  | 8.5   | 11.4   |
| Maximum | 22,019.9 | 4,917.1 | 2,724.8 | 3,956.5 | 406.2 | 1,482.3 | 567.2 | 918.0 | 126.0 | 171.9  |
| Median  | 188.9    | 42.7    | 31.0    | 73.4    | 15.4  | 10.8    | 8.2   | 5.5   | 2.3   | 0.9    |
| 25th    | 40.7     | 16.9    | 14.9    | 18.5    | 11.3  | 9.3     | 5.5   | 2.7   | 2.0   | 0.4    |
| 75th    | 2,016.5  | 909.3   | 98.6    | 239.7   | 61.8  | 32.4    | 15.8  | 16.4  | 3.0   | 1.7    |

**Jackson Run (WM-125/JAC0006) plots and tables**

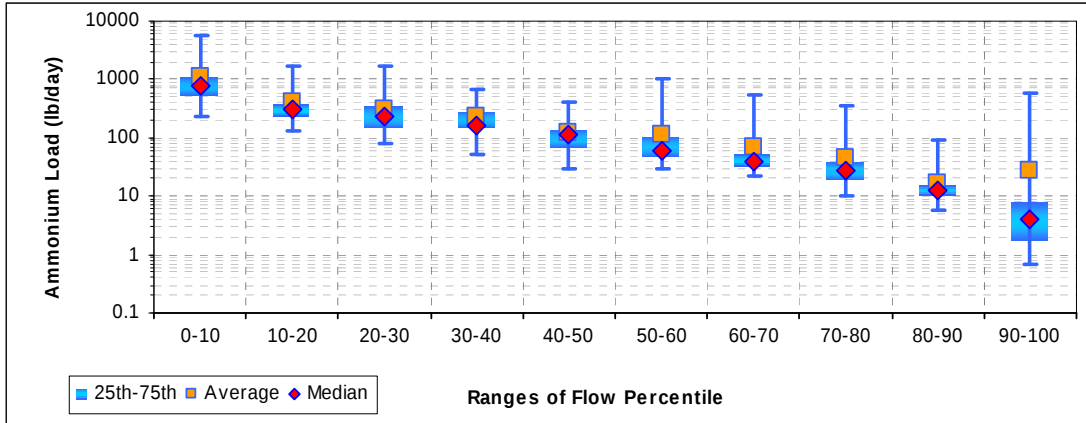


Figure J-186. Ammonium loads by flow percentile for Jackson Run (JAC0006/WM-125)

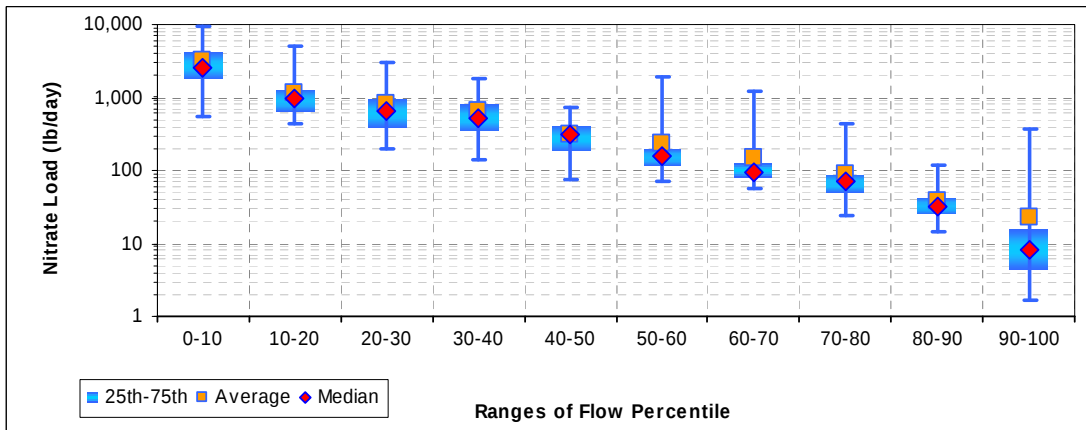


Figure J-187. Nitrate loads by flow percentile for Jackson Run (JAC0006/WM-125)

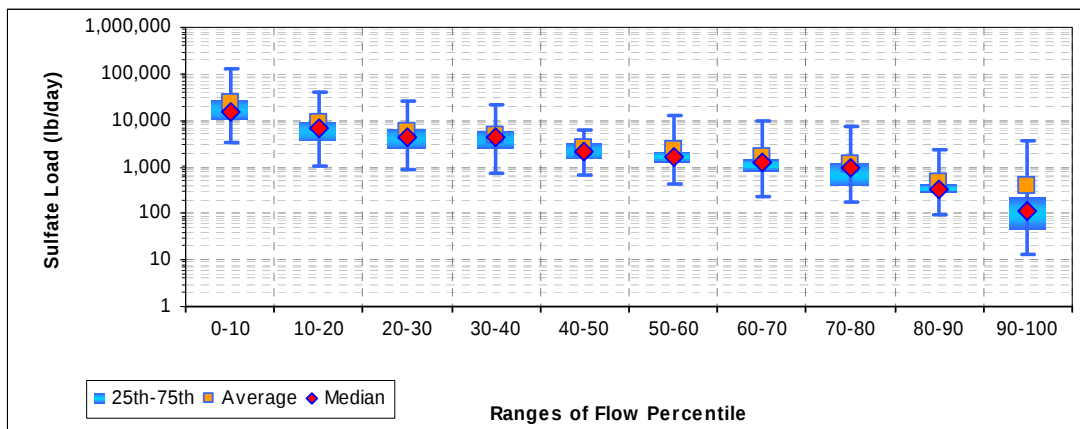


Figure J-188. Sulfate loads by flow percentile for Jackson Run (JAC0006/WM-125)

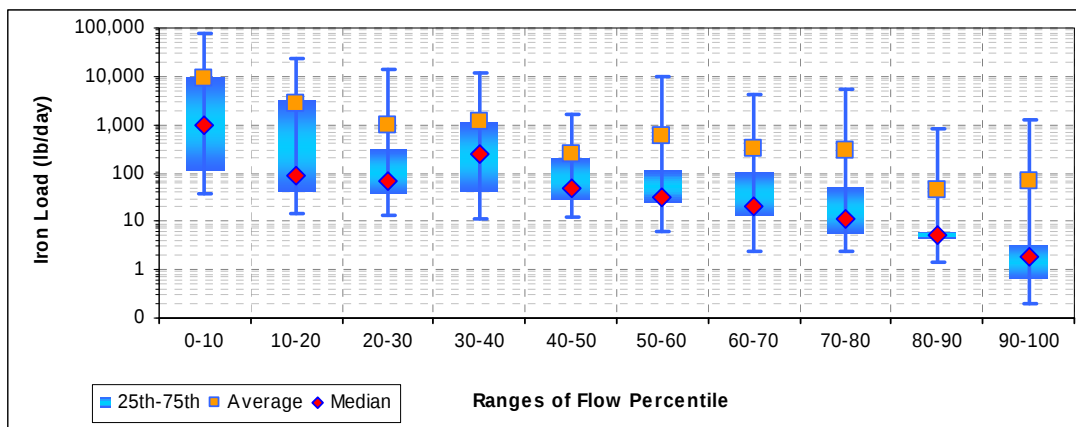


Figure J-189. Iron loads by flow percentile for Jackson Run (JAC0006/WM-125)

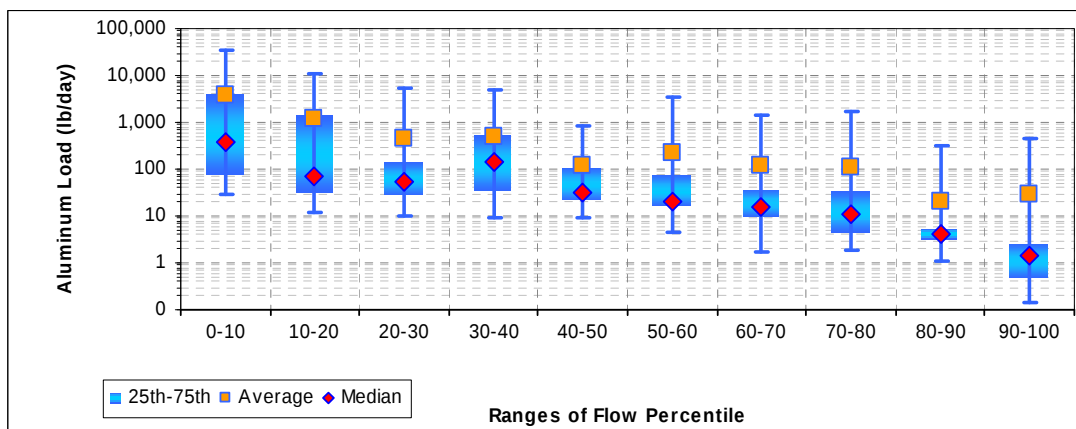


Figure J-190. Aluminum loads by flow percentile for Jackson Run (JAC0006/WM-125)

Table J-186. Ammonium loads (lb/d) by flow percentile for Jackson Run (JAC0006/WM-125)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50 | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|-------|---------|-------|-------|-------|--------|
| Minimum | 236.3   | 127.0   | 80.4    | 52.4  | 28.5  | 30.1    | 22.1  | 10.4  | 5.9   | 0.7    |
| Average | 1,128.6 | 399.0   | 306.2   | 227.8 | 118.5 | 111.3   | 66.8  | 44.9  | 17.1  | 26.5   |
| Maximum | 5,680.6 | 1,637.0 | 1,657.0 | 688.2 | 403.5 | 1,057.5 | 549.6 | 350.9 | 93.4  | 569.3  |
| Median  | 770.0   | 309.3   | 223.4   | 167.5 | 112.2 | 60.1    | 38.8  | 27.0  | 12.5  | 4.1    |
| 25th    | 524.9   | 234.7   | 153.0   | 148.1 | 67.9  | 47.7    | 30.6  | 19.4  | 10.3  | 1.7    |
| 75th    | 1,090.5 | 386.8   | 350.3   | 288.8 | 135.8 | 102.7   | 50.6  | 38.6  | 15.1  | 8.2    |

Table J-187. Nitrate loads (lbs/d) by flow percentile for Jackson Run (JAC0006/WM-125)

|         | 0-10    | 10-20   | 20-30   | 30-40   | 40-50 | 50-60   | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|---------|-------|---------|---------|-------|-------|--------|
| Minimum | 544.9   | 443.2   | 198.6   | 137.6   | 77.2  | 70.9    | 57.8    | 23.8  | 14.4  | 1.6    |
| Average | 3,197.8 | 1,149.4 | 798.1   | 638.0   | 309.7 | 237.8   | 147.1   | 89.4  | 37.3  | 22.2   |
| Maximum | 9,623.5 | 4,926.9 | 3,050.9 | 1,833.4 | 730.6 | 1,968.2 | 1,203.1 | 429.0 | 116.3 | 368.7  |
| Median  | 2,605.0 | 995.8   | 646.5   | 519.3   | 309.6 | 154.9   | 95.3    | 70.2  | 32.4  | 8.3    |
| 25th    | 1,835.1 | 658.0   | 388.8   | 343.0   | 186.3 | 117.2   | 78.0    | 51.6  | 25.1  | 4.3    |
| 75th    | 4,345.5 | 1,277.6 | 971.1   | 819.8   | 407.9 | 200.7   | 127.3   | 91.5  | 43.8  | 16.4   |

Table J-188. Sulfate loads (lbs/d) by flow percentile for Jackson Run (JAC0006/WM-125)

|         | 0-10    | 10-20  | 20-30  | 30-40  | 40-50 | 50-60  | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|--------|--------|--------|-------|--------|-------|-------|-------|--------|
| Minimum | 3,246   | 1,075  | 900    | 743    | 668   | 410    | 230   | 179   | 97    | 13     |
| Average | 24,412  | 9,224  | 5,743  | 4,943  | 2,494 | 2,389  | 1,659 | 1,190 | 464   | 406    |
| Maximum | 129,501 | 40,552 | 25,987 | 21,461 | 5,965 | 12,691 | 9,731 | 7,208 | 2,428 | 3,526  |
| Median  | 15,252  | 6,823  | 4,261  | 4,482  | 2,130 | 1,664  | 1,303 | 961   | 342   | 117    |
| 25th    | 10,173  | 3,765  | 2,649  | 2,453  | 1,478 | 1,269  | 794   | 391   | 276   | 46     |
| 75th    | 27,990  | 9,543  | 6,524  | 6,146  | 3,451 | 2,129  | 1,519 | 1,237 | 431   | 223    |

Table J-189. Iron loads (lbs/d) by flow percentile for Jackson Run (JAC0006/WM-125)

|         | 0-10     | 10-20    | 20-30    | 30-40    | 40-50   | 50-60   | 60-70   | 70-80   | 80-90 | 90-100  |
|---------|----------|----------|----------|----------|---------|---------|---------|---------|-------|---------|
| Minimum | 36.7     | 14.4     | 13.1     | 11.4     | 12.4    | 6.2     | 2.3     | 2.4     | 1.4   | 0.2     |
| Average | 8,898.6  | 2,618.6  | 1,013.0  | 1,134.9  | 242.2   | 585.2   | 323.3   | 287.6   | 44.5  | 65.7    |
| Maximum | 78,325.7 | 24,262.8 | 14,116.4 | 11,655.0 | 1,563.3 | 9,872.8 | 4,034.2 | 5,184.8 | 834.2 | 1,305.0 |
| Median  | 972.5    | 88.3     | 68.7     | 249.8    | 48.7    | 30.1    | 20.5    | 10.8    | 5.2   | 1.8     |
| 25th    | 117.5    | 42.0     | 38.1     | 41.8     | 28.6    | 24.4    | 13.1    | 5.8     | 4.3   | 0.7     |
| 75th    | 9,924.5  | 3,343.7  | 328.9    | 1,167.3  | 216.3   | 112.4   | 101.3   | 53.6    | 6.3   | 3.5     |

Table J-190. Aluminum loads (lbs/d) by flow percentile for Jackson Run (JAC0006/WM-125)

|         | 0-10     | 10-20    | 20-30   | 30-40   | 40-50 | 50-60   | 60-70   | 70-80   | 80-90 | 90-100 |
|---------|----------|----------|---------|---------|-------|---------|---------|---------|-------|--------|
| Minimum | 27.7     | 11.4     | 9.9     | 9.0     | 9.4   | 4.7     | 1.8     | 1.8     | 1.1   | 0.1    |
| Average | 3,846.1  | 1,184.9  | 455.4   | 507.1   | 123.7 | 223.3   | 118.7   | 105.3   | 19.4  | 28.0   |
| Maximum | 34,063.1 | 10,880.2 | 5,561.5 | 4,955.2 | 850.6 | 3,372.3 | 1,400.8 | 1,761.5 | 311.4 | 435.3  |
| Median  | 394.2    | 68.2     | 54.4    | 141.5   | 31.9  | 21.1    | 15.6    | 11.2    | 4.0   | 1.4    |
| 25th    | 76.8     | 32.2     | 28.8    | 34.2    | 22.1  | 17.7    | 10.4    | 4.4     | 3.2   | 0.5    |
| 75th    | 4,251.6  | 1,443.9  | 143.0   | 523.6   | 111.7 | 74.2    | 36.7    | 35.7    | 5.4   | 2.6    |

## Meadow Run (WM-135/MDW0008) plots and tables

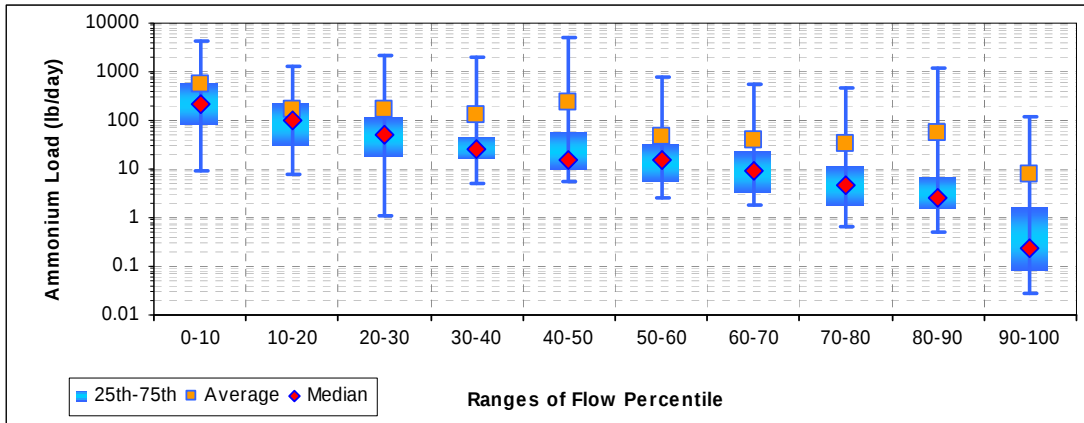


Figure J-191. Ammonium loads by flow percentile for Meadow Run (MDW0008/WM-135)

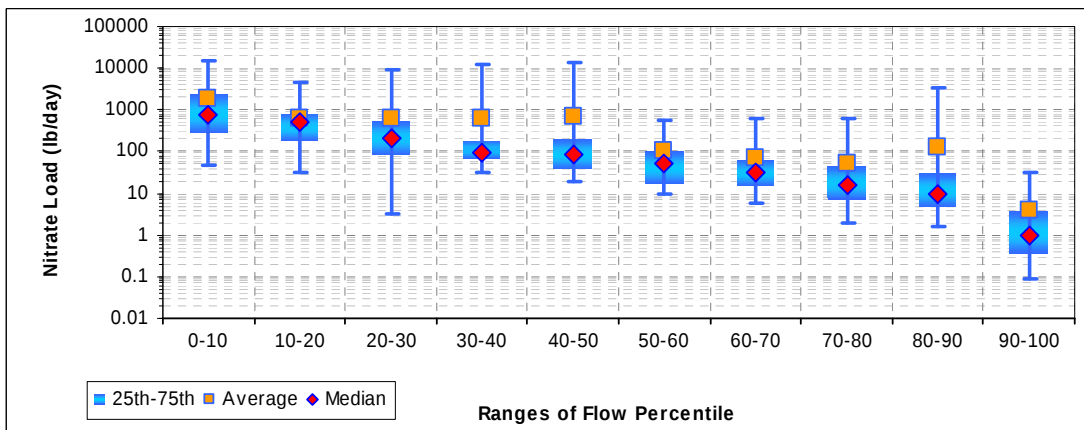


Figure J-192. Nitrate loads by flow percentile for Meadow Run (MDW0008/WM-135)

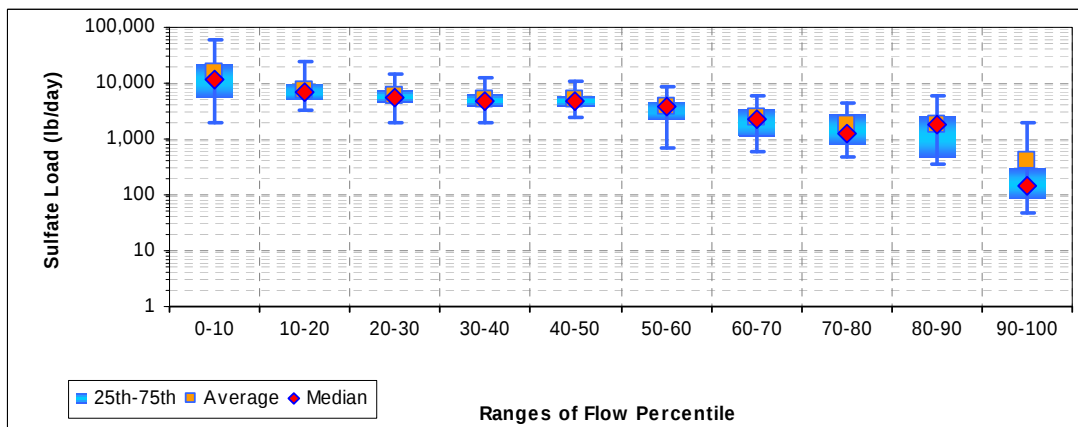


Figure J-193. Sulfate loads by flow percentile for Meadow Run (MDW0008/WM-135)

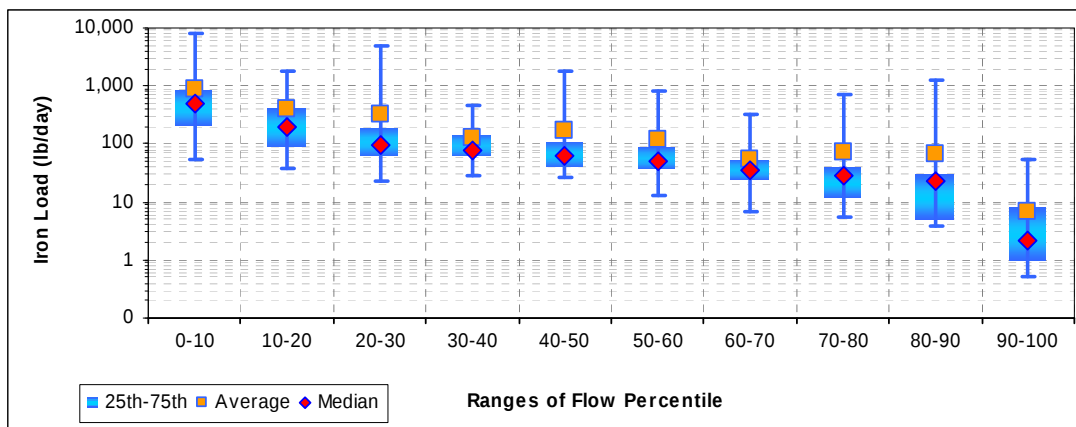


Figure J-194. Iron loads by flow percentile for Meadow Run (MDW0008/WM-135)

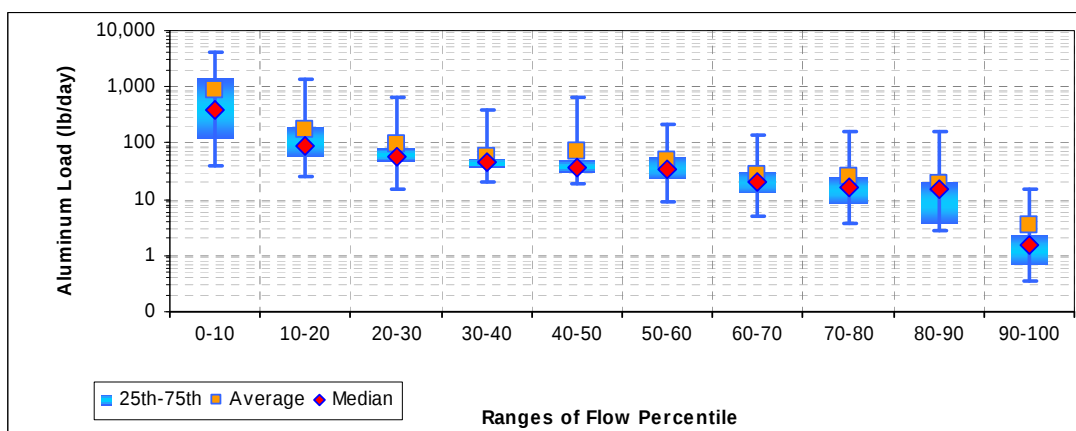


Figure J-195. Aluminum loads by flow percentile for Meadow Run (MDW0008/WM-135)

Table J-191. Ammonium loads (lb/d) by flow percentile for Meadow Run (MDW0008/WM-135)

|         | 0-10    | 10-20   | 20-30   | 30-40   | 40-50   | 50-60 | 60-70 | 70-80 | 80-90   | 90-100 |
|---------|---------|---------|---------|---------|---------|-------|-------|-------|---------|--------|
| Minimum | 8.9     | 7.6     | 1.1     | 5.1     | 5.6     | 2.5   | 1.8   | 0.6   | 0.5     | 0.0    |
| Average | 546.5   | 172.9   | 164.3   | 127.8   | 229.5   | 47.3  | 37.8  | 32.8  | 55.6    | 7.6    |
| Maximum | 4,131.1 | 1,266.0 | 2,221.1 | 2,040.7 | 5,249.6 | 759.1 | 564.6 | 457.9 | 1,215.8 | 118.0  |
| Median  | 213.9   | 100.6   | 52.7    | 26.5    | 15.4    | 15.0  | 8.8   | 4.7   | 2.5     | 0.2    |
| 25th    | 82.4    | 30.5    | 17.6    | 16.4    | 10.0    | 5.4   | 3.3   | 1.9   | 1.5     | 0.1    |
| 75th    | 582.3   | 238.3   | 123.6   | 47.5    | 61.8    | 32.1  | 22.5  | 12.3  | 6.9     | 1.7    |

Table J-192. Nitrate loads (lbs/d) by flow percentile for Meadow Run (MDW0008/WM-135)

|         | 0-10     | 10-20   | 20-30   | 30-40    | 40-50    | 50-60 | 60-70 | 70-80 | 80-90   | 90-100 |
|---------|----------|---------|---------|----------|----------|-------|-------|-------|---------|--------|
| Minimum | 47.2     | 30.1    | 3.3     | 31.5     | 20.1     | 9.5   | 6.0   | 2.0   | 1.6     | 0.1    |
| Average | 1,850.7  | 613.6   | 609.7   | 614.0    | 695.0    | 106.0 | 70.3  | 51.3  | 133.8   | 4.0    |
| Maximum | 14,864.3 | 4,567.0 | 9,519.7 | 12,040.4 | 13,644.3 | 565.5 | 597.1 | 601.3 | 3,388.6 | 31.4   |
| Median  | 794.4    | 500.9   | 213.3   | 98.9     | 88.7     | 52.3  | 32.4  | 15.7  | 9.4     | 1.0    |
| 25th    | 289.4    | 192.8   | 86.3    | 70.5     | 38.9     | 17.2  | 16.2  | 7.1   | 4.9     | 0.4    |
| 75th    | 2,605.8  | 804.4   | 540.4   | 196.9    | 209.2    | 108.9 | 60.7  | 45.9  | 30.1    | 3.9    |

Table J-193. Sulfate loads (lbs/d) by flow percentile for Meadow Run (MDW0008/WM-135)

|         | 0-10   | 10-20  | 20-30  | 30-40  | 40-50  | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|--------|--------|--------|-------|-------|-------|-------|--------|
| Minimum | 1,927  | 3,208  | 2,002  | 2,016  | 2,417  | 682   | 576   | 494   | 356   | 46     |
| Average | 15,508 | 7,667  | 6,130  | 5,177  | 5,111  | 3,835 | 2,520 | 1,827 | 1,820 | 402    |
| Maximum | 57,849 | 24,871 | 14,149 | 12,325 | 10,794 | 8,562 | 6,069 | 4,491 | 5,757 | 1,918  |
| Median  | 11,608 | 6,920  | 5,558  | 4,738  | 4,630  | 3,861 | 2,257 | 1,233 | 1,866 | 150    |
| 25th    | 5,714  | 5,072  | 4,556  | 3,948  | 3,713  | 2,241 | 1,056 | 821   | 482   | 83     |
| 75th    | 22,967 | 9,689  | 7,637  | 6,460  | 5,813  | 4,865 | 3,519 | 2,858 | 2,648 | 303    |

Table J-194. Iron loads (lbs/d) by flow percentile for Meadow Run (MDW0008/WM-135)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50   | 50-60 | 60-70 | 70-80 | 80-90   | 90-100 |
|---------|---------|---------|---------|-------|---------|-------|-------|-------|---------|--------|
| Minimum | 54.5    | 38.7    | 22.3    | 29.0  | 26.7    | 13.2  | 6.9   | 5.4   | 3.9     | 0.5    |
| Average | 874.2   | 389.2   | 318.1   | 123.1 | 174.0   | 117.7 | 55.5  | 70.7  | 65.1    | 7.0    |
| Maximum | 8,174.2 | 1,841.7 | 4,921.5 | 452.6 | 1,734.8 | 839.8 | 329.2 | 694.1 | 1,295.9 | 53.5   |
| Median  | 493.4   | 201.2   | 95.8    | 80.0  | 60.4    | 49.5  | 34.2  | 29.4  | 22.9    | 2.2    |
| 25th    | 212.8   | 89.4    | 61.9    | 61.6  | 40.5    | 37.5  | 24.0  | 11.9  | 5.2     | 1.0    |
| 75th    | 883.0   | 429.5   | 189.6   | 142.0 | 108.1   | 89.9  | 54.9  | 41.2  | 29.9    | 8.3    |

Table J-195. Aluminum loads (lbs/d) by flow percentile for Meadow Run (MDW0008/WM-135)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 38.0    | 25.1    | 15.6  | 20.2  | 18.6  | 9.2   | 4.8   | 3.7   | 2.7   | 0.4    |
| Average | 898.5   | 174.6   | 96.7  | 55.8  | 70.0  | 47.6  | 27.1  | 26.0  | 18.9  | 3.4    |
| Maximum | 4,196.9 | 1,324.2 | 650.3 | 402.8 | 667.6 | 212.8 | 143.2 | 161.1 | 166.1 | 15.3   |
| Median  | 401.7   | 90.4    | 56.6  | 45.6  | 37.9  | 34.5  | 20.8  | 15.9  | 15.4  | 1.5    |
| 25th    | 118.0   | 55.3    | 44.5  | 35.9  | 28.4  | 24.0  | 12.9  | 8.3   | 3.6   | 0.7    |
| 75th    | 1,439.6 | 206.8   | 80.2  | 52.3  | 50.9  | 57.5  | 31.5  | 25.7  | 20.8  | 2.4    |

Little Laurel Run (WM-137/LLR0024) plots and tables

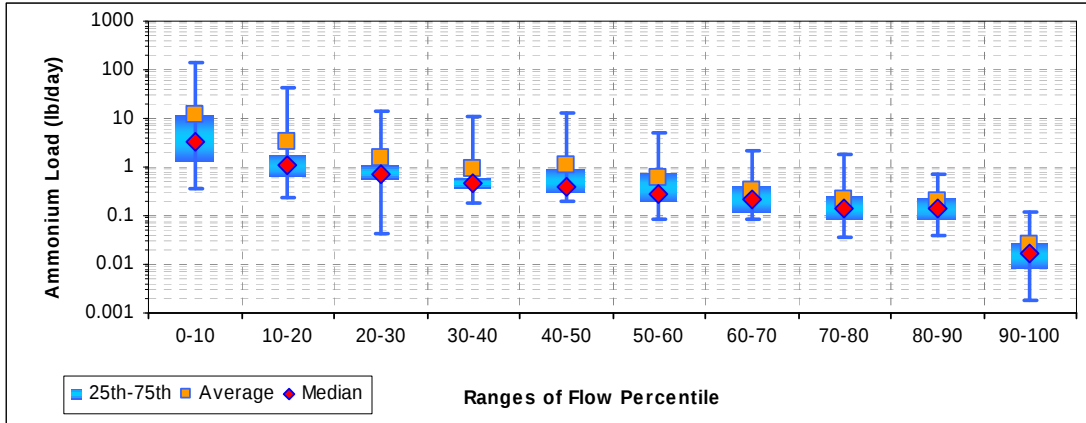


Figure J-196. Ammonium loads by flow percentile for Little Laurel Run (LLR0024/WM-137)

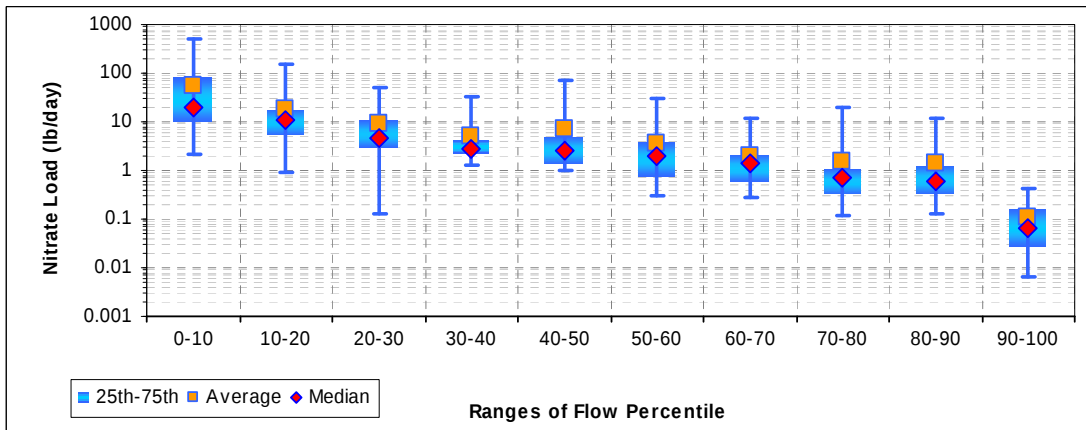


Figure J-197. Nitrate loads by flow percentile for Little Laurel Run (LLR0024/WM-137)

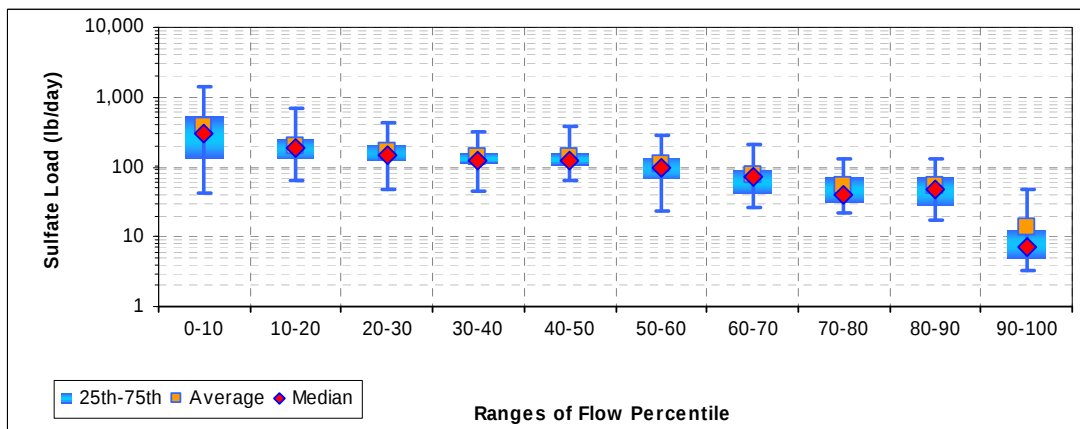


Figure J-198. Sulfate loads by flow percentile for Little Laurel Run (LLR0024/WM-137)

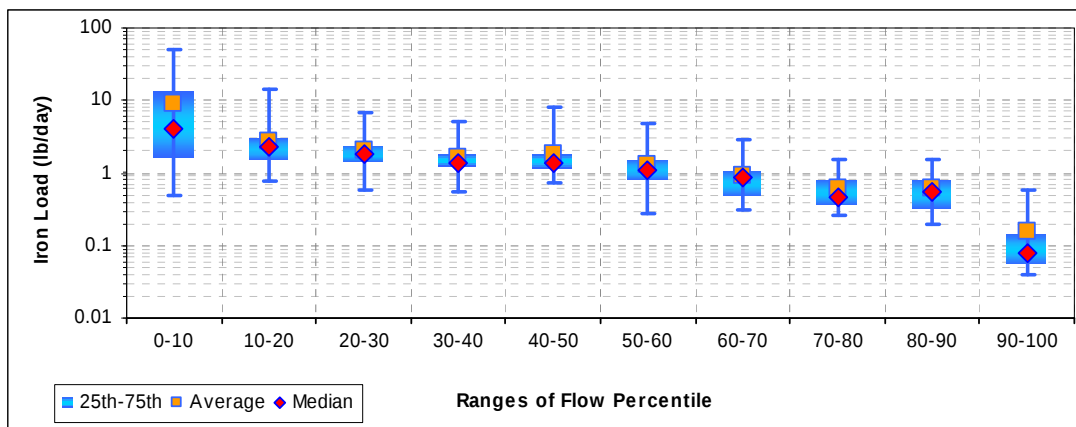


Figure J-199. Iron loads by flow percentile for Little Laurel Run (LLR0024/WM-137)

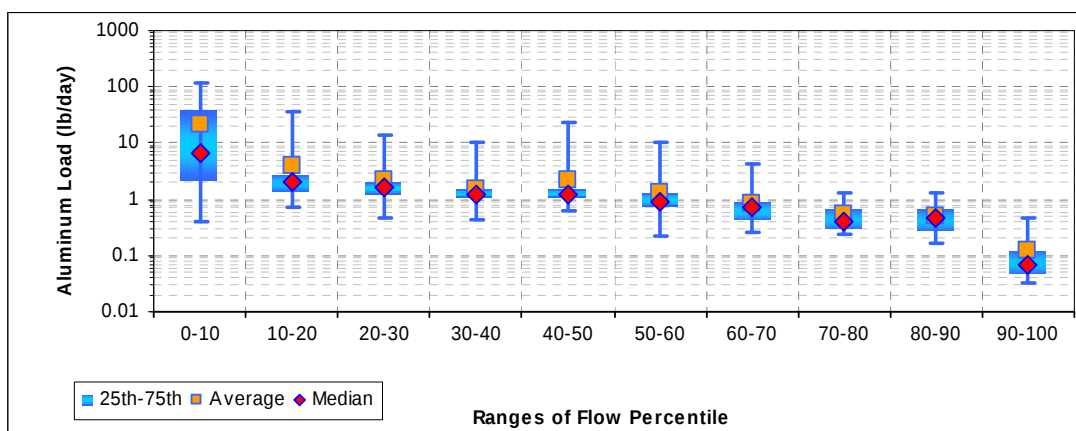


Figure J-200. Aluminum loads by flow percentile for Little Laurel Run (LLR0024/WM-137)

Table J-196. Ammonium loads (lb/d) by flow percentile for Little Laurel Run (LLR0024/WM-137)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 0.3   | 0.2   | 0.0   | 0.2   | 0.2   | 0.1   | 0.1   | 0.0   | 0.0   | 0.0    |
| Average | 11.7  | 3.2   | 1.5   | 0.9   | 1.1   | 0.6   | 0.3   | 0.2   | 0.2   | 0.0    |
| Maximum | 141.6 | 43.6  | 13.9  | 10.7  | 13.2  | 4.9   | 2.1   | 1.8   | 0.7   | 0.1    |
| Median  | 3.4   | 1.1   | 0.7   | 0.5   | 0.4   | 0.3   | 0.2   | 0.1   | 0.1   | 0.0    |
| 25th    | 1.3   | 0.6   | 0.5   | 0.4   | 0.3   | 0.2   | 0.1   | 0.1   | 0.1   | 0.0    |
| 75th    | 11.8  | 1.8   | 1.1   | 0.6   | 1.0   | 0.8   | 0.4   | 0.3   | 0.2   | 0.0    |

Table J-197. Nitrate loads (lbs/d) by flow percentile for Little Laurel Run (LLR0024/WM-137)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 2.2   | 0.9   | 0.1   | 1.2   | 1.0   | 0.3   | 0.3   | 0.1   | 0.1   | 0.0    |
| Average | 56.1  | 18.5  | 9.3   | 5.0   | 7.0   | 3.6   | 2.1   | 1.5   | 1.4   | 0.1    |
| Maximum | 500.3 | 155.0 | 49.6  | 33.4  | 70.3  | 31.1  | 12.0  | 19.7  | 11.9  | 0.4    |
| Median  | 19.8  | 10.7  | 4.8   | 2.9   | 2.7   | 1.9   | 1.4   | 0.7   | 0.6   | 0.1    |
| 25th    | 9.8   | 5.7   | 3.2   | 2.1   | 1.4   | 0.8   | 0.6   | 0.3   | 0.3   | 0.0    |
| 75th    | 85.0  | 17.5  | 10.9  | 4.1   | 5.2   | 3.9   | 2.2   | 1.1   | 1.3   | 0.2    |

Table J-198. Sulfate loads (lbs/d) by flow percentile for Little Laurel Run (LLR0024/WM-137)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 42    | 66    | 48    | 46    | 63    | 23    | 26    | 22    | 17    | 3      |
| Average | 374   | 202   | 168   | 138   | 142   | 109   | 79    | 54    | 54    | 13     |
| Maximum | 1,423 | 675   | 419   | 310   | 386   | 279   | 207   | 128   | 133   | 49     |
| Median  | 305   | 189   | 143   | 120   | 120   | 94    | 74    | 39    | 49    | 7      |
| 25th    | 129   | 130   | 124   | 106   | 101   | 68    | 42    | 32    | 29    | 5      |
| 75th    | 540   | 249   | 208   | 160   | 158   | 135   | 93    | 72    | 72    | 13     |

Table J-199. Iron loads (lbs/d) by flow percentile for Little Laurel Run (LLR0024/WM-137)

|         | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 0.5  | 0.8   | 0.6   | 0.5   | 0.7   | 0.3   | 0.3   | 0.3   | 0.2   | 0.0    |
| Average | 9.0  | 2.8   | 2.1   | 1.6   | 1.8   | 1.3   | 0.9   | 0.6   | 0.6   | 0.2    |
| Maximum | 51.4 | 13.9  | 6.7   | 5.1   | 8.1   | 4.7   | 2.8   | 1.5   | 1.5   | 0.6    |
| Median  | 4.1  | 2.3   | 1.8   | 1.4   | 1.4   | 1.1   | 0.9   | 0.5   | 0.6   | 0.1    |
| 25th    | 1.6  | 1.5   | 1.5   | 1.3   | 1.2   | 0.8   | 0.5   | 0.4   | 0.3   | 0.1    |
| 75th    | 13.3 | 3.0   | 2.4   | 1.9   | 1.8   | 1.6   | 1.1   | 0.8   | 0.8   | 0.2    |

Table J-200. Aluminum loads (lbs/d) by flow percentile for Little Laurel Run (LLR0024/WM-137)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 0.4   | 0.7   | 0.5   | 0.4   | 0.6   | 0.2   | 0.2   | 0.2   | 0.2   | 0.0    |
| Average | 21.2  | 4.0   | 2.2   | 1.5   | 2.1   | 1.3   | 0.8   | 0.5   | 0.5   | 0.1    |
| Maximum | 116.2 | 37.4  | 13.4  | 10.6  | 22.4  | 10.3  | 4.3   | 1.3   | 1.3   | 0.5    |
| Median  | 6.6   | 2.1   | 1.7   | 1.2   | 1.2   | 0.9   | 0.7   | 0.4   | 0.5   | 0.1    |
| 25th    | 2.1   | 1.4   | 1.2   | 1.0   | 1.0   | 0.7   | 0.4   | 0.3   | 0.3   | 0.0    |
| 75th    | 37.9  | 2.7   | 2.1   | 1.5   | 1.5   | 1.3   | 0.9   | 0.7   | 0.7   | 0.1    |

**Spiker Run (WM-138/SPI0018) plots and tables**

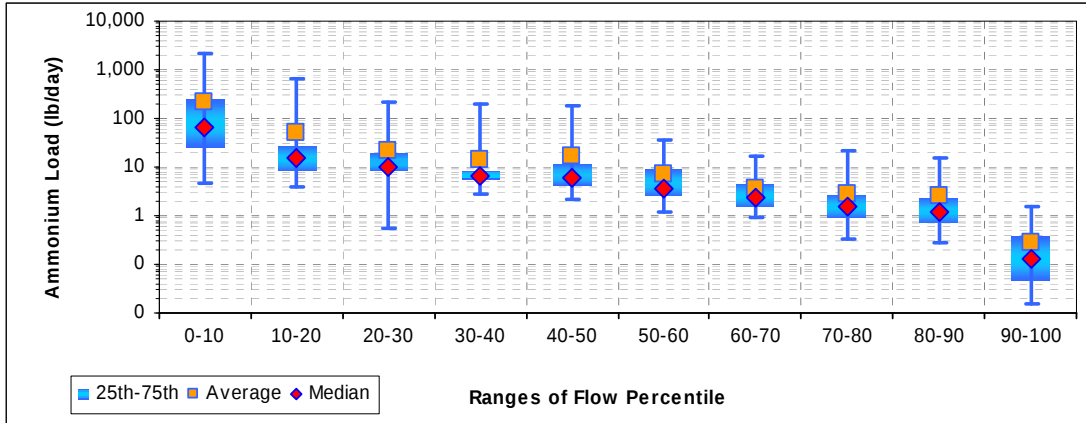


Figure J-201. Ammonium loads by flow percentile for Spiker Run (SPI0018/WM-138)

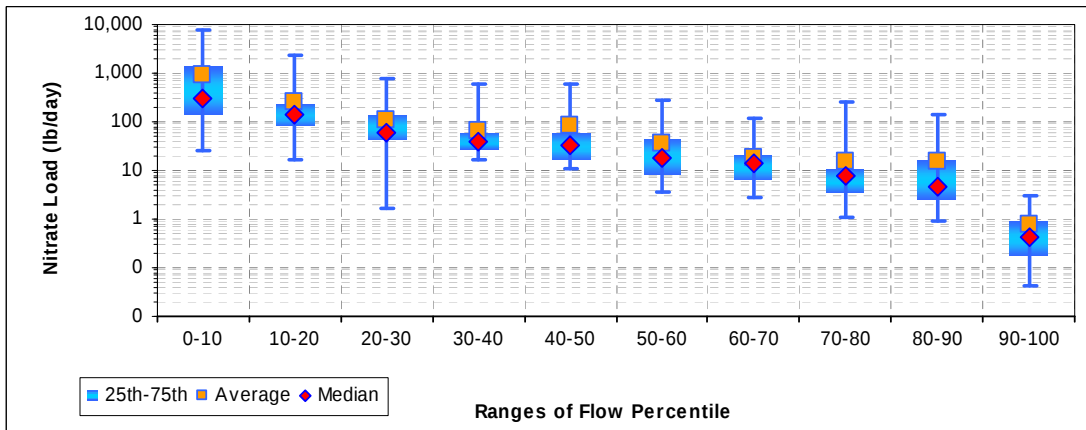


Figure J-202. Nitrate loads by flow percentile for Spiker Run (SPI0018/WM-138)

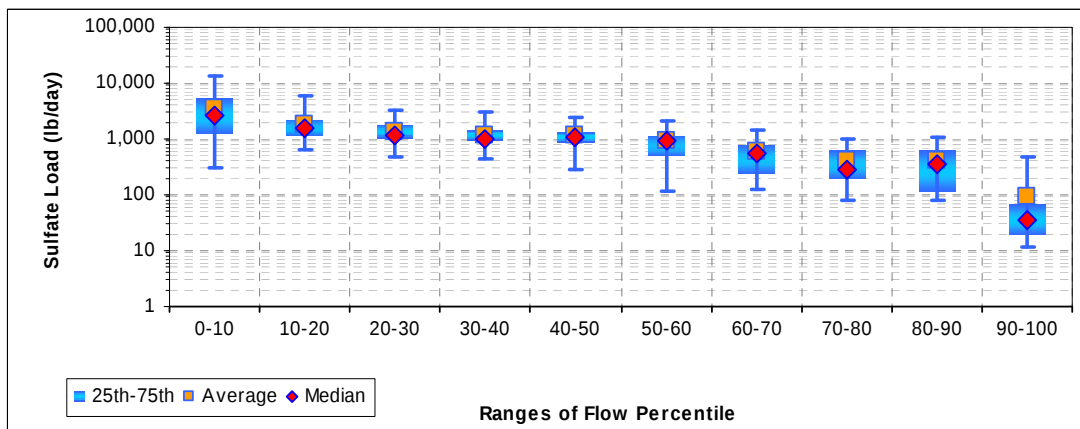


Figure J-203. Sulfate loads by flow percentile for Spiker Run (SPI0018/WM-138)

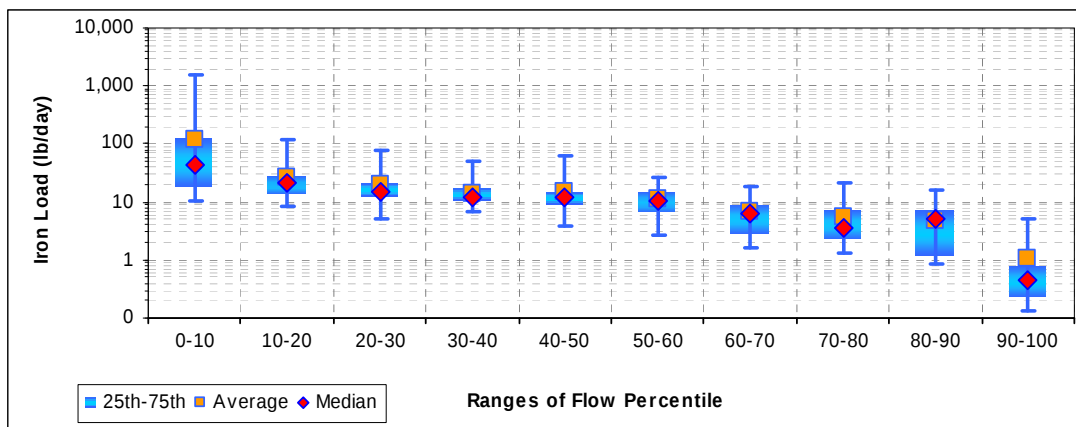


Figure J-204. Iron loads by flow percentile for Spiker Run (SPI0018/WM-138)

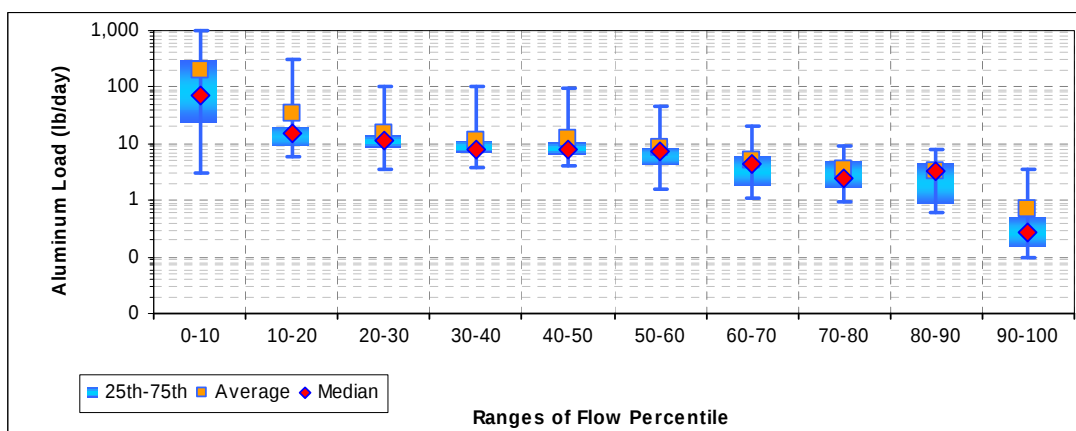


Figure J-205. Aluminum loads by flow percentile for Spiker Run (SPI0018/WM-138)

Table J-201. Ammonium loads (lb/d) by flow percentile for Spiker Run (SPI0018/WM-138)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 4.8     | 4.1   | 0.6   | 2.7   | 2.2   | 1.2   | 0.9   | 0.3   | 0.3   | 0.0    |
| Average | 208.5   | 50.1  | 21.1  | 14.2  | 16.0  | 7.1   | 3.6   | 2.8   | 2.5   | 0.3    |
| Maximum | 2,183.0 | 669.1 | 210.3 | 201.8 | 185.0 | 35.5  | 17.0  | 21.9  | 15.7  | 1.6    |
| Median  | 64.8    | 15.6  | 10.1  | 6.4   | 5.8   | 3.4   | 2.4   | 1.5   | 1.1   | 0.1    |
| 25th    | 25.1    | 8.7   | 8.3   | 5.5   | 4.3   | 2.5   | 1.5   | 0.9   | 0.7   | 0.0    |
| 75th    | 263.1   | 26.8  | 20.2  | 8.8   | 11.4  | 9.5   | 4.7   | 2.7   | 2.4   | 0.4    |

Table J-202. Nitrate loads (lbs/d) by flow percentile for Spiker Run (SPI0018/WM-138)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 26.2    | 16.5    | 1.7   | 16.7  | 10.6  | 3.6   | 2.9   | 1.1   | 0.9   | 0.0    |
| Average | 887.0   | 245.6   | 112.6 | 68.0  | 84.8  | 37.1  | 18.6  | 15.6  | 14.8  | 0.8    |
| Maximum | 7,836.4 | 2,408.2 | 756.6 | 595.2 | 588.8 | 283.1 | 113.9 | 245.9 | 146.2 | 3.1    |
| Median  | 293.3   | 144.6   | 61.7  | 38.2  | 34.2  | 18.6  | 14.3  | 7.5   | 4.6   | 0.4    |
| 25th    | 135.0   | 85.0    | 41.5  | 26.8  | 16.9  | 8.2   | 6.7   | 3.6   | 2.5   | 0.2    |
| 75th    | 1,380.6 | 244.2   | 141.3 | 58.3  | 60.6  | 44.5  | 22.1  | 10.9  | 16.2  | 0.9    |

Table J-203. Sulfate loads (lbs/d) by flow percentile for Spiker Run (SPI0018/WM-138)

|         | 0-10   | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 302    | 660   | 470   | 442   | 288   | 114   | 129   | 80    | 79    | 11     |
| Average | 3,535  | 1,750 | 1,375 | 1,150 | 1,148 | 895   | 593   | 419   | 409   | 94     |
| Maximum | 13,631 | 5,893 | 3,371 | 3,002 | 2,438 | 2,088 | 1,452 | 1,018 | 1,066 | 459    |
| Median  | 2,649  | 1,546 | 1,136 | 992   | 1,040 | 902   | 535   | 292   | 358   | 35     |
| 25th    | 1,285  | 1,118 | 982   | 896   | 845   | 501   | 244   | 193   | 113   | 19     |
| 75th    | 5,495  | 2,278 | 1,746 | 1,431 | 1,355 | 1,130 | 812   | 621   | 636   | 68     |

Table J-204. Iron loads (lbs/d) by flow percentile for Spiker Run (SPI0018/WM-138)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 10.5    | 8.5   | 5.2   | 6.9   | 3.9   | 2.6   | 1.7   | 1.3   | 0.9   | 0.1    |
| Average | 121.8   | 27.3  | 19.5  | 14.3  | 14.8  | 11.1  | 6.9   | 5.3   | 4.9   | 1.1    |
| Maximum | 1,578.7 | 122.5 | 76.9  | 50.2  | 64.5  | 26.9  | 17.9  | 21.2  | 16.1  | 5.0    |
| Median  | 44.1    | 21.5  | 15.4  | 12.2  | 12.4  | 10.5  | 6.3   | 3.6   | 5.3   | 0.5    |
| 25th    | 17.9    | 14.3  | 12.0  | 10.7  | 9.2   | 6.9   | 2.8   | 2.3   | 1.2   | 0.2    |
| 75th    | 129.7   | 29.4  | 21.7  | 17.0  | 15.0  | 14.9  | 9.2   | 7.5   | 7.1   | 0.8    |

Table J-205. Aluminum loads (lbs/d) by flow percentile for Spiker Run (SPI0018/WM-138)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 3.2   | 5.7   | 3.7   | 3.7   | 4.2   | 1.6   | 1.1   | 0.9   | 0.6   | 0.1    |
| Average | 195.0 | 33.2  | 15.2  | 11.2  | 11.9  | 8.2   | 5.0   | 3.5   | 3.2   | 0.7    |
| Maximum | 983.8 | 310.7 | 106.1 | 101.8 | 95.9  | 45.1  | 20.4  | 9.1   | 8.2   | 3.5    |
| Median  | 69.4  | 15.5  | 11.3  | 8.0   | 8.1   | 7.1   | 4.3   | 2.5   | 3.4   | 0.3    |
| 25th    | 24.4  | 9.4   | 8.4   | 7.1   | 6.4   | 4.5   | 1.8   | 1.8   | 0.9   | 0.2    |
| 75th    | 312.3 | 20.8  | 14.7  | 11.1  | 10.4  | 8.7   | 6.3   | 5.2   | 4.9   | 0.5    |

### Little Laurel Run (WM-141/LLR0009) plots and tables

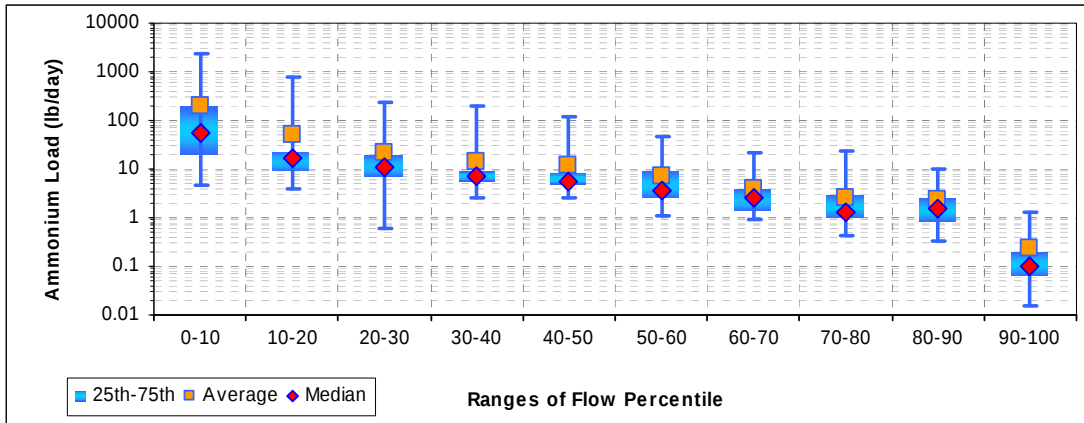


Figure J-206. Ammonium loads by flow percentile for Little Laurel Run (LLR0009/WM-141)

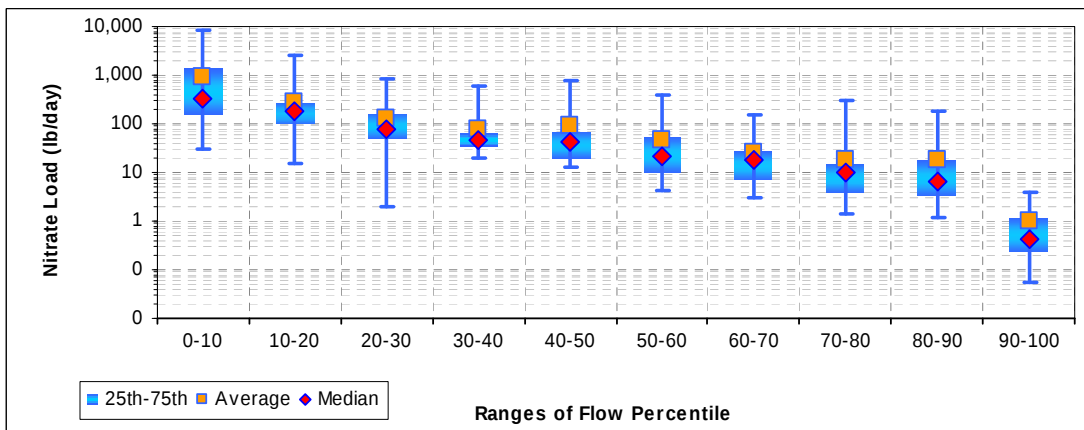


Figure J-207. Nitrate loads by flow percentile for Little Laurel Run (LLR0009/WM-141)

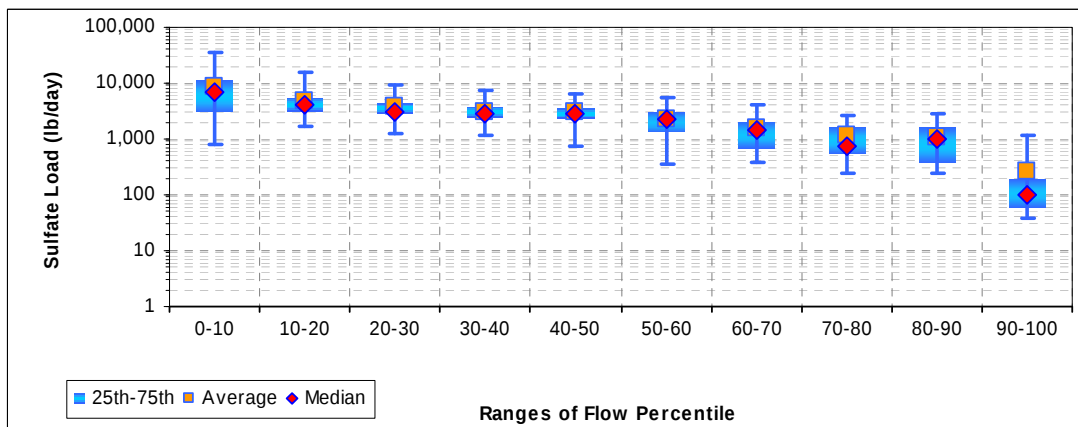


Figure J-208. Sulfate loads by flow percentile for Little Laurel Run (LLR0009/WM-141)

\*\* These plots include upstream loads from Little Laurel Run (WM-137/LLR0024).

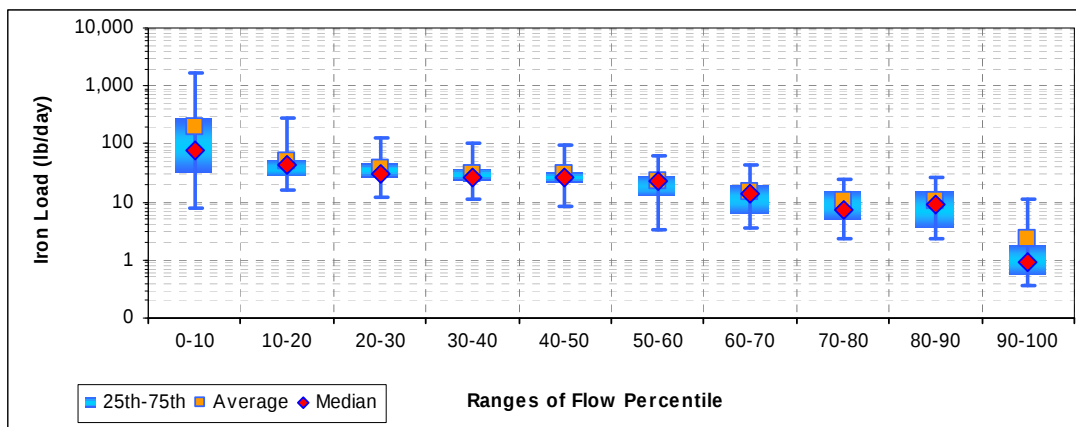


Figure J-209. Iron loads by flow percentile for Little Laurel Run (LLR0009/WM-141)

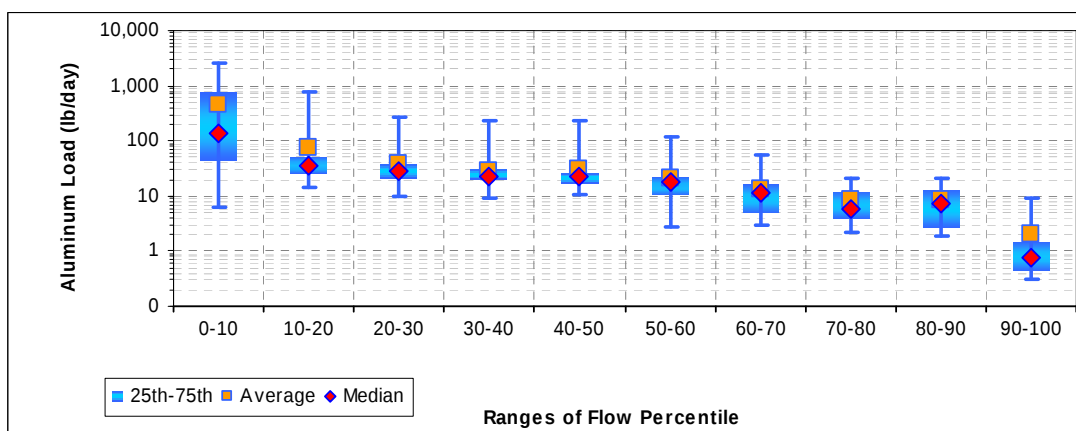


Figure J-210. Aluminum loads by flow percentile for Little Laurel Run (LLR0009/WM-141)

\*\* These plots include upstream loads from Little Laurel Run (WM-137/LLR0024).

Table J-206. Ammonium loads (lb/d) by flow percentile for Little Laurel Run (LLR0009/WM-141)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 4.5     | 3.9   | 0.6   | 2.6   | 2.5   | 1.1   | 0.9   | 0.4   | 0.3   | 0.0    |
| Average | 201.0   | 51.3  | 21.7  | 13.8  | 12.3  | 7.0   | 3.9   | 2.5   | 2.4   | 0.2    |
| Maximum | 2,426.2 | 744.4 | 234.5 | 192.0 | 114.0 | 44.8  | 22.0  | 23.4  | 10.3  | 1.2    |
| Median  | 55.7    | 16.1  | 10.9  | 7.0   | 5.7   | 3.6   | 2.6   | 1.3   | 1.5   | 0.1    |
| 25th    | 20.2    | 9.5   | 7.2   | 5.4   | 4.7   | 2.5   | 1.4   | 1.0   | 0.8   | 0.1    |
| 75th    | 200.3   | 24.3  | 19.7  | 8.8   | 8.3   | 9.2   | 4.0   | 3.0   | 2.5   | 0.2    |

Table J-207. Nitrate loads (lbs/d) by flow percentile for Little Laurel Run (LLR0009/WM-141)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 31.1    | 15.0    | 2.0   | 19.4  | 12.8  | 4.3   | 3.1   | 1.4   | 1.1   | 0.1    |
| Average | 947.3   | 279.6   | 133.9 | 78.7  | 90.1  | 45.6  | 24.9  | 18.9  | 18.1  | 1.0    |
| Maximum | 8,622.9 | 2,660.0 | 842.1 | 608.5 | 773.4 | 376.6 | 155.2 | 301.4 | 183.1 | 4.0    |
| Median  | 328.8   | 175.4   | 74.3  | 44.7  | 42.2  | 22.1  | 18.6  | 10.0  | 6.4   | 0.4    |
| 25th    | 149.8   | 96.0    | 49.0  | 32.6  | 20.3  | 10.0  | 7.2   | 4.1   | 3.4   | 0.2    |
| 75th    | 1,459.2 | 272.6   | 168.2 | 66.4  | 68.2  | 54.3  | 28.7  | 15.0  | 17.4  | 1.2    |

Table J-208. Sulfate loads (lbs/d) by flow percentile for Little Laurel Run (LLR0009/WM-141)

|         | 0-10   | 10-20  | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 812    | 1,653  | 1,237 | 1,164 | 745   | 346   | 388   | 249   | 243   | 37     |
| Average | 8,869  | 4,589  | 3,704 | 3,118 | 3,057 | 2,345 | 1,606 | 1,120 | 1,097 | 254    |
| Maximum | 35,459 | 15,601 | 9,079 | 7,510 | 6,233 | 5,370 | 4,029 | 2,688 | 2,810 | 1,180  |
| Median  | 6,753  | 4,185  | 3,152 | 2,777 | 2,855 | 2,325 | 1,499 | 768   | 965   | 97     |
| 25th    | 3,156  | 2,947  | 2,729 | 2,439 | 2,250 | 1,367 | 676   | 539   | 371   | 58     |
| 75th    | 11,982 | 5,620  | 4,583 | 3,922 | 3,489 | 3,007 | 2,115 | 1,639 | 1,674 | 191    |

Table J-209. Iron loads (lbs/d) by flow percentile for Little Laurel Run (LLR0009/WM-141)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 7.7     | 16.0  | 11.9  | 11.1  | 8.6   | 3.3   | 3.7   | 2.3   | 2.3   | 0.4    |
| Average | 201.9   | 51.4  | 36.9  | 30.5  | 30.2  | 22.7  | 15.4  | 10.6  | 10.4  | 2.4    |
| Maximum | 1,624.0 | 281.9 | 126.9 | 104.7 | 96.1  | 64.0  | 42.9  | 25.3  | 26.4  | 11.1   |
| Median  | 78.2    | 42.2  | 31.6  | 26.6  | 27.3  | 22.2  | 14.3  | 7.2   | 9.1   | 0.9    |
| 25th    | 32.5    | 28.3  | 25.8  | 23.0  | 21.1  | 13.0  | 6.4   | 5.1   | 3.5   | 0.6    |
| 75th    | 279.3   | 56.0  | 45.6  | 37.2  | 33.3  | 28.6  | 20.2  | 15.7  | 15.8  | 1.8    |

Table J-210. Aluminum loads (lbs/d) by flow percentile for Little Laurel Run (LLR0009/WM-141)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 6.3     | 14.6  | 9.6   | 9.1   | 11.0  | 2.8   | 3.0   | 2.2   | 1.9   | 0.3    |
| Average | 454.8   | 76.8  | 38.3  | 29.0  | 30.4  | 20.7  | 13.4  | 8.7   | 8.4   | 2.0    |
| Maximum | 2,535.4 | 803.5 | 276.6 | 227.6 | 237.8 | 120.9 | 55.7  | 21.0  | 21.6  | 9.1    |
| Median  | 139.6   | 36.6  | 28.9  | 22.2  | 22.2  | 18.1  | 11.6  | 5.9   | 7.4   | 0.7    |
| 25th    | 44.9    | 25.6  | 21.3  | 18.7  | 17.2  | 10.6  | 5.2   | 4.1   | 2.8   | 0.5    |
| 75th    | 777.6   | 52.2  | 38.7  | 30.3  | 27.1  | 23.3  | 16.5  | 12.8  | 12.8  | 1.5    |

\*\* These tables include upstream loads from Little Laurel Run (WM-137/LLR0024).

### North Branch Casselman River (WM-142/NBC0072) plots and tables

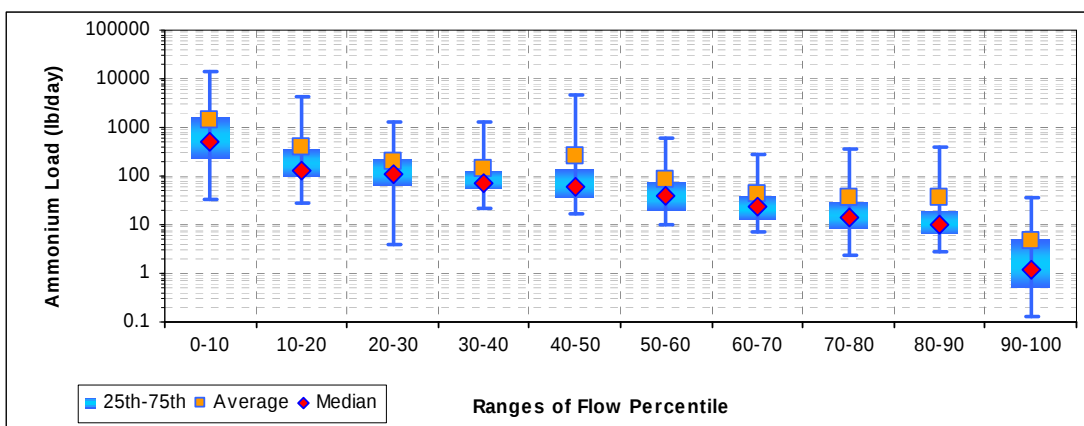


Figure J-211. Ammonium loads by flow percentile for North Branch Casselman River (NBC0072/WM-142)

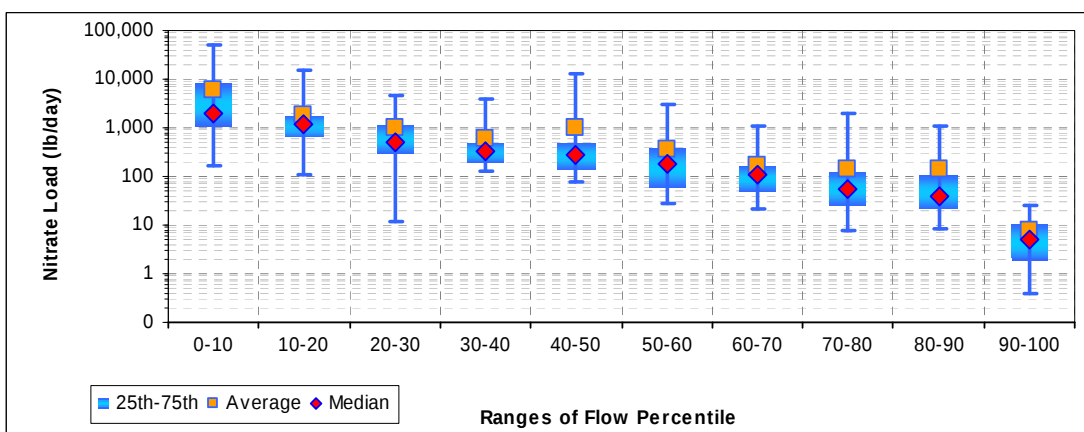


Figure J-212. Nitrate loads by flow percentile for North Branch Casselman River (NBC0072/WM-142)

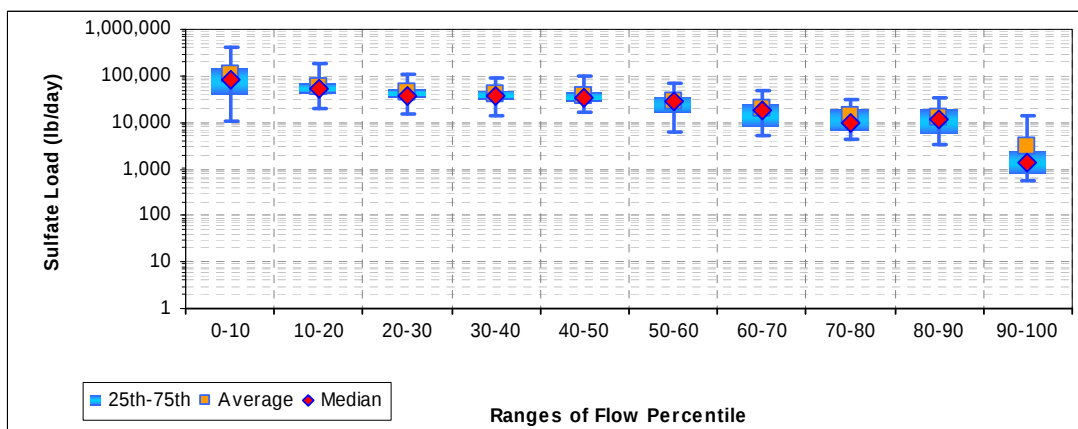


Figure J-213. Sulfate loads by flow percentile for North Branch Casselman River (NBC0072/WM-142)

\*\* These plots include upstream loads from (WM-145/NBC0090) and (WM-151/UNA0015).

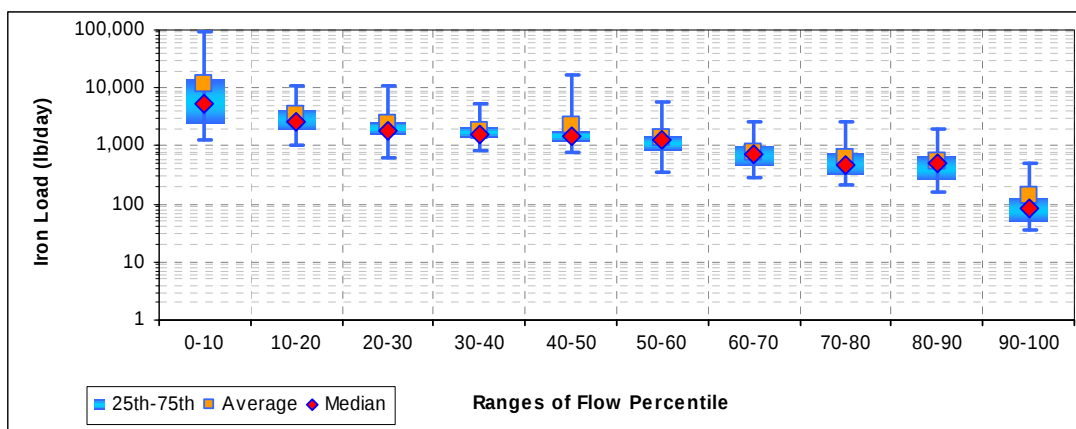


Figure J-214. Iron loads by flow percentile for North Branch Casselman River (NBC0072/WM-142)

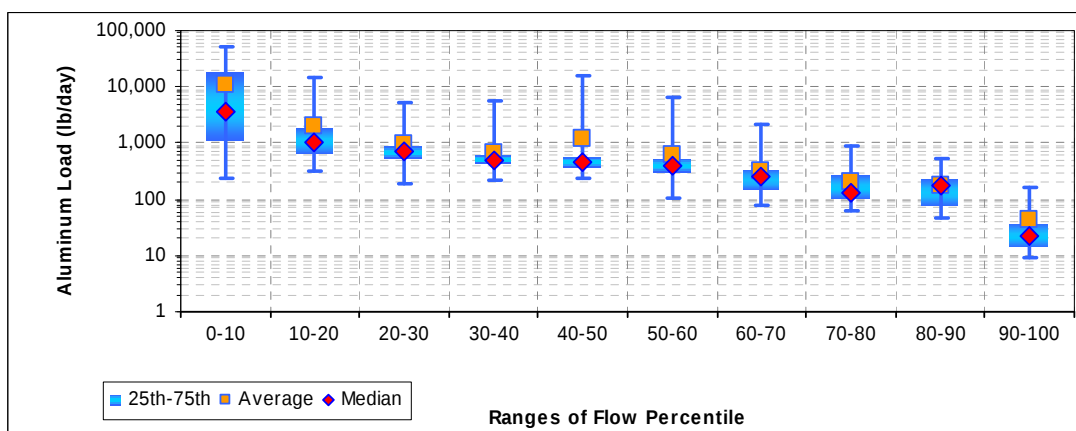


Figure J-215. Aluminum loads by flow percentile for North Branch Casselman River (NBC0072/WM-142)

\*\* These plots include upstream loads from (WM-145/NBC0090) and (WM-151/UNA0015).

Table J-211. Ammonium loads (lb/d) by flow percentile for North Branch Casselman River (NBC0072/WM-142)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50   | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|---------|-------|-------|-------|-------|--------|
| Minimum | 33.6     | 28.2    | 3.9     | 22.4    | 16.9    | 10.0  | 7.2   | 2.4   | 2.7   | 0.1    |
| Average | 1,466.3  | 387.3   | 200.8   | 139.1   | 264.3   | 84.3  | 44.2  | 37.1  | 36.8  | 4.8    |
| Maximum | 13,686.9 | 4,207.0 | 1,333.2 | 1,252.1 | 4,840.5 | 613.4 | 275.9 | 362.6 | 406.0 | 35.9   |
| Median  | 491.5    | 133.9   | 106.3   | 72.3    | 57.9    | 39.1  | 23.0  | 14.1  | 10.1  | 1.2    |
| 25th    | 233.7    | 96.9    | 67.0    | 53.5    | 35.5    | 19.1  | 13.4  | 8.3   | 6.6   | 0.5    |
| 75th    | 1,686.5  | 368.7   | 226.2   | 134.6   | 139.7   | 74.7  | 40.1  | 30.5  | 19.4  | 5.1    |

Table J-212. Nitrate loads (lbs/d) by flow percentile for North Branch Casselman River (NBC0072/WM-142)

|         | 0-10     | 10-20    | 20-30   | 30-40   | 40-50    | 50-60   | 60-70   | 70-80   | 80-90   | 90-100 |
|---------|----------|----------|---------|---------|----------|---------|---------|---------|---------|--------|
| Minimum | 166.7    | 107.8    | 11.6    | 126.9   | 78.3     | 28.8    | 22.3    | 7.5     | 8.2     | 0.4    |
| Average | 6,153.3  | 1,841.3  | 969.8   | 599.1   | 1,009.0  | 353.0   | 172.8   | 139.1   | 142.0   | 7.5    |
| Maximum | 49,200.3 | 15,152.8 | 4,790.3 | 3,780.8 | 13,108.4 | 2,947.3 | 1,092.1 | 1,914.2 | 1,061.0 | 24.5   |
| Median  | 2,038.0  | 1,139.6  | 499.0   | 338.2   | 289.7    | 175.7   | 113.4   | 55.6    | 37.9    | 5.1    |
| 25th    | 1,056.8  | 628.6    | 292.7   | 198.9   | 145.9    | 61.1    | 48.8    | 25.9    | 21.3    | 1.8    |
| 75th    | 8,690.7  | 1,865.7  | 1,197.7 | 518.8   | 497.5    | 400.1   | 173.8   | 134.7   | 106.5   | 11.1   |

Table J-213. Sulfate loads (lbs/d) by flow percentile for North Branch Casselman River (NBC0072/WM-142)

|         | 0-10    | 10-20   | 20-30   | 30-40  | 40-50  | 50-60  | 60-70  | 70-80  | 80-90  | 90-100 |
|---------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|
| Minimum | 10,584  | 20,393  | 14,771  | 14,432 | 17,139 | 6,441  | 5,220  | 4,525  | 3,301  | 560    |
| Average | 110,624 | 56,856  | 45,948  | 39,231 | 38,566 | 28,819 | 19,139 | 13,545 | 13,192 | 3,161  |
| Maximum | 421,758 | 185,768 | 108,209 | 90,257 | 97,057 | 67,837 | 48,501 | 31,912 | 32,809 | 13,736 |
| Median  | 85,656  | 52,128  | 38,641  | 35,535 | 34,475 | 28,487 | 17,560 | 9,311  | 11,155 | 1,353  |
| 25th    | 38,722  | 38,864  | 35,194  | 30,321 | 28,633 | 16,381 | 8,483  | 7,064  | 5,724  | 807    |
| 75th    | 160,430 | 68,714  | 55,189  | 47,708 | 44,042 | 38,255 | 25,775 | 19,609 | 19,274 | 2,621  |

Table J-214. Iron loads (lbs/d) by flow percentile for North Branch Casselman River (NBC0072/WM-142)

|         | 0-10     | 10-20    | 20-30    | 30-40   | 40-50    | 50-60   | 60-70   | 70-80   | 80-90   | 90-100 |
|---------|----------|----------|----------|---------|----------|---------|---------|---------|---------|--------|
| Minimum | 1,264.4  | 1,036.4  | 606.1    | 815.9   | 752.2    | 358.5   | 274.7   | 219.7   | 160.6   | 34.7   |
| Average | 11,579.0 | 3,356.1  | 2,393.9  | 1,790.3 | 2,180.4  | 1,369.6 | 792.9   | 612.7   | 534.5   | 140.0  |
| Maximum | 92,747.1 | 11,100.0 | 11,220.8 | 5,358.7 | 16,406.3 | 5,799.7 | 2,608.3 | 2,516.5 | 1,960.8 | 493.8  |
| Median  | 5,155.9  | 2,671.6  | 1,811.6  | 1,602.4 | 1,514.3  | 1,307.9 | 724.4   | 469.6   | 490.2   | 86.5   |
| 25th    | 2,372.4  | 2,016.8  | 1,576.1  | 1,375.9 | 1,191.2  | 826.5   | 476.2   | 337.4   | 267.8   | 52.5   |
| 75th    | 14,290.3 | 4,251.9  | 2,521.8  | 2,051.1 | 1,810.3  | 1,514.3 | 1,039.7 | 787.8   | 679.7   | 131.4  |

Table J-215. Aluminum loads (lbs/d) by flow percentile for North Branch Casselman River (NBC0072/WM-142)

|         | 0-10     | 10-20    | 20-30   | 30-40   | 40-50    | 50-60   | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|----------|----------|---------|---------|----------|---------|---------|-------|-------|--------|
| Minimum | 242.9    | 314.7    | 188.3   | 222.6   | 233.5    | 102.5   | 75.6    | 63.8  | 45.9  | 9.3    |
| Average | 11,092.9 | 2,038.0  | 970.5   | 645.1   | 1,219.7  | 627.4   | 315.2   | 210.4 | 172.7 | 41.6   |
| Maximum | 51,296.4 | 15,027.5 | 5,140.5 | 5,485.8 | 16,087.3 | 6,323.7 | 2,207.7 | 871.8 | 520.4 | 161.9  |
| Median  | 3,698.6  | 1,030.7  | 689.6   | 500.5   | 460.0    | 401.6   | 246.9   | 133.9 | 174.4 | 22.0   |
| 25th    | 1,148.5  | 668.0    | 514.1   | 420.8   | 379.4    | 292.2   | 152.4   | 104.3 | 79.1  | 14.0   |
| 75th    | 18,364.6 | 1,866.5  | 917.7   | 615.1   | 559.1    | 523.3   | 335.6   | 278.7 | 239.4 | 37.1   |

\*\* Tables include upstream loads from (WM-145/NBC0090) and (WM-151/UNA0015).

### South Branch Casselman River (WM-143/SCA0067) plots and tables

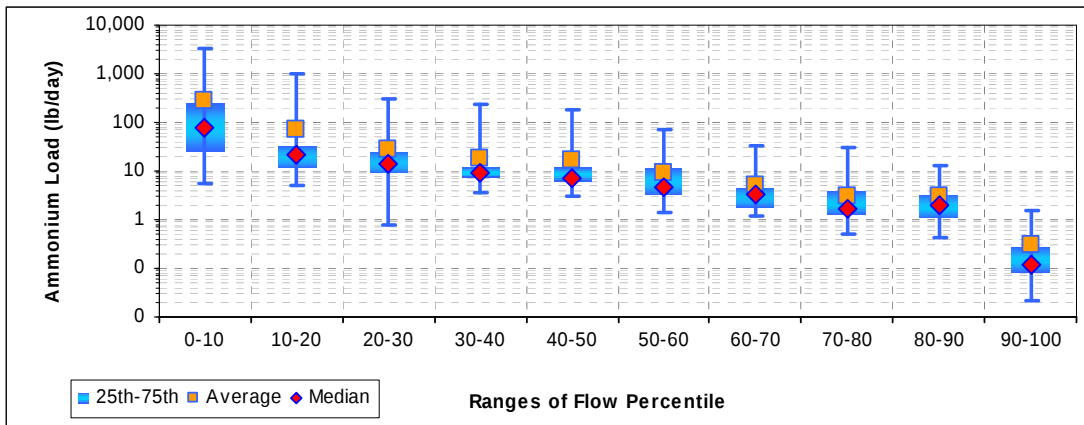


Figure J-216. Ammonium loads by flow percentile for South Branch Casselman River (SCA0067/WM-143)

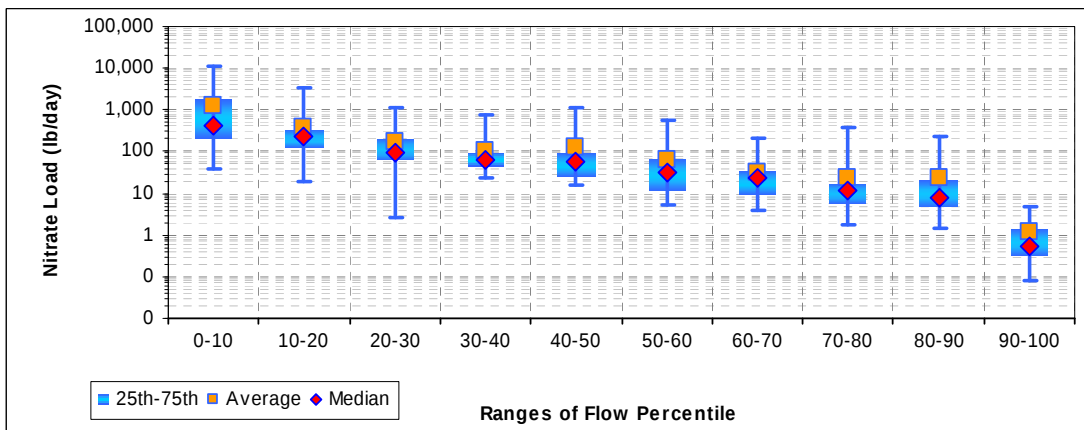


Figure J-217. Nitrate loads by flow percentile for South Branch Casselman River (SCA0067/WM-143)

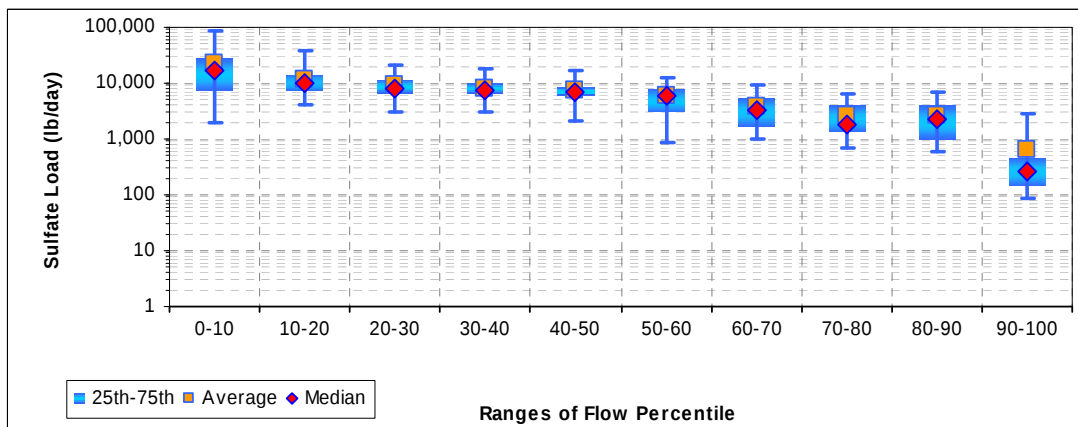


Figure J-218. Sulfate loads by flow percentile for South Branch Casselman River (SCA0067/WM-143)

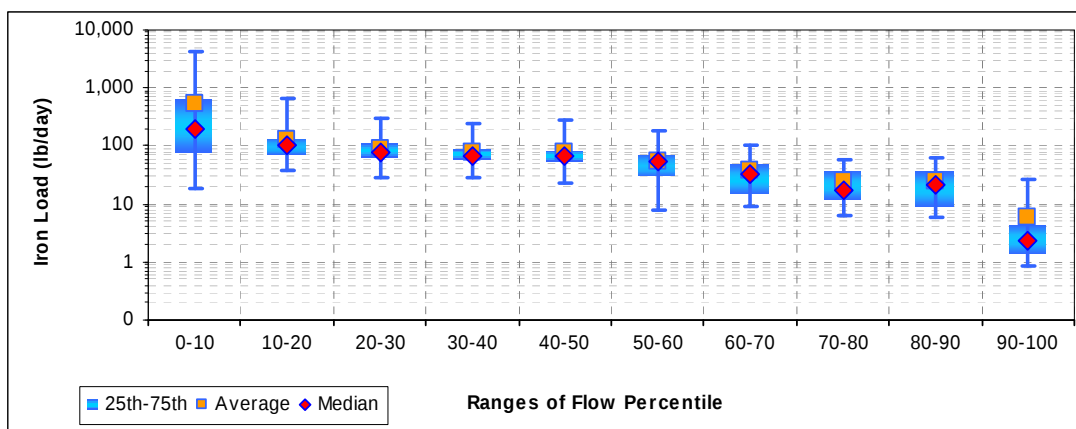


Figure J-219. Iron loads by flow percentile for South Branch Casselman River (SCA0067/WM-143)

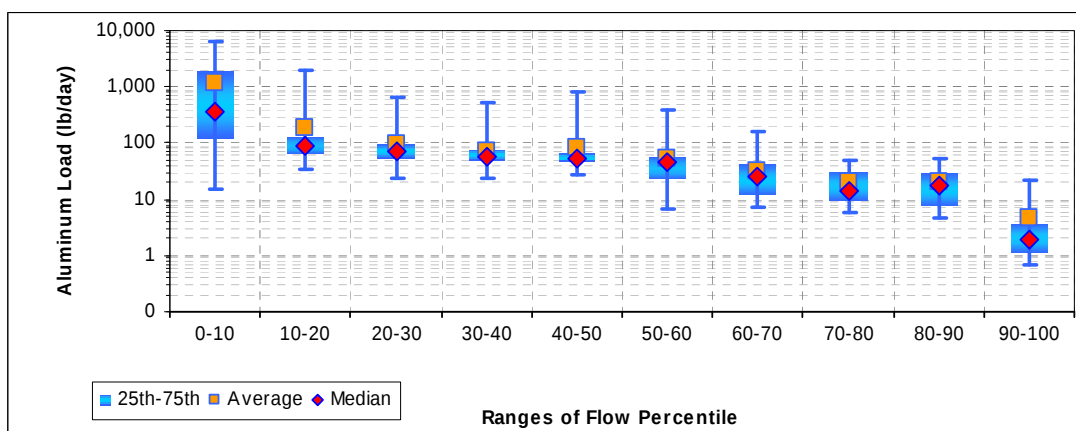


Figure J-220. Aluminum loads by flow percentile for South Branch Casselman River (SCA0067/WM-143)

Table J-216. Ammonium loads (lb/d) by flow percentile for South Branch Casselman River (SCA0067/WM-143)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 5.6     | 4.9   | 0.8   | 3.5   | 3.1   | 1.4   | 1.2   | 0.5   | 0.4   | 0.0    |
| Average | 271.4   | 68.8  | 28.9  | 18.3  | 17.2  | 9.5   | 5.0   | 3.1   | 3.1   | 0.3    |
| Maximum | 3,191.5 | 977.8 | 306.9 | 240.1 | 186.1 | 72.9  | 31.9  | 29.1  | 12.9  | 1.5    |
| Median  | 79.5    | 20.9  | 14.6  | 9.3   | 7.3   | 4.5   | 3.2   | 1.7   | 1.9   | 0.1    |
| 25th    | 25.7    | 12.4  | 9.3   | 7.2   | 6.1   | 3.2   | 1.8   | 1.2   | 1.1   | 0.1    |
| 75th    | 266.6   | 33.8  | 24.5  | 11.7  | 12.1  | 12.1  | 4.8   | 3.8   | 3.2   | 0.3    |

Table J-217. Nitrate loads (lbs/d) by flow percentile for South Branch Casselman River (SCA0067/WM-143)

|         | 0-10     | 10-20   | 20-30   | 30-40 | 40-50   | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|-------|---------|-------|-------|-------|-------|--------|
| Minimum | 39.5     | 18.9    | 2.6     | 24.5  | 16.1    | 5.4   | 4.0   | 1.8   | 1.5   | 0.1    |
| Average | 1,282.2  | 367.5   | 178.1   | 106.6 | 121.5   | 60.8  | 31.6  | 24.0  | 23.0  | 1.2    |
| Maximum | 11,330.9 | 3,489.3 | 1,100.5 | 763.8 | 1,147.1 | 543.0 | 213.0 | 377.7 | 230.6 | 4.8    |
| Median  | 419.9    | 224.0   | 95.8    | 61.4  | 56.7    | 30.5  | 22.8  | 12.2  | 8.2   | 0.6    |
| 25th    | 205.7    | 123.7   | 62.0    | 42.9  | 26.3    | 12.3  | 9.1   | 5.7   | 4.6   | 0.3    |
| 75th    | 1,883.1  | 355.5   | 218.6   | 90.1  | 94.0    | 70.1  | 36.3  | 17.9  | 22.1  | 1.4    |

Table J-218. Sulfate loads (lbs/d) by flow percentile for South Branch Casselman River (SCA0067/WM-143)

|         | 0-10   | 10-20  | 20-30  | 30-40  | 40-50  | 50-60  | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|--------|--------|--------|--------|-------|-------|-------|--------|
| Minimum | 1,964  | 3,994  | 3,043  | 3,003  | 2,050  | 880    | 968   | 710   | 616   | 86     |
| Average | 22,048 | 11,345 | 9,157  | 7,931  | 7,640  | 5,754  | 3,816 | 2,707 | 2,649 | 629    |
| Maximum | 86,945 | 37,523 | 21,418 | 17,813 | 16,893 | 12,859 | 9,444 | 6,410 | 6,723 | 2,875  |
| Median  | 16,867 | 10,157 | 7,915  | 7,257  | 7,028  | 5,885  | 3,378 | 1,863 | 2,272 | 257    |
| 25th    | 7,617  | 7,648  | 6,637  | 6,201  | 5,884  | 3,155  | 1,658 | 1,315 | 1,011 | 150    |
| 75th    | 29,181 | 14,026 | 11,226 | 9,750  | 8,930  | 7,774  | 5,323 | 4,025 | 3,970 | 491    |

Table J-219. Iron loads (lbs/d) by flow percentile for South Branch Casselman River (SCA0067/WM-143)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 18.5    | 38.3  | 28.9  | 28.5  | 23.2  | 8.1   | 9.0   | 6.6   | 5.7   | 0.8    |
| Average | 520.6   | 126.7 | 90.5  | 76.7  | 76.0  | 55.7  | 36.5  | 25.4  | 24.7  | 5.9    |
| Maximum | 4,143.7 | 684.1 | 301.9 | 246.1 | 287.7 | 176.1 | 105.6 | 59.7  | 62.5  | 26.9   |
| Median  | 194.4   | 100.9 | 79.7  | 68.7  | 66.6  | 55.7  | 31.7  | 17.4  | 21.3  | 2.4    |
| 25th    | 78.8    | 73.6  | 61.3  | 59.7  | 54.7  | 29.8  | 15.3  | 12.2  | 9.3   | 1.4    |
| 75th    | 676.2   | 138.5 | 107.4 | 92.2  | 83.1  | 71.9  | 50.4  | 38.2  | 37.2  | 4.6    |

Table J-220. Aluminum loads (lbs/d) by flow percentile for South Branch Casselman River (SCA0067/WM-143)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 15.0    | 33.6    | 23.5  | 23.1  | 26.4  | 6.8   | 7.3   | 5.8   | 4.7   | 0.7    |
| Average | 1,168.5 | 192.3   | 94.5  | 72.2  | 81.2  | 53.2  | 32.7  | 20.7  | 20.1  | 4.8    |
| Maximum | 6,269.2 | 1,979.4 | 675.2 | 535.2 | 792.1 | 389.2 | 160.1 | 49.4  | 51.2  | 21.9   |
| Median  | 370.1   | 88.7    | 71.6  | 57.0  | 54.1  | 45.3  | 25.8  | 14.1  | 17.3  | 2.0    |
| 25th    | 117.6   | 66.8    | 51.1  | 49.0  | 44.5  | 24.2  | 12.5  | 9.9   | 7.5   | 1.1    |
| 75th    | 2,017.0 | 129.0   | 93.9  | 75.0  | 67.6  | 58.6  | 41.0  | 31.1  | 30.3  | 3.7    |

Alexander Run (WM-144/ALE0011) plots and tables

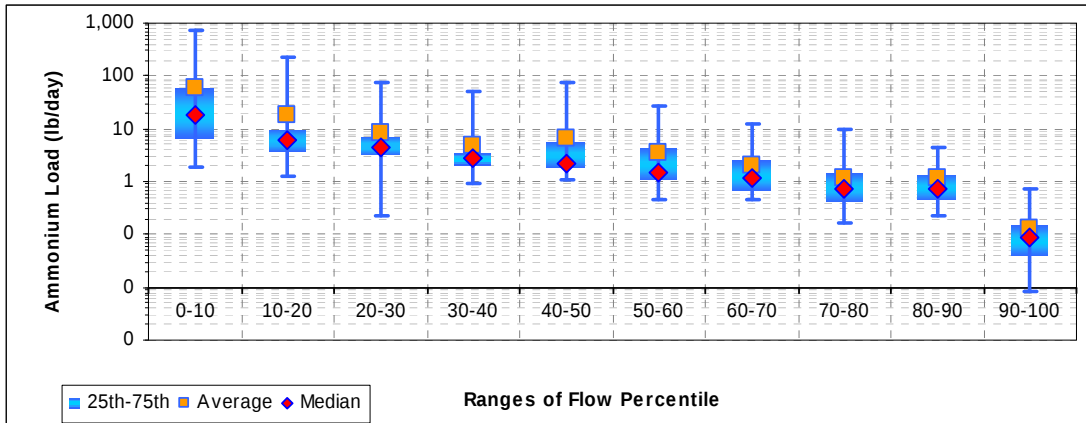


Figure J-221. Ammonium loads by flow percentile for Alexander Run (ALE0011/WM-144)

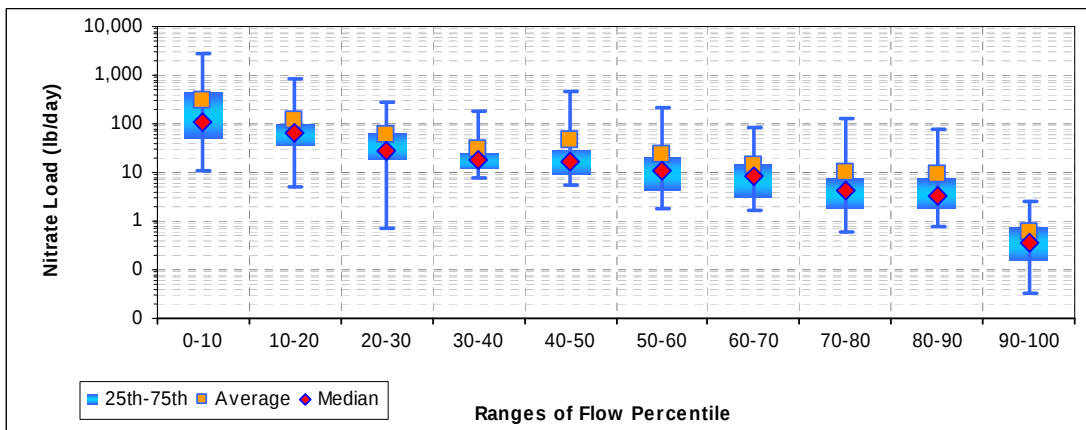


Figure J-222. Nitrate loads by flow percentile for Alexander Run (ALE0011/WM-144)

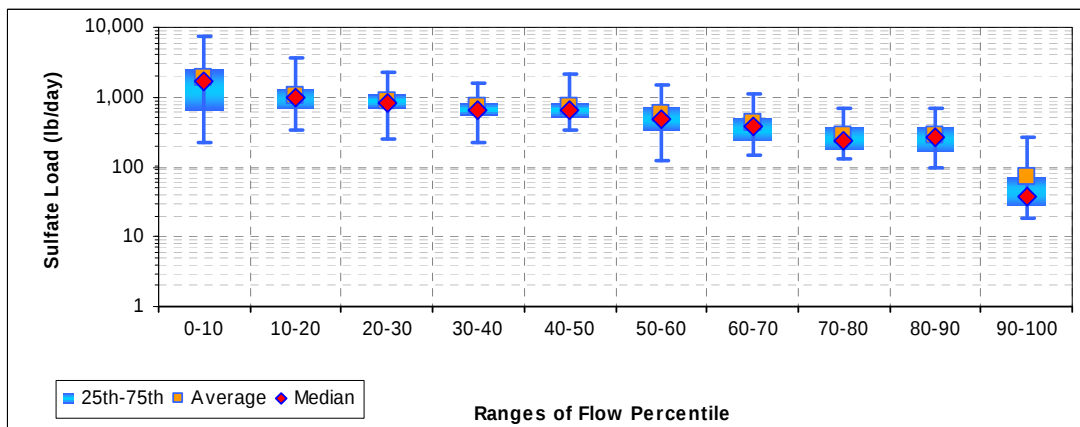


Figure J-223. Sulfate loads by flow percentile for Alexander Run (ALE0011/WM-144)

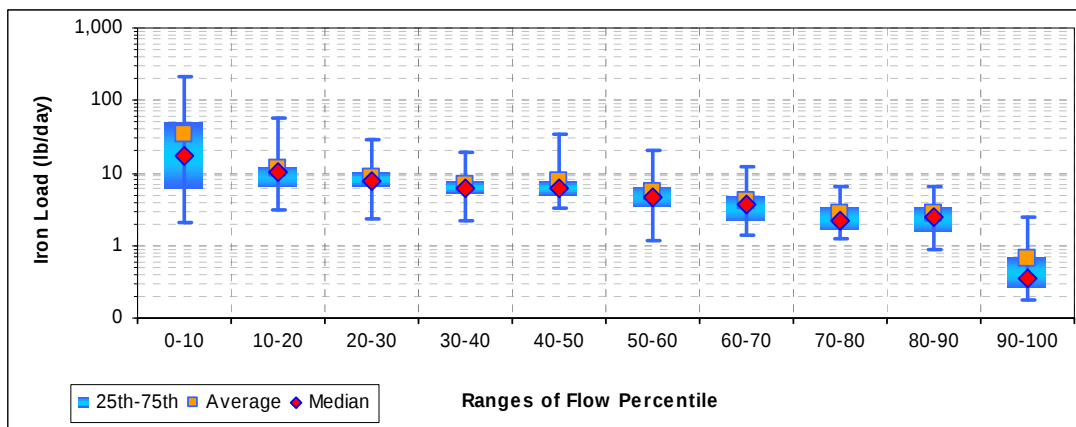


Figure J-224. Iron loads by flow percentile for Alexander Run (ALE0011/WM-144)

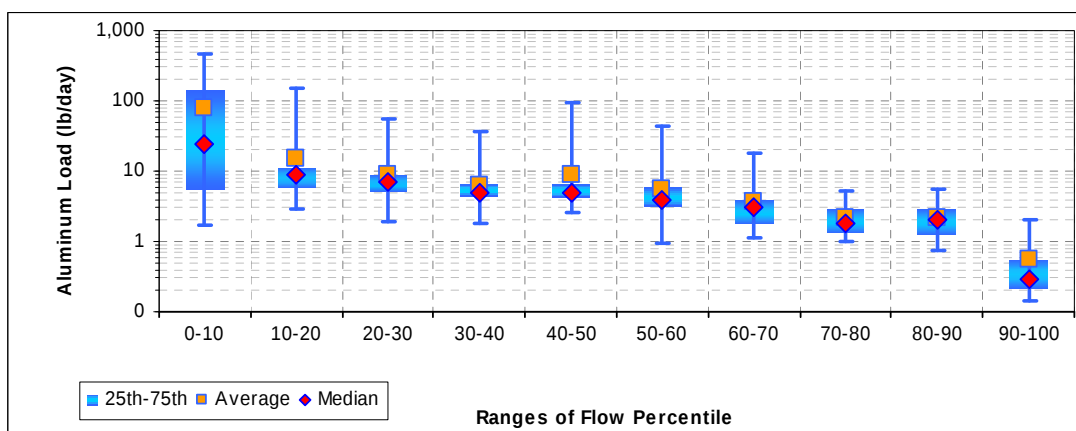


Figure J-225. Aluminum loads by flow percentile for Alexander Run (ALE0011/WM-144)

Table J-221. Ammonium loads (lb/d) by flow percentile for Alexander Run (ALE0011/WM-144)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 1.9   | 1.3   | 0.2   | 0.9   | 1.1   | 0.4   | 0.5   | 0.2   | 0.2   | 0.0    |
| Average | 61.4  | 18.0  | 8.4   | 4.9   | 6.6   | 3.5   | 2.0   | 1.2   | 1.2   | 0.1    |
| Maximum | 753.4 | 233.2 | 75.1  | 50.0  | 76.3  | 27.9  | 12.5  | 10.1  | 4.5   | 0.7    |
| Median  | 17.6  | 6.0   | 4.3   | 2.7   | 2.2   | 1.5   | 1.2   | 0.7   | 0.7   | 0.1    |
| 25th    | 6.7   | 3.8   | 3.2   | 2.1   | 1.8   | 1.1   | 0.7   | 0.4   | 0.5   | 0.0    |
| 75th    | 60.1  | 9.7   | 7.2   | 3.4   | 5.5   | 4.5   | 2.5   | 1.5   | 1.4   | 0.2    |

Table J-222. Nitrate loads (lbs/d) by flow percentile for Alexander Run (ALE0011/WM-144)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 11.0    | 5.2   | 0.7   | 7.6   | 5.5   | 1.8   | 1.6   | 0.6   | 0.7   | 0.0    |
| Average | 312.5   | 114.4 | 57.8  | 31.1  | 45.3  | 23.5  | 13.6  | 9.8   | 8.8   | 0.6    |
| Maximum | 2,728.6 | 850.9 | 275.7 | 175.6 | 479.9 | 215.5 | 84.6  | 131.6 | 79.2  | 2.6    |
| Median  | 112.2   | 66.2  | 28.3  | 18.2  | 16.5  | 10.9  | 8.7   | 4.4   | 3.2   | 0.4    |
| 25th    | 51.0    | 36.0  | 18.0  | 12.3  | 8.9   | 4.4   | 3.0   | 1.8   | 1.8   | 0.1    |
| 75th    | 481.1   | 102.4 | 62.6  | 26.6  | 31.3  | 21.7  | 15.2  | 7.5   | 7.8   | 0.8    |

Table J-223. Sulfate loads (lbs/d) by flow percentile for Alexander Run (ALE0011/WM-144)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 226   | 332   | 250   | 228   | 341   | 122   | 145   | 129   | 96    | 19     |
| Average | 1,896 | 1,059 | 898   | 730   | 751   | 573   | 424   | 287   | 291   | 71     |
| Maximum | 7,290 | 3,555 | 2,257 | 1,546 | 2,100 | 1,528 | 1,138 | 677   | 697   | 259    |
| Median  | 1,640 | 1,009 | 809   | 650   | 647   | 482   | 385   | 231   | 269   | 38     |
| 25th    | 667   | 687   | 671   | 559   | 523   | 346   | 232   | 173   | 163   | 28     |
| 75th    | 2,606 | 1,290 | 1,079 | 839   | 841   | 718   | 520   | 378   | 380   | 73     |

Table J-224. Iron loads (lbs/d) by flow percentile for Alexander Run (ALE0011/WM-144)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 2.1   | 3.2   | 2.4   | 2.2   | 3.2   | 1.2   | 1.4   | 1.2   | 0.9   | 0.2    |
| Average | 35.1  | 11.3  | 8.8   | 7.0   | 7.6   | 5.6   | 4.0   | 2.7   | 2.7   | 0.7    |
| Maximum | 219.4 | 57.4  | 28.5  | 19.3  | 35.1  | 20.5  | 12.5  | 6.3   | 6.5   | 2.4    |
| Median  | 17.7  | 10.1  | 7.9   | 6.1   | 6.1   | 4.5   | 3.6   | 2.1   | 2.5   | 0.4    |
| 25th    | 6.3   | 6.6   | 6.4   | 5.3   | 4.9   | 3.5   | 2.2   | 1.6   | 1.5   | 0.3    |
| 75th    | 51.2  | 12.3  | 10.2  | 7.9   | 7.9   | 6.6   | 4.9   | 3.5   | 3.6   | 0.7    |

Table J-225. Aluminum loads (lbs/d) by flow percentile for Alexander Run (ALE0011/WM-144)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 1.7   | 2.9   | 1.9   | 1.8   | 2.6   | 0.9   | 1.1   | 1.0   | 0.7   | 0.1    |
| Average | 79.2  | 15.4  | 9.0   | 6.3   | 8.9   | 5.5   | 3.6   | 2.2   | 2.2   | 0.5    |
| Maximum | 460.6 | 149.3 | 54.1  | 35.7  | 95.0  | 43.6  | 18.2  | 5.4   | 5.4   | 2.0    |
| Median  | 24.8  | 8.7   | 7.2   | 5.0   | 5.0   | 3.9   | 3.0   | 1.8   | 2.0   | 0.3    |
| 25th    | 5.5   | 5.7   | 5.2   | 4.3   | 4.2   | 3.1   | 1.8   | 1.3   | 1.2   | 0.2    |
| 75th    | 143.9 | 11.0  | 9.0   | 6.5   | 6.5   | 5.9   | 4.0   | 2.9   | 2.9   | 0.6    |

## North Branch Casselman River (WM-145/NBC0090) plots and tables

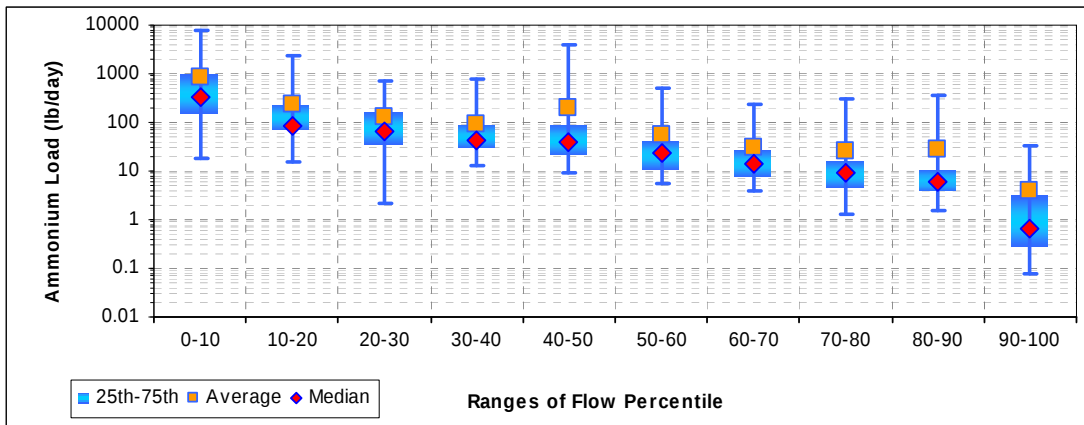


Figure J-226. Ammonium loads by flow percentile for North Branch Casselman River (NBC0090/WM-145)

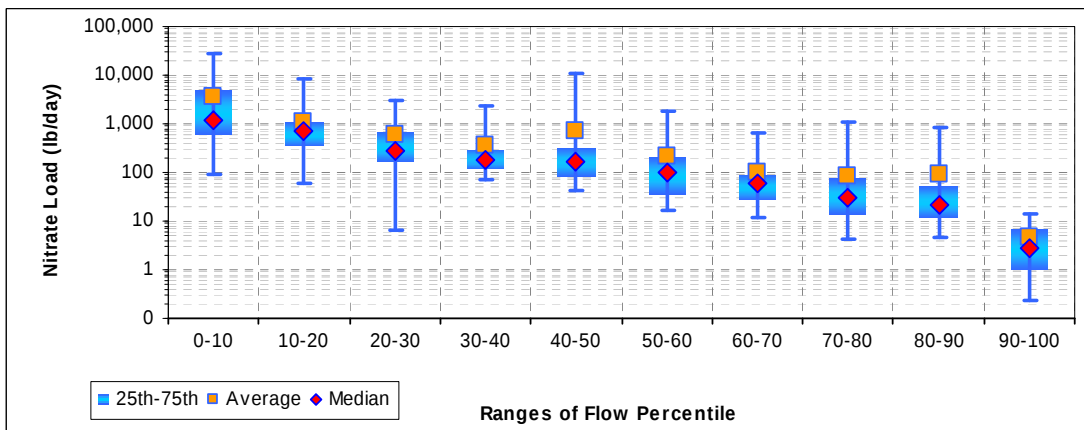


Figure J-227. Nitrate loads by flow percentile for North Branch Casselman River (NBC0090/WM-145)

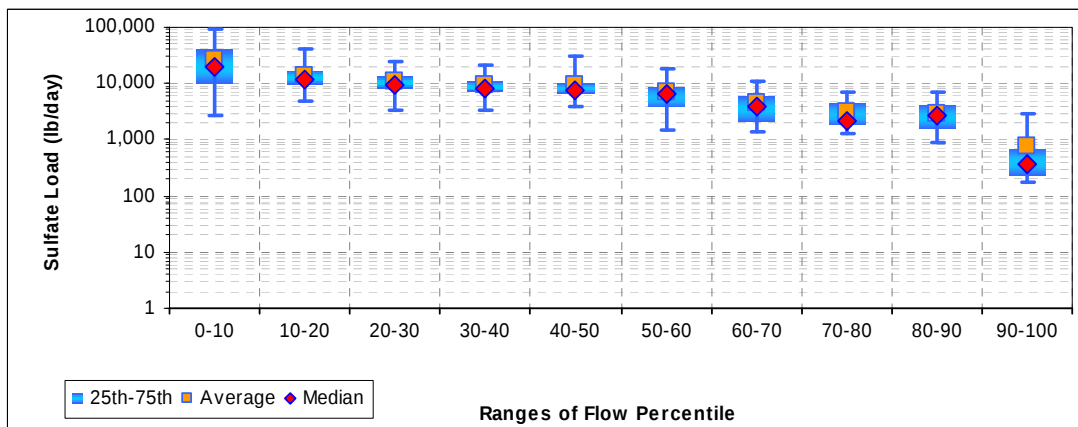


Figure J-228. Sulfate loads by flow percentile for North Branch Casselman River (NBC0090/WM-145)

\*\* These plots include upstream loads from North Branch Casselman River (WM-148/NBC0106).

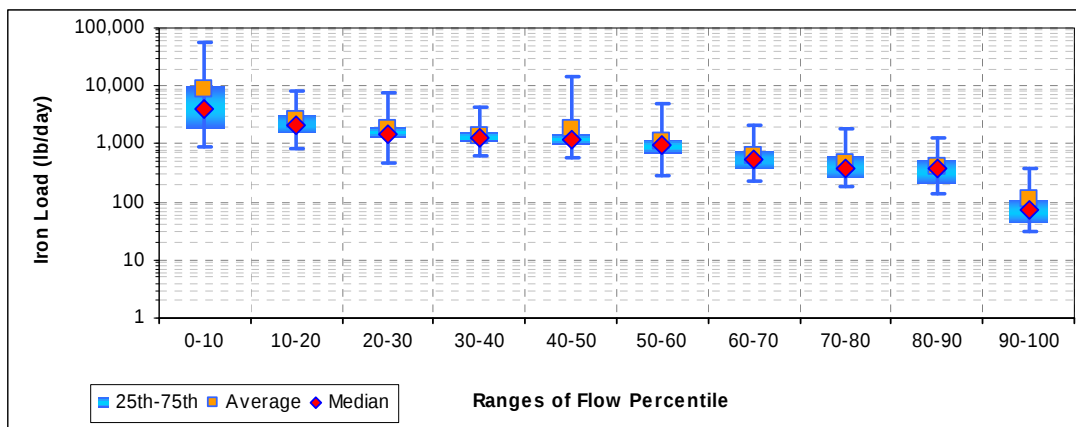


Figure J-229. Iron loads by flow percentile for North Branch Casselman River (NBC0090/WM-145)

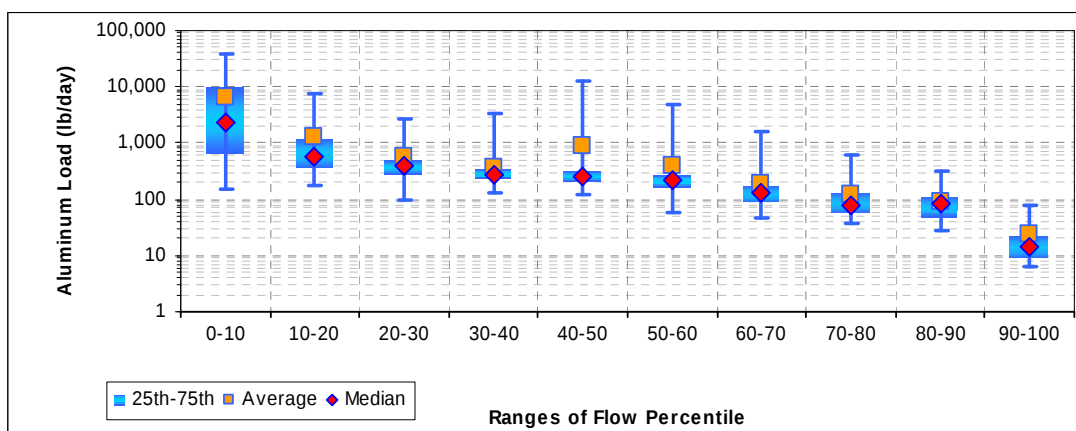


Figure J-230. Aluminum loads by flow percentile for North Branch Casselman River (NBC0090/WM-145)

\*\* These plots include upstream loads from North Branch Casselman River (WM-148/NBC0106).

Table J-226. Ammonium loads (lb/d) by flow percentile for North Branch Casselman River (NBC0090/WM-145)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50   | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|---------|-------|-------|-------|-------|--------|
| Minimum | 18.9    | 15.9    | 2.2   | 12.6  | 9.4     | 5.5   | 3.9   | 1.3   | 1.5   | 0.1    |
| Average | 879.4   | 241.7   | 132.3 | 92.0  | 196.3   | 57.4  | 30.2  | 26.7  | 27.6  | 3.8    |
| Maximum | 7,563.4 | 2,322.9 | 735.2 | 781.2 | 3,943.4 | 495.0 | 240.2 | 296.5 | 344.6 | 33.8   |
| Median  | 316.8   | 87.6    | 66.9  | 44.3  | 37.6    | 24.0  | 14.2  | 8.8   | 5.8   | 0.7    |
| 25th    | 153.8   | 68.6    | 37.4  | 30.7  | 21.8    | 11.3  | 7.5   | 4.5   | 3.8   | 0.3    |
| 75th    | 1,009.0 | 234.3   | 164.6 | 94.9  | 89.5    | 43.2  | 26.8  | 16.1  | 10.8  | 3.3    |

Table J-227. Nitrate loads (lbs/d) by flow percentile for North Branch Casselman River (NBC0090/WM-145)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50    | 50-60   | 60-70 | 70-80   | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|----------|---------|-------|---------|-------|--------|
| Minimum | 94.3     | 60.9    | 6.5     | 70.0    | 43.0     | 16.9    | 12.3  | 4.1     | 4.6   | 0.2    |
| Average | 3,602.7  | 1,081.7 | 587.8   | 365.2   | 684.3    | 216.2   | 101.8 | 82.6    | 90.6  | 4.6    |
| Maximum | 27,143.0 | 8,352.3 | 3,134.5 | 2,333.4 | 10,636.3 | 1,781.4 | 642.0 | 1,090.5 | 866.5 | 14.5   |
| Median  | 1,138.6  | 688.6   | 284.6   | 188.4   | 160.5    | 98.5    | 62.3  | 30.2    | 20.8  | 2.8    |
| 25th    | 593.9    | 374.4   | 164.3   | 121.8   | 81.5     | 34.7    | 28.3  | 14.4    | 11.5  | 1.0    |
| 75th    | 4,996.8  | 1,075.4 | 696.4   | 297.4   | 319.5    | 220.2   | 94.9  | 79.6    | 57.0  | 7.2    |

Table J-228. Sulfate loads (lbs/d) by flow percentile for North Branch Casselman River (NBC0090/WM-145)

|         | 0-10   | 10-20  | 20-30  | 30-40  | 40-50  | 50-60  | 60-70  | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|--------|--------|--------|--------|--------|-------|-------|--------|
| Minimum | 2,601  | 5,017  | 3,354  | 3,413  | 4,027  | 1,524  | 1,353  | 1,269 | 891   | 171    |
| Average | 27,130 | 13,619 | 10,761 | 9,203  | 9,367  | 6,770  | 4,345  | 3,110 | 2,976 | 763    |
| Maximum | 94,440 | 41,532 | 24,178 | 21,823 | 31,652 | 18,574 | 11,329 | 7,113 | 7,072 | 2,986  |
| Median  | 19,107 | 12,054 | 9,105  | 8,121  | 7,679  | 6,606  | 3,988  | 2,195 | 2,605 | 377    |
| 25th    | 10,136 | 9,177  | 8,147  | 7,267  | 6,689  | 3,953  | 2,201  | 1,806 | 1,571 | 234    |
| 75th    | 41,877 | 16,960 | 13,510 | 11,014 | 10,060 | 8,605  | 5,958  | 4,430 | 4,054 | 714    |

Table J-229. Iron loads (lbs/d) by flow percentile for North Branch Casselman River (NBC0090/WM-145)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50    | 50-60   | 60-70   | 70-80   | 80-90   | 90-100 |
|---------|----------|---------|---------|---------|----------|---------|---------|---------|---------|--------|
| Minimum | 869.1    | 823.0   | 479.2   | 643.5   | 595.3    | 284.5   | 221.9   | 182.3   | 134.5   | 30.2   |
| Average | 8,656.4  | 2,633.5 | 1,840.2 | 1,402.8 | 1,770.4  | 1,076.1 | 615.7   | 468.1   | 406.0   | 112.2  |
| Maximum | 58,372.4 | 8,194.2 | 7,832.3 | 4,276.5 | 14,127.5 | 5,033.9 | 2,134.7 | 1,815.2 | 1,308.4 | 376.5  |
| Median  | 3,960.9  | 2,140.5 | 1,441.6 | 1,254.6 | 1,199.8  | 984.3   | 549.8   | 373.9   | 387.7   | 73.7   |
| 25th    | 1,804.3  | 1,538.3 | 1,274.2 | 1,082.2 | 950.9    | 652.4   | 382.4   | 262.5   | 218.5   | 44.6   |
| 75th    | 9,943.4  | 3,292.9 | 2,006.7 | 1,609.5 | 1,444.5  | 1,159.7 | 771.3   | 614.6   | 527.5   | 110.7  |

Table J-230. Aluminum loads (lbs/d) by flow percentile for North Branch Casselman River (NBC0090/WM-145)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50    | 50-60   | 60-70   | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|----------|---------|---------|-------|-------|--------|
| Minimum | 146.0    | 169.6   | 99.8    | 127.1   | 124.1    | 58.2    | 45.1    | 37.7  | 27.6  | 6.1    |
| Average | 6,709.5  | 1,292.3 | 582.2   | 365.4   | 892.2    | 409.4   | 185.9   | 120.9 | 92.3  | 23.1   |
| Maximum | 37,686.8 | 7,700.2 | 2,645.5 | 3,442.9 | 12,999.4 | 4,895.8 | 1,608.2 | 626.5 | 322.4 | 80.0   |
| Median  | 2,319.1  | 580.3   | 400.4   | 270.8   | 249.0    | 223.3   | 131.0   | 77.2  | 83.7  | 14.8   |
| 25th    | 674.6    | 370.6   | 280.5   | 227.4   | 208.9    | 158.7   | 88.6    | 57.0  | 45.0  | 9.0    |
| 75th    | 10,416.2 | 1,223.0 | 487.9   | 345.3   | 305.1    | 277.8   | 173.1   | 129.4 | 116.2 | 22.6   |

\*\* These tables include upstream loads from North Branch Casselman River (WM-148/NBC0106).

**Tarkiln Run (WM-146/TAR0003) plots and tables**

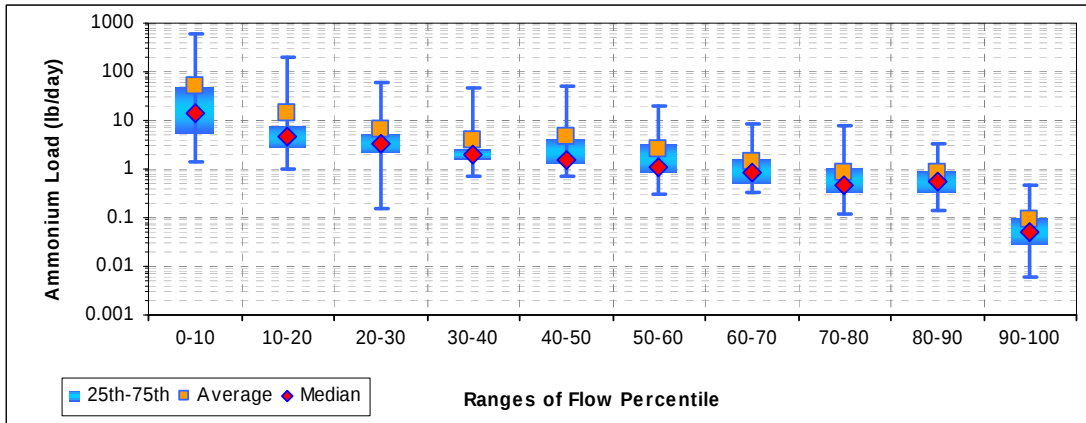


Figure J-231. Ammonium loads by flow percentile for Tarkiln Run (TAR0003/WM-146)

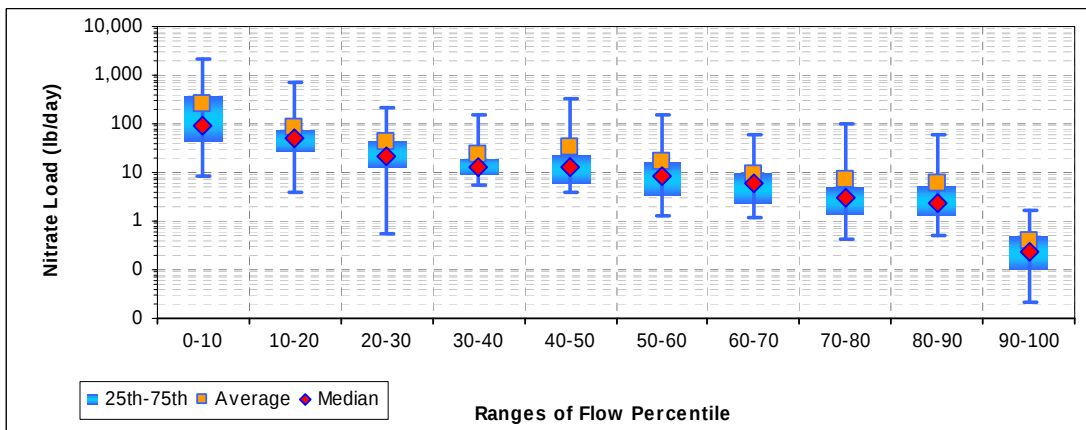


Figure J-232. Nitrate loads by flow percentile for Tarkiln Run (TAR0003/WM-146)

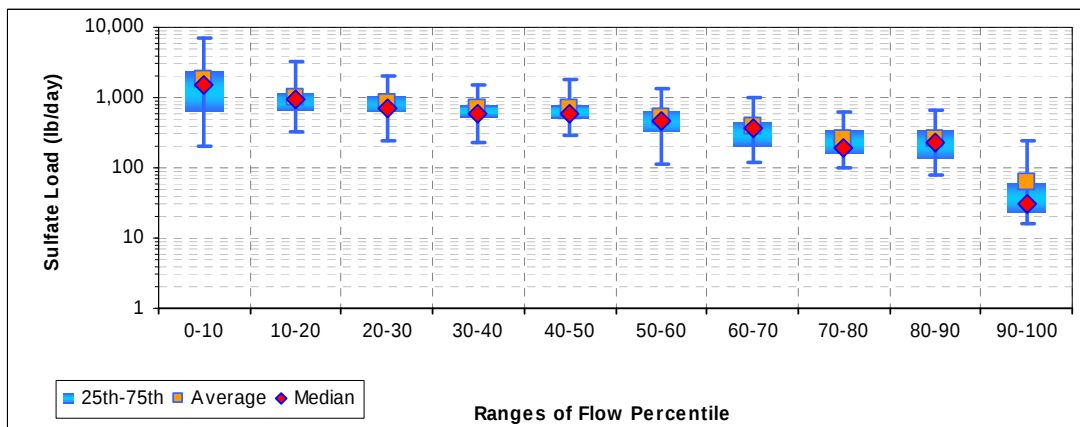


Figure J-233. Sulfate loads by flow percentile for Tarkiln Run (TAR0003/WM-146)

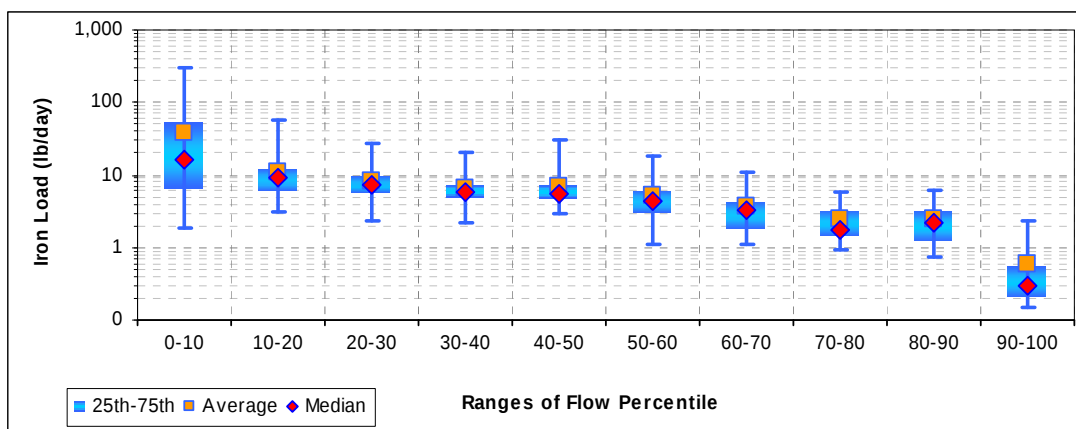


Figure J-234. Iron loads by flow percentile for Tarkiln Run (TAR0003/WM-146)

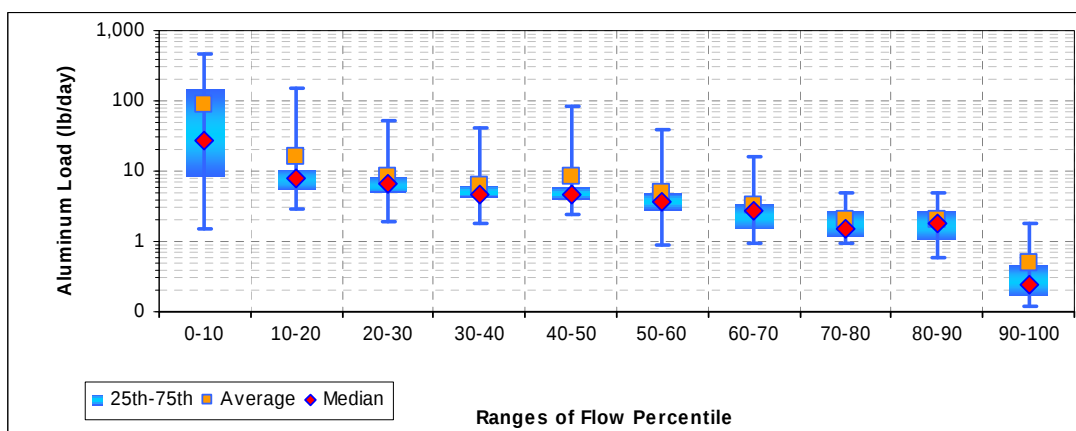


Figure J-235. Aluminum loads by flow percentile for Tarkiln Run (TAR0003/WM-146)

Table J-231. Ammonium loads (lb/d) by flow percentile for Tarkiln Run (TAR0003/WM-146)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 1.4   | 1.0   | 0.2   | 0.7   | 0.7   | 0.3   | 0.3   | 0.1   | 0.1   | 0.0    |
| Average | 52.2  | 14.3  | 6.5   | 3.9   | 4.6   | 2.5   | 1.4   | 0.9   | 0.8   | 0.1    |
| Maximum | 621.3 | 191.3 | 60.9  | 47.9  | 52.6  | 19.4  | 8.6   | 7.6   | 3.2   | 0.5    |
| Median  | 14.4  | 4.5   | 3.2   | 2.0   | 1.6   | 1.1   | 0.9   | 0.5   | 0.5   | 0.1    |
| 25th    | 5.6   | 2.8   | 2.1   | 1.5   | 1.3   | 0.8   | 0.5   | 0.3   | 0.3   | 0.0    |
| 75th    | 51.8  | 7.5   | 5.6   | 2.5   | 4.2   | 3.4   | 1.7   | 1.1   | 0.9   | 0.1    |

Table J-232. Nitrate loads (lbs/d) by flow percentile for Tarkiln Run (TAR0003/WM-146)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 8.5     | 4.0   | 0.5   | 5.6   | 3.8   | 1.3   | 1.2   | 0.4   | 0.5   | 0.0    |
| Average | 256.3   | 84.1  | 43.3  | 23.7  | 31.9  | 16.5  | 9.2   | 6.9   | 6.2   | 0.4    |
| Maximum | 2,231.4 | 691.6 | 221.2 | 155.8 | 326.3 | 147.6 | 57.7  | 97.1  | 57.6  | 1.6    |
| Median  | 88.9    | 51.5  | 21.0  | 13.2  | 12.7  | 8.5   | 6.0   | 3.0   | 2.3   | 0.2    |
| 25th    | 42.4    | 27.6  | 13.4  | 9.2   | 5.8   | 3.4   | 2.3   | 1.4   | 1.3   | 0.1    |
| 75th    | 398.2   | 78.3  | 47.4  | 19.8  | 24.1  | 17.3  | 10.2  | 5.0   | 5.7   | 0.5    |

Table J-233. Sulfate loads (lbs/d) by flow percentile for Tarkiln Run (TAR0003/WM-146)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 200   | 327   | 244   | 231   | 292   | 115   | 122   | 103   | 79    | 16     |
| Average | 1,838 | 994   | 826   | 683   | 694   | 531   | 379   | 261   | 262   | 64     |
| Maximum | 7,113 | 3,318 | 2,032 | 1,526 | 1,833 | 1,332 | 987   | 621   | 642   | 242    |
| Median  | 1,502 | 924   | 695   | 603   | 582   | 465   | 358   | 189   | 229   | 31     |
| 25th    | 641   | 647   | 615   | 526   | 497   | 332   | 201   | 158   | 136   | 22     |
| 75th    | 2,497 | 1,214 | 1,036 | 795   | 782   | 671   | 454   | 354   | 355   | 61     |

Table J-234. Iron loads (lbs/d) by flow percentile for Tarkiln Run (TAR0003/WM-146)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 1.9   | 3.1   | 2.3   | 2.2   | 3.0   | 1.1   | 1.1   | 0.9   | 0.7   | 0.1    |
| Average | 38.7  | 10.9  | 8.2   | 6.6   | 7.0   | 5.2   | 3.6   | 2.4   | 2.4   | 0.6    |
| Maximum | 293.0 | 56.0  | 26.6  | 20.3  | 31.1  | 18.2  | 10.9  | 5.8   | 6.0   | 2.3    |
| Median  | 16.4  | 9.2   | 7.1   | 5.7   | 5.5   | 4.4   | 3.4   | 1.7   | 2.1   | 0.3    |
| 25th    | 6.4   | 6.2   | 5.8   | 5.0   | 4.7   | 3.1   | 1.9   | 1.5   | 1.3   | 0.2    |
| 75th    | 54.7  | 12.2  | 9.5   | 7.5   | 7.3   | 6.2   | 4.3   | 3.3   | 3.3   | 0.6    |

Table J-235. Aluminum loads (lbs/d) by flow percentile for Tarkiln Run (TAR0003/WM-146)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 1.5   | 2.9   | 1.9   | 1.8   | 2.4   | 0.9   | 0.9   | 0.9   | 0.6   | 0.1    |
| Average | 86.5  | 15.7  | 8.5   | 6.1   | 8.2   | 5.1   | 3.3   | 2.0   | 2.0   | 0.5    |
| Maximum | 473.3 | 151.8 | 53.7  | 41.9  | 85.2  | 39.4  | 16.3  | 5.0   | 5.0   | 1.8    |
| Median  | 26.7  | 8.1   | 6.7   | 4.7   | 4.7   | 3.7   | 2.8   | 1.5   | 1.8   | 0.2    |
| 25th    | 8.6   | 5.6   | 4.9   | 4.1   | 3.9   | 2.8   | 1.6   | 1.2   | 1.0   | 0.2    |
| 75th    | 154.0 | 10.8  | 8.2   | 6.1   | 6.0   | 5.0   | 3.5   | 2.7   | 2.7   | 0.5    |

## Pleasant Valley Run (WM-147/PLE0008) plots and tables

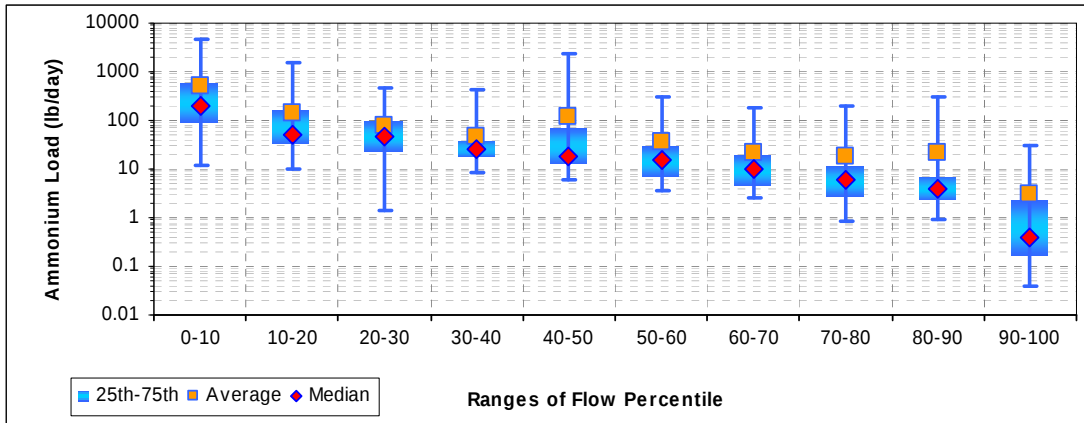


Figure J-236. Ammonium loads by flow percentile for Pleasant Valley Run (PLE0008/WM-147)

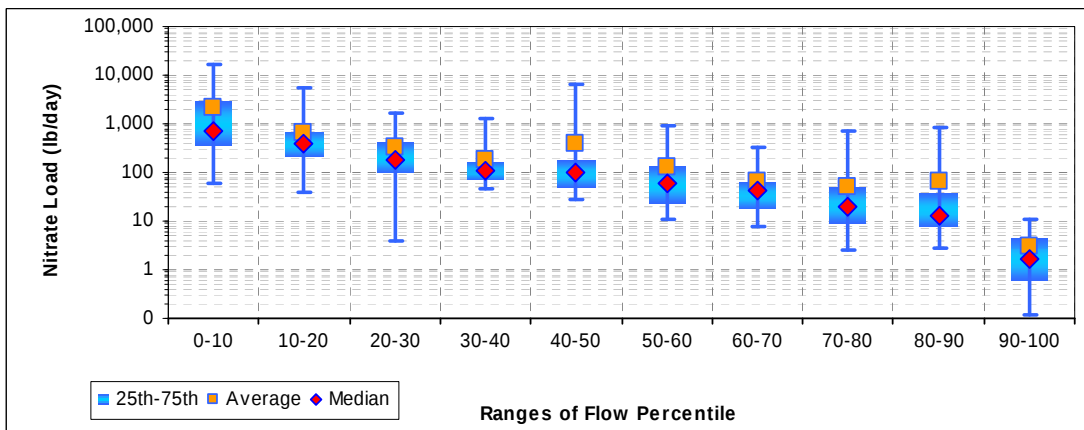


Figure J-237. Nitrate loads by flow percentile for Pleasant Valley Run (PLE0008/WM-147)

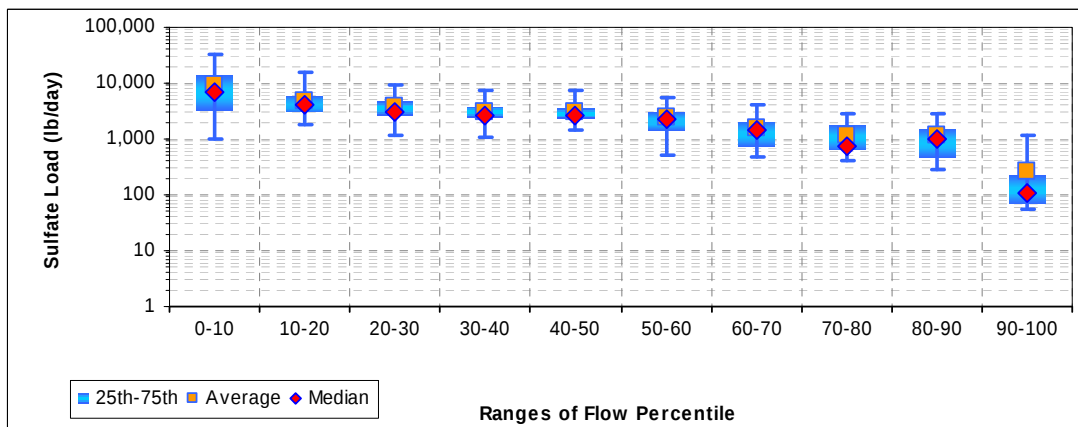


Figure J-238. Sulfate loads by flow percentile for Pleasant Valley Run (PLE0008/WM-147)

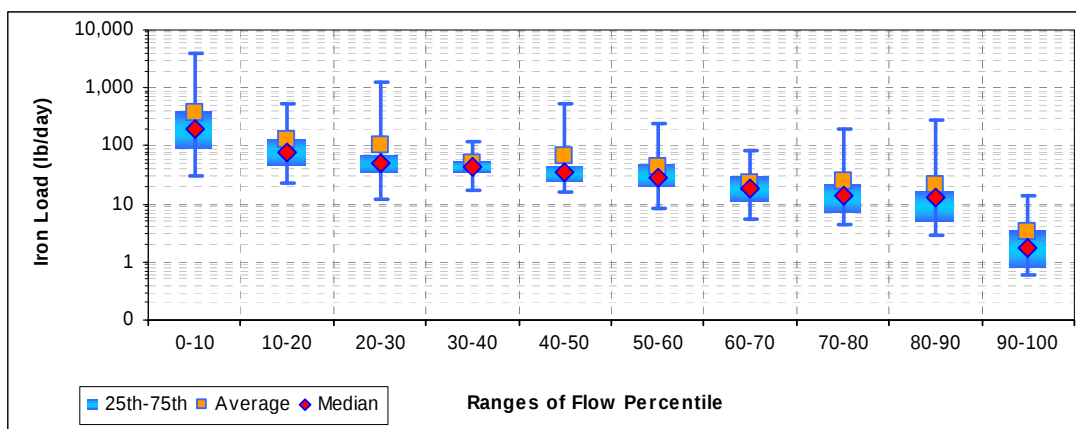


Figure J-239. Iron loads by flow percentile for Pleasant Valley Run (PLE0008/WM-147)

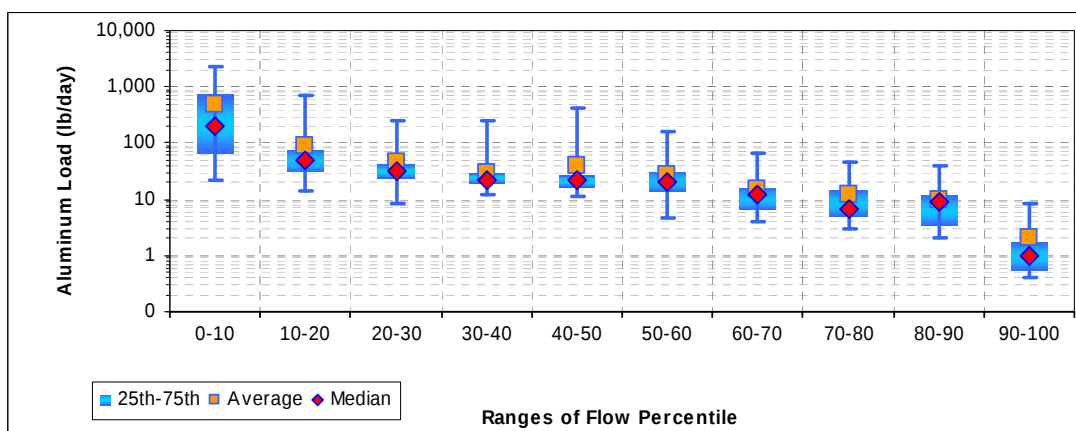


Figure J-240. Aluminum loads by flow percentile for Pleasant Valley Run (PLE0008/WM-147)

Table J-236. Ammonium loads (lb/d) by flow percentile for Pleasant Valley Run (PLE0008/WM-147)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50   | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|---------|-------|-------|-------|-------|--------|
| Minimum | 12.1    | 10.1    | 1.3   | 8.6   | 6.2     | 3.5   | 2.6   | 0.8   | 0.9   | 0.0    |
| Average | 507.0   | 143.8   | 79.3  | 48.1  | 117.6   | 34.8  | 20.8  | 17.9  | 21.3  | 2.9    |
| Maximum | 4,830.5 | 1,486.5 | 471.9 | 442.6 | 2,402.7 | 314.2 | 187.3 | 205.4 | 299.4 | 30.8   |
| Median  | 192.4   | 50.3    | 45.4  | 26.2  | 17.7    | 15.5  | 9.7   | 6.1   | 3.8   | 0.4    |
| 25th    | 90.9    | 33.3    | 23.8  | 17.4  | 13.0    | 7.3   | 4.7   | 2.9   | 2.4   | 0.2    |
| 75th    | 594.2   | 163.2   | 100.9 | 39.2  | 68.5    | 31.2  | 20.1  | 11.4  | 7.4   | 2.3    |

Table J-237. Nitrate loads (lbs/d) by flow percentile for Pleasant Valley Run (PLE0008/WM-147)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50   | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|---------|-------|-------|-------|-------|--------|
| Minimum | 59.1     | 38.1    | 4.0     | 45.3    | 27.4    | 11.3  | 7.7   | 2.5   | 2.7   | 0.1    |
| Average | 2,108.3  | 641.8   | 335.9   | 182.5   | 398.2   | 124.4 | 65.1  | 52.0  | 65.8  | 3.0    |
| Maximum | 17,168.0 | 5,290.7 | 1,674.1 | 1,324.6 | 6,336.0 | 890.1 | 342.1 | 706.2 | 810.0 | 11.2   |
| Median  | 735.4    | 376.5   | 181.1   | 106.9   | 96.9    | 62.4  | 41.6  | 20.6  | 13.5  | 1.6    |
| 25th    | 366.3    | 221.2   | 101.5   | 68.4    | 50.2    | 22.5  | 17.6  | 9.1   | 7.7   | 0.6    |
| 75th    | 3,117.6  | 697.1   | 412.4   | 168.0   | 177.5   | 138.8 | 64.3  | 52.6  | 39.4  | 4.7    |

Table J-238. Sulfate loads (lbs/d) by flow percentile for Pleasant Valley Run (PLE0008/WM-147)

|         | 0-10   | 10-20  | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 980    | 1,752  | 1,162 | 1,112 | 1,429 | 511   | 459   | 416   | 283   | 55     |
| Average | 9,061  | 4,616  | 3,690 | 3,045 | 3,121 | 2,404 | 1,612 | 1,140 | 1,126 | 263    |
| Maximum | 33,934 | 15,227 | 9,018 | 7,578 | 7,594 | 5,464 | 4,040 | 2,759 | 2,802 | 1,139  |
| Median  | 7,045  | 4,078  | 3,145 | 2,595 | 2,645 | 2,261 | 1,497 | 764   | 976   | 110    |
| 25th    | 3,283  | 3,001  | 2,711 | 2,364 | 2,222 | 1,419 | 722   | 621   | 489   | 70     |
| 75th    | 13,979 | 5,817  | 4,673 | 3,817 | 3,550 | 3,046 | 2,038 | 1,768 | 1,616 | 223    |

Table J-239. Iron loads (lbs/d) by flow percentile for Pleasant Valley Run (PLE0008/WM-147)

|         | 0-10    | 10-20 | 20-30   | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|---------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 31.4    | 23.7  | 12.5    | 17.5  | 15.7  | 8.1   | 5.7   | 4.3   | 3.0   | 0.6    |
| Average | 366.4   | 125.7 | 100.9   | 50.2  | 64.7  | 45.0  | 23.4  | 24.4  | 21.0  | 3.4    |
| Maximum | 4,029.3 | 538.0 | 1,229.4 | 120.8 | 543.5 | 239.9 | 80.3  | 197.3 | 288.9 | 14.2   |
| Median  | 195.2   | 77.8  | 49.7    | 42.6  | 34.1  | 29.4  | 18.7  | 13.7  | 12.7  | 1.7    |
| 25th    | 89.7    | 46.6  | 35.3    | 35.3  | 24.7  | 20.0  | 11.0  | 7.3   | 5.1   | 0.8    |
| 75th    | 389.2   | 134.0 | 69.8    | 54.6  | 47.7  | 52.0  | 30.3  | 22.1  | 17.5  | 3.5    |

Table J-240. Aluminum loads (lbs/d) by flow percentile for Pleasant Valley Run (PLE0008/WM-147)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 21.9    | 14.4  | 8.7   | 12.0  | 10.9  | 4.6   | 4.0   | 3.0   | 2.1   | 0.4    |
| Average | 481.1   | 91.9  | 46.7  | 29.8  | 40.6  | 26.9  | 14.8  | 12.0  | 9.5   | 2.0    |
| Maximum | 2,257.5 | 718.2 | 249.6 | 241.8 | 405.7 | 156.9 | 64.7  | 45.5  | 39.3  | 8.3    |
| Median  | 202.8   | 48.1  | 32.3  | 21.8  | 21.5  | 19.9  | 12.1  | 6.6   | 9.2   | 1.0    |
| 25th    | 67.4    | 31.2  | 23.7  | 19.5  | 16.5  | 13.9  | 6.8   | 5.0   | 3.5   | 0.6    |
| 75th    | 758.1   | 79.2  | 42.4  | 29.4  | 26.4  | 30.6  | 16.4  | 15.0  | 12.4  | 1.8    |

## North Branch Casselman River (WM-148/NBC0106) plots and tables

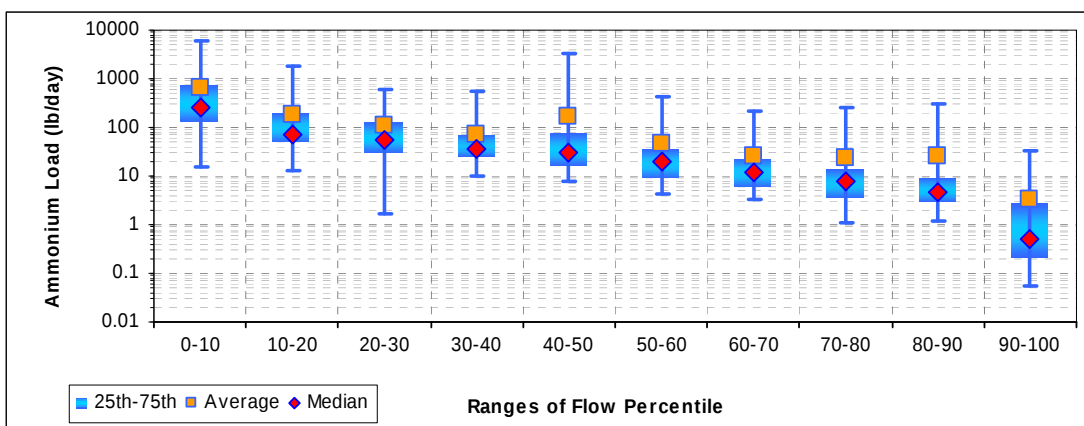


Figure J-241. Ammonium loads by flow percentile for North Branch Casselman River (NBC0106/WM-148)

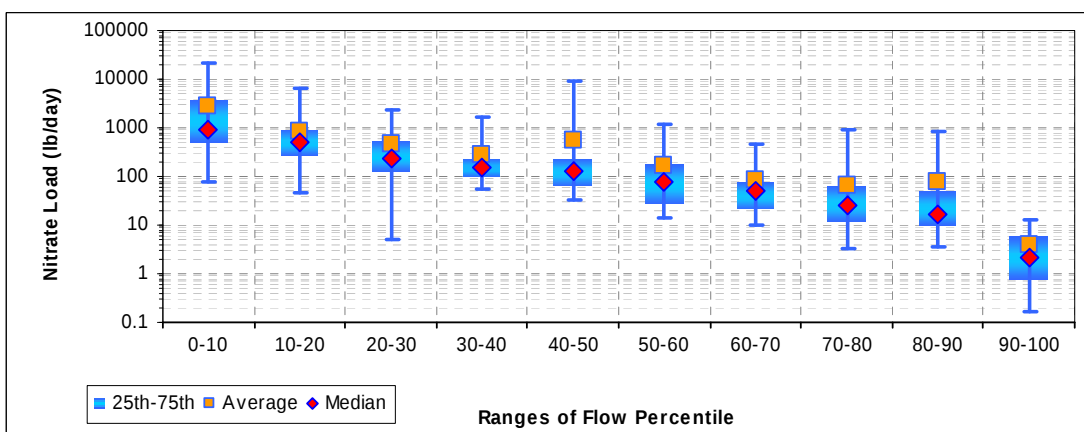


Figure J-242. Nitrate loads by flow percentile for North Branch Casselman River (NBC0106/WM-148)

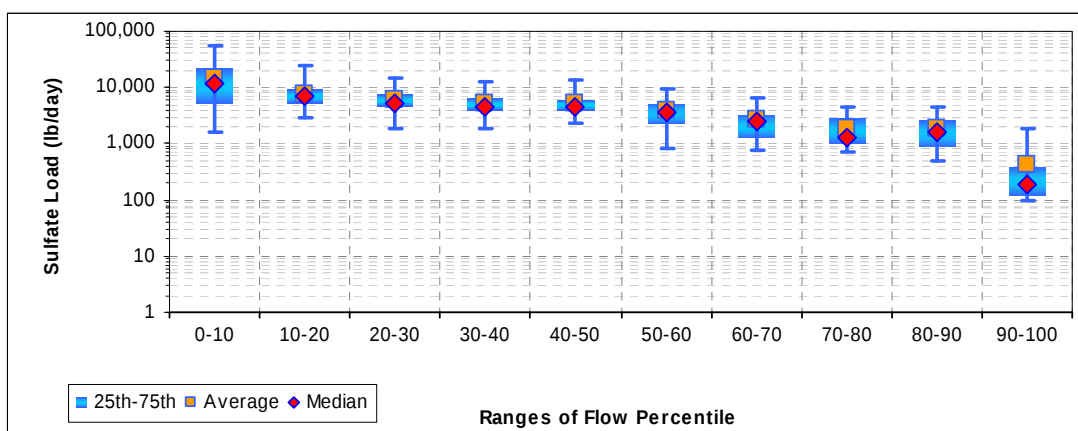


Figure J-243. Sulfate loads by flow percentile for North Branch Casselman River (NBC0106/WM-148)

\*\* These plots include upstream loads from (WM-147/PLE0008) and (WM-149/ZWN0003).

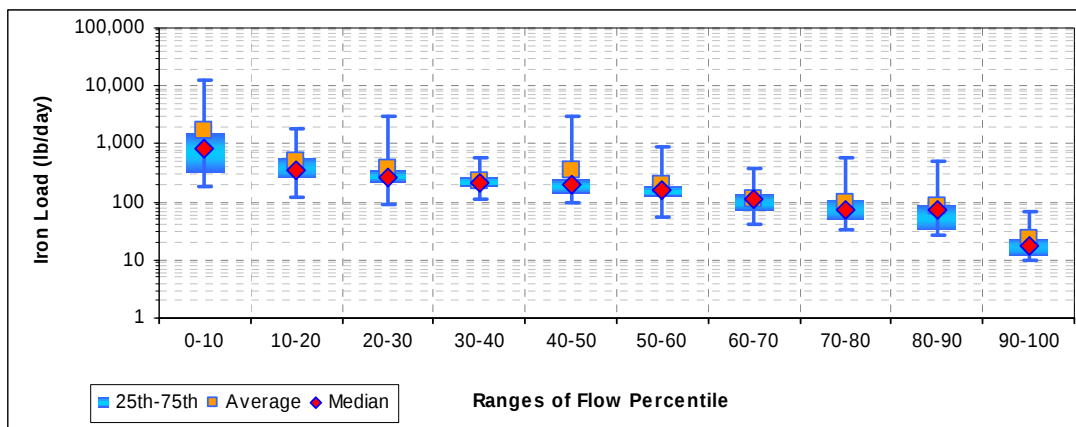


Figure J-244. Iron loads by flow percentile for North Branch Casselman River (NBC0106/WM-148)

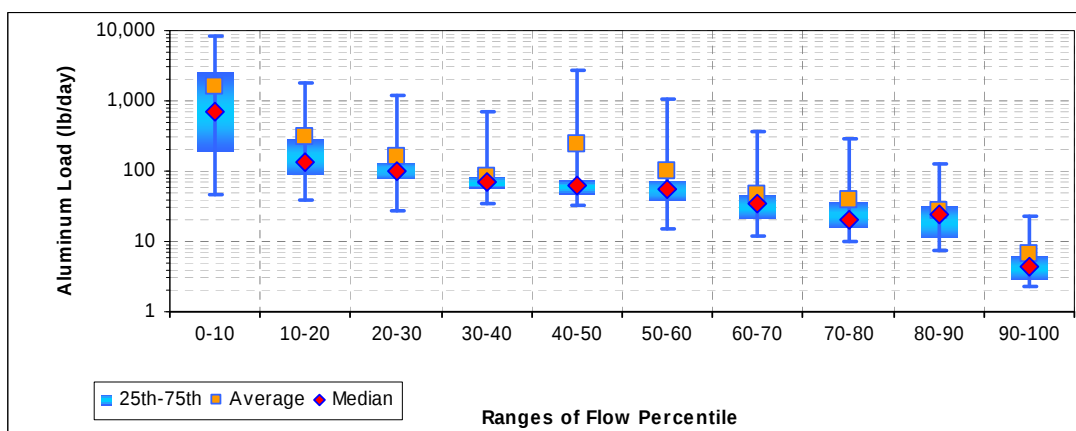


Figure J-245. Aluminum loads by flow percentile for North Branch Casselman River (NBC0106/WM-148)

\*\* These plots include upstream loads from (WM-147/PLE0008) and (WM-149/ZWN0003).

Table J-241. Ammonium loads (lb/d) by flow percentile for North Branch Casselman River (NBC0106/WM-148)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50   | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|---------|-------|-------|-------|-------|--------|
| Minimum | 15.1    | 12.7    | 1.7   | 10.4  | 7.6     | 4.4   | 3.3   | 1.0   | 1.2   | 0.1    |
| Average | 660.7   | 187.6   | 106.4 | 72.0  | 162.4   | 46.0  | 25.6  | 22.9  | 24.9  | 3.4    |
| Maximum | 6,062.2 | 1,865.5 | 592.2 | 560.7 | 3,442.6 | 428.6 | 222.3 | 265.7 | 314.0 | 32.8   |
| Median  | 248.0   | 68.9    | 56.3  | 35.5  | 31.3    | 19.2  | 12.1  | 7.5   | 4.7   | 0.5    |
| 25th    | 129.6   | 51.7    | 30.0  | 24.5  | 17.0    | 9.2   | 6.0   | 3.7   | 3.1   | 0.2    |
| 75th    | 771.7   | 195.8   | 132.1 | 72.9  | 79.7    | 37.3  | 24.1  | 13.9  | 9.0   | 2.8    |

Table J-242. Nitrate loads (lbs/d) by flow percentile for North Branch Casselman River (NBC0106/WM-148)

|         | 0-10     | 10-20   | 20-30   | 30-40   | 40-50   | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|---------|---------|---------|-------|-------|-------|--------|
| Minimum | 74.4     | 48.0    | 5.1     | 56.1    | 34.3    | 13.9    | 9.7   | 3.2   | 3.5   | 0.2    |
| Average | 2,717.7  | 833.1   | 459.7   | 279.2   | 552.0   | 165.7   | 82.2  | 67.3  | 78.5  | 3.8    |
| Maximum | 21,640.6 | 6,670.8 | 2,380.8 | 1,680.1 | 9,270.9 | 1,216.4 | 458.0 | 913.2 | 845.6 | 13.2   |
| Median  | 932.6    | 510.8   | 226.9   | 149.0   | 126.1   | 77.9    | 52.0  | 25.5  | 16.9  | 2.2    |
| 25th    | 490.1    | 287.0   | 129.3   | 96.3    | 64.1    | 28.2    | 22.3  | 11.6  | 9.6   | 0.8    |
| 75th    | 3,883.7  | 883.1   | 541.4   | 232.3   | 234.0   | 176.2   | 79.3  | 67.1  | 48.7  | 6.0    |

Table J-243. Sulfate loads (lbs/d) by flow percentile for North Branch Casselman River (NBC0106/WM-148)

|         | 0-10   | 10-20  | 20-30  | 30-40  | 40-50  | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|--------|--------|--------|--------|-------|-------|-------|-------|--------|
| Minimum | 1,620  | 2,842  | 1,923  | 1,873  | 2,334  | 842   | 772   | 710   | 486   | 96     |
| Average | 14,982 | 7,667  | 6,182  | 5,164  | 5,250  | 3,969 | 2,631 | 1,874 | 1,838 | 440    |
| Maximum | 55,228 | 24,883 | 14,795 | 12,217 | 13,747 | 9,332 | 6,641 | 4,516 | 4,530 | 1,837  |
| Median  | 11,588 | 6,817  | 5,392  | 4,510  | 4,415  | 3,739 | 2,464 | 1,244 | 1,579 | 195    |
| 25th    | 5,270  | 5,151  | 4,623  | 3,999  | 3,835  | 2,344 | 1,270 | 1,045 | 875   | 123    |
| 75th    | 22,151 | 9,577  | 7,729  | 6,295  | 5,880  | 5,186 | 3,381 | 2,831 | 2,595 | 385    |

Table J-244. Iron loads (lbs/d) by flow percentile for North Branch Casselman River (NBC0106/WM-148)

|         | 0-10     | 10-20   | 20-30   | 30-40 | 40-50   | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|-------|---------|-------|-------|-------|-------|--------|
| Minimum | 182.6    | 118.6   | 92.0    | 112.0 | 93.9    | 56.2  | 42.0  | 33.6  | 26.3  | 9.5    |
| Average | 1,684.2  | 492.2   | 372.6   | 228.5 | 360.0   | 199.1 | 115.6 | 99.8  | 81.5  | 23.9   |
| Maximum | 12,473.0 | 1,875.3 | 2,952.8 | 599.8 | 2,937.3 | 915.2 | 387.0 | 597.1 | 498.4 | 68.5   |
| Median  | 811.8    | 363.2   | 266.0   | 218.6 | 194.1   | 157.6 | 115.3 | 71.4  | 71.5  | 17.6   |
| 25th    | 324.1    | 264.7   | 218.2   | 182.0 | 134.7   | 117.8 | 71.8  | 51.6  | 33.9  | 12.2   |
| 75th    | 1,619.8  | 572.7   | 348.7   | 263.1 | 240.4   | 190.9 | 139.9 | 112.9 | 92.2  | 23.9   |

Table J-245. Aluminum loads (lbs/d) by flow percentile for North Branch Casselman River (NBC0106/WM-148)

|         | 0-10    | 10-20   | 20-30   | 30-40 | 40-50   | 50-60   | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|---------|-------|---------|---------|-------|-------|-------|--------|
| Minimum | 47.1    | 38.6    | 27.6    | 35.4  | 32.7    | 15.1    | 12.1  | 10.0  | 7.5   | 2.3    |
| Average | 1,563.4 | 298.4   | 162.0   | 84.9  | 240.8   | 101.6   | 47.2  | 38.1  | 27.9  | 6.7    |
| Maximum | 8,167.2 | 1,799.1 | 1,201.2 | 681.7 | 2,733.0 | 1,052.7 | 359.7 | 282.6 | 130.1 | 22.6   |
| Median  | 683.1   | 137.8   | 99.9    | 70.0  | 62.7    | 55.0    | 35.1  | 19.9  | 24.3  | 4.3    |
| 25th    | 192.4   | 91.2    | 76.7    | 56.2  | 46.3    | 38.4    | 21.1  | 15.9  | 11.2  | 2.9    |
| 75th    | 2,544.0 | 285.4   | 130.5   | 83.3  | 73.4    | 73.2    | 46.7  | 37.2  | 32.7  | 6.2    |

\*\* These tables include upstream loads from (WM-147/PLE0008) and (WM-149/ZWN0003).

## UT to North Branch Casselman River (WM-149/ZWN0003) plots and tables

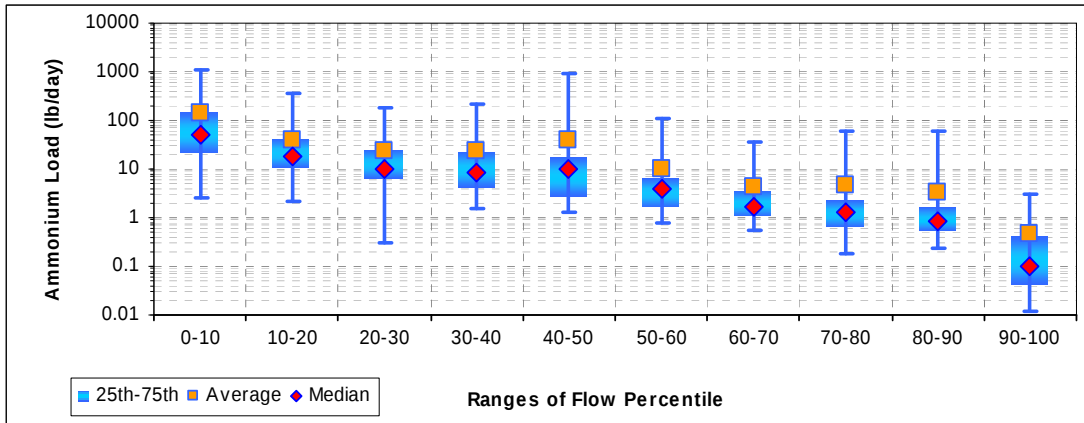


Figure J-246. Ammonium loads by flow percentile for UT to North Branch Casselman River (ZWN0003/WM-149)

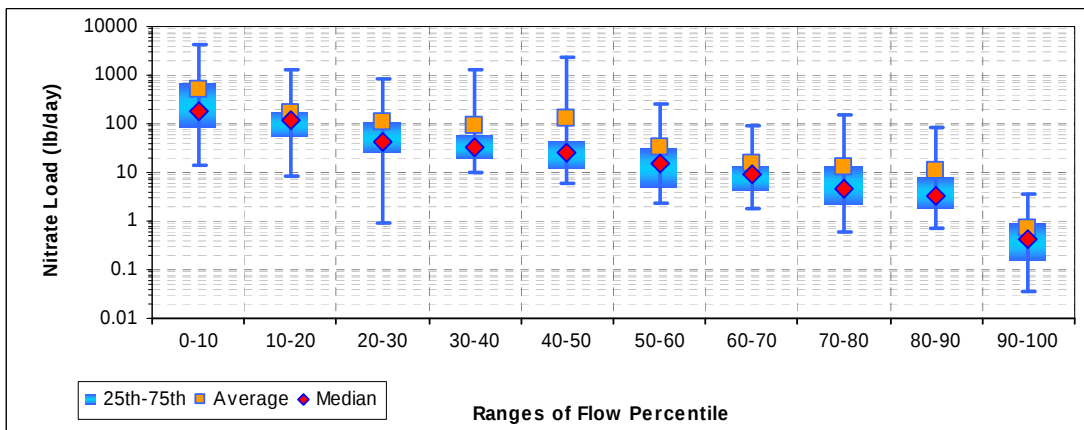


Figure J-247. Nitrate loads by flow percentile for UT to North Branch Casselman River (ZWN0003/WM-149)

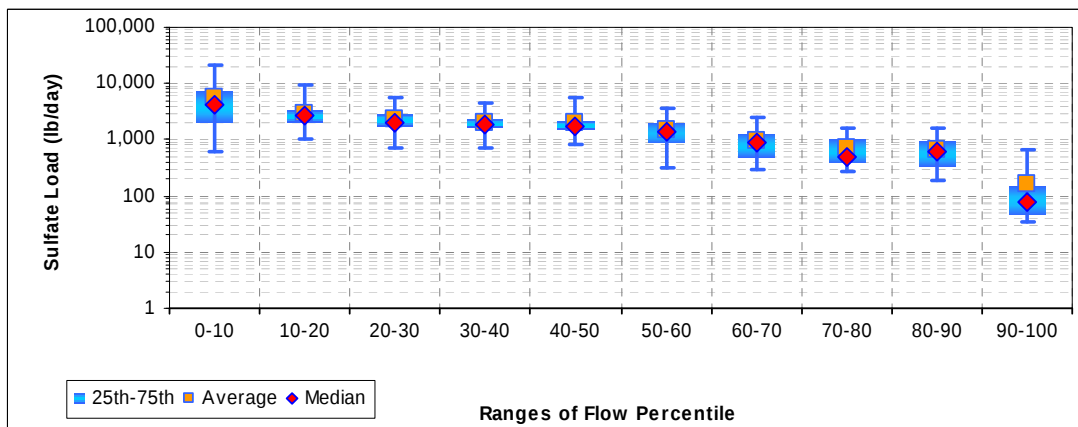


Figure J-248. Sulfate loads by flow percentile for UT to North Branch Casselman River (ZWN0003/WM-149)

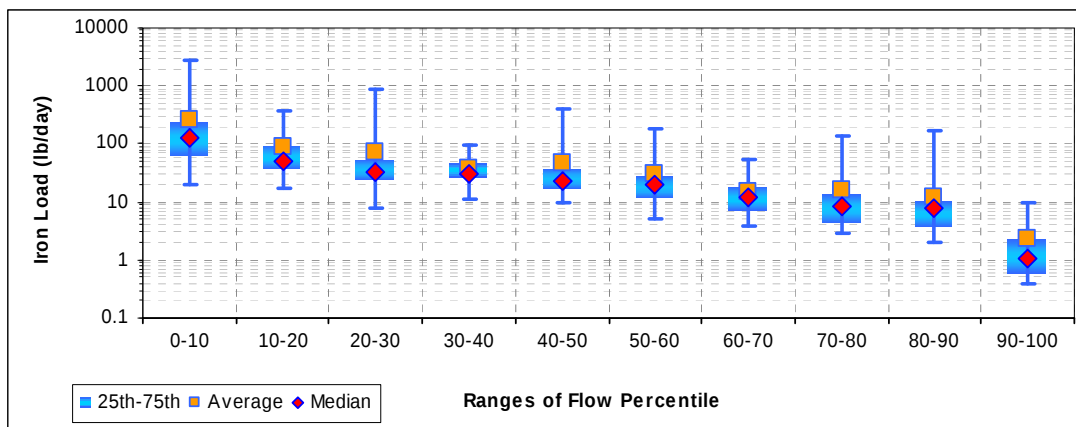


Figure J-249. Iron loads by flow percentile for UT to North Branch Casselman River (ZWN0003/WM-149)

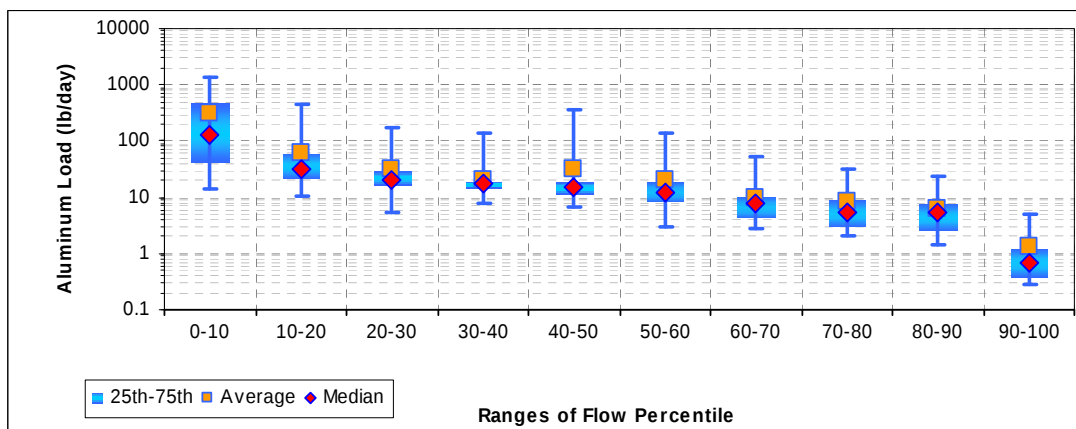


Figure J-250. Aluminum loads by flow percentile for UT to North Branch Casselman River (ZWN0003/WM-149)

Table J-246. Ammonium loads (lb/d) by flow percentile for UT to North Branch Casselman River (ZWN0003/W

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 2.6     | 2.2   | 0.3   | 1.6   | 1.3   | 0.8   | 0.5   | 0.2   | 0.2   | 0.0    |
| Average | 135.2   | 38.0  | 23.5  | 22.7  | 38.9  | 9.7   | 4.4   | 4.5   | 3.3   | 0.4    |
| Maximum | 1,129.0 | 347.2 | 187.3 | 214.5 | 902.1 | 107.6 | 34.7  | 60.0  | 58.5  | 3.1    |
| Median  | 49.7    | 18.0  | 10.2  | 8.2   | 9.6   | 3.8   | 1.6   | 1.3   | 0.8   | 0.1    |
| 25th    | 21.0    | 10.9  | 6.4   | 4.4   | 2.8   | 1.6   | 1.1   | 0.6   | 0.5   | 0.0    |
| 75th    | 149.9   | 42.4  | 24.5  | 22.9  | 18.8  | 6.6   | 3.5   | 2.4   | 1.7   | 0.4    |

Table J-247. Nitrate loads (lbs/d) by flow percentile for UT to North Branch Casselman River (ZWN0003/W-1

|         | 0-10    | 10-20   | 20-30 | 30-40   | 40-50   | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|---------|---------|-------|-------|-------|-------|--------|
| Minimum | 13.8    | 8.8     | 1.0   | 9.7     | 6.1     | 2.4   | 1.8   | 0.6   | 0.7   | 0.0    |
| Average | 524.3   | 165.3   | 107.9 | 91.7    | 128.6   | 34.0  | 15.2  | 13.0  | 11.2  | 0.7    |
| Maximum | 4,093.3 | 1,262.2 | 833.7 | 1,269.9 | 2,375.8 | 250.1 | 91.5  | 152.7 | 83.7  | 3.7    |
| Median  | 180.1   | 121.8   | 42.2  | 32.5    | 25.2    | 15.0  | 9.5   | 4.7   | 3.4   | 0.4    |
| 25th    | 85.1    | 53.8    | 25.8  | 19.1    | 12.3    | 5.2   | 4.3   | 2.2   | 1.9   | 0.2    |
| 75th    | 690.1   | 186.1   | 108.0 | 60.3    | 47.8    | 33.1  | 14.1  | 13.7  | 8.8   | 0.9    |

Table J-248. Sulfate loads (lbs/d) by flow percentile for UT to North Branch Casselman River (ZWN0003/W-1

|         | 0-10   | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|--------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 609    | 1,040 | 715   | 711   | 855   | 306   | 293   | 274   | 188   | 35     |
| Average | 5,617  | 2,898 | 2,370 | 2,027 | 2,007 | 1,492 | 969   | 696   | 679   | 165    |
| Maximum | 20,505 | 9,306 | 5,569 | 4,438 | 5,491 | 3,595 | 2,460 | 1,621 | 1,638 | 664    |
| Median  | 4,320  | 2,613 | 2,037 | 1,831 | 1,686 | 1,399 | 901   | 493   | 606   | 76     |
| 25th    | 1,951  | 2,013 | 1,776 | 1,587 | 1,444 | 922   | 488   | 391   | 351   | 46     |
| 75th    | 7,808  | 3,437 | 2,902 | 2,346 | 2,224 | 1,989 | 1,267 | 1,019 | 936   | 149    |

Table J-249. Iron loads (lbs/d) by flow percentile for UT to North Branch Casselman River (ZWN0003/W-149

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 19.6    | 17.8  | 8.0   | 10.9  | 9.9   | 5.0   | 3.9   | 3.0   | 2.1   | 0.4    |
| Average | 259.8   | 86.9  | 70.2  | 39.1  | 45.8  | 30.2  | 14.5  | 16.4  | 12.3  | 2.3    |
| Maximum | 2,826.4 | 381.7 | 891.9 | 96.8  | 409.2 | 183.9 | 55.2  | 139.5 | 171.9 | 10.1   |
| Median  | 128.8   | 49.5  | 32.0  | 31.6  | 23.1  | 19.4  | 12.2  | 8.7   | 8.0   | 1.1    |
| 25th    | 63.2    | 36.7  | 25.4  | 25.7  | 16.6  | 12.3  | 7.1   | 4.6   | 3.8   | 0.6    |
| 75th    | 250.1   | 92.8  | 53.4  | 45.8  | 37.5  | 28.8  | 17.9  | 14.0  | 10.5  | 2.4    |

Table J-250. Aluminum loads (lbs/d) by flow percentile for UT to North Branch Casselman River (ZWN0003/W

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 13.6    | 10.5  | 5.6   | 7.6   | 6.9   | 3.0   | 2.7   | 2.1   | 1.4   | 0.3    |
| Average | 308.1   | 59.3  | 32.0  | 20.6  | 30.6  | 19.7  | 9.8   | 8.2   | 6.0   | 1.3    |
| Maximum | 1,409.2 | 449.3 | 169.3 | 142.1 | 348.7 | 138.8 | 52.2  | 32.2  | 23.6  | 5.1    |
| Median  | 127.5   | 32.6  | 20.8  | 16.9  | 15.1  | 12.5  | 7.9   | 5.3   | 5.6   | 0.7    |
| 25th    | 43.4    | 22.3  | 16.9  | 13.8  | 11.2  | 8.4   | 4.3   | 3.0   | 2.6   | 0.4    |
| 75th    | 501.3   | 61.2  | 28.5  | 19.5  | 19.0  | 19.3  | 10.4  | 9.1   | 7.9   | 1.2    |

## UT to North Branch Casselman River (WM-151/UNA0015) plots and tables

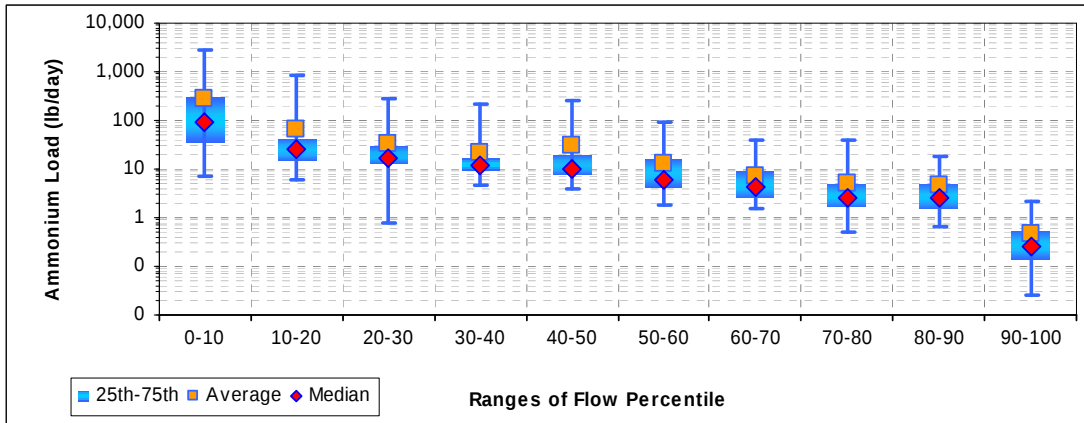


Figure J-251. Ammonium loads by flow percentile for UT to North Branch Casselman River (UNA0015/WM-151)

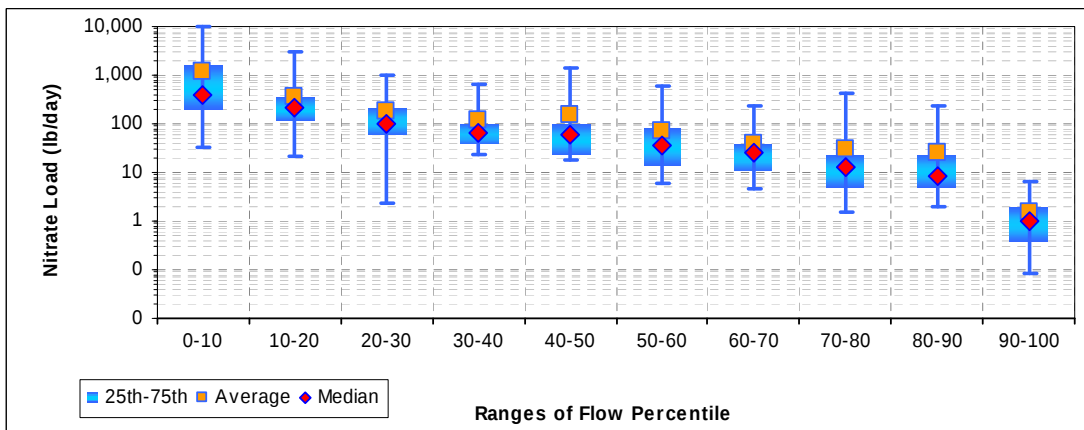


Figure J-252. Nitrate loads by flow percentile for UT to North Branch Casselman River (UNA0015/WM-151)

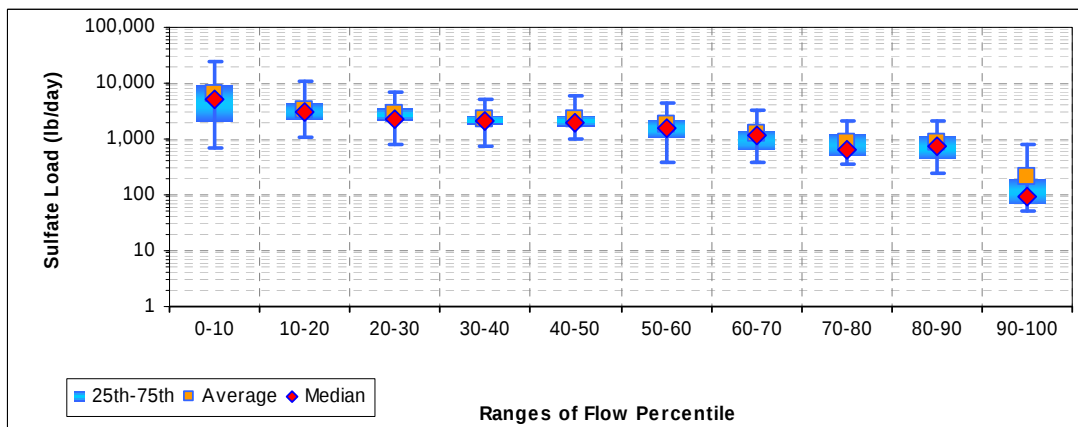


Figure J-253. Sulfate loads by flow percentile for UT to North Branch Casselman River (UNA0015/WM-151)

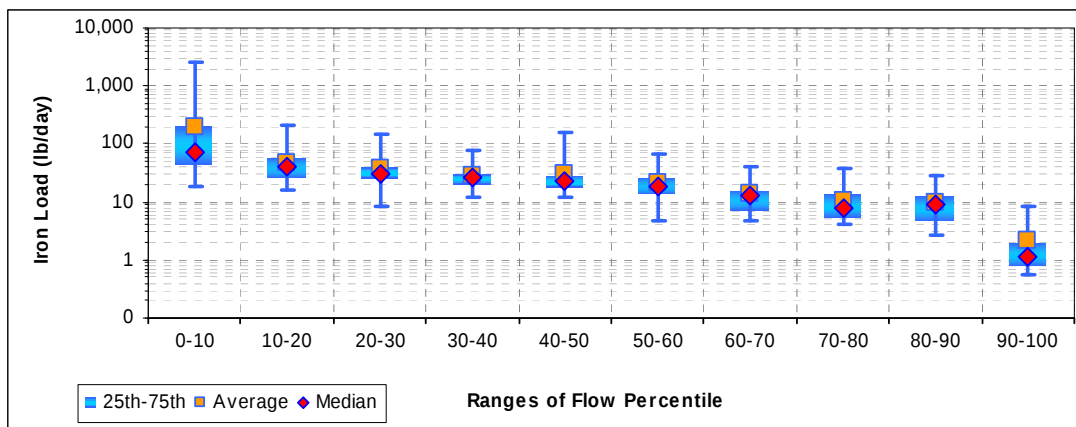


Figure J-254. Iron loads by flow percentile for UT to North Branch Casselman River (UNA0015/WM-151)

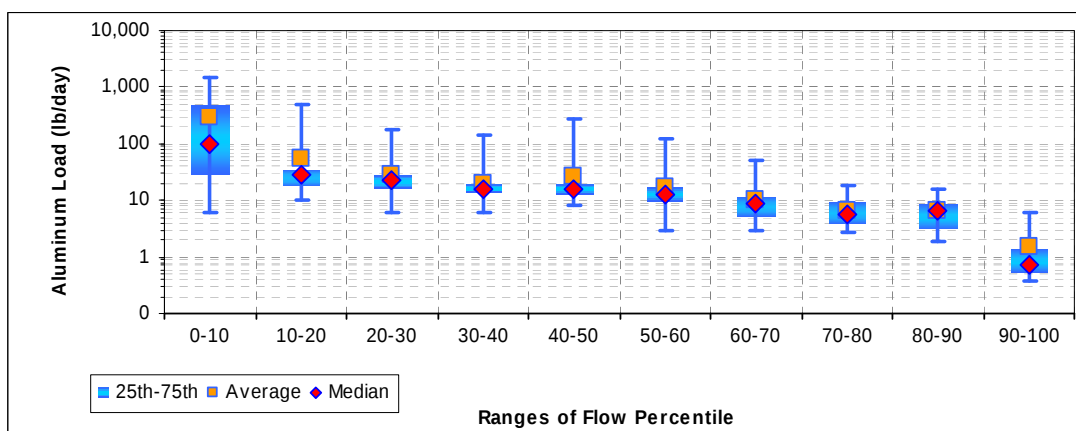


Figure J-255. Aluminum loads by flow percentile for UT to North Branch Casselman River (UNA0015/WM-151)

Table J-251. Ammonium loads (lb/d) by flow percentile for UT to North Branch Casselman River (UNA0015/WM-151)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 7.1     | 5.9   | 0.8   | 4.8   | 3.8   | 1.8   | 1.6   | 0.5   | 0.7   | 0.0    |
| Average | 287.6   | 66.9  | 32.6  | 22.4  | 29.4  | 13.2  | 7.0   | 4.9   | 4.5   | 0.5    |
| Maximum | 2,722.9 | 840.4 | 268.9 | 206.5 | 259.1 | 91.5  | 40.4  | 39.0  | 18.7  | 2.2    |
| Median  | 90.0    | 24.8  | 16.3  | 12.1  | 10.0  | 5.9   | 4.4   | 2.6   | 2.5   | 0.3    |
| 25th    | 35.3    | 15.9  | 13.0  | 9.4   | 7.4   | 4.1   | 2.5   | 1.7   | 1.5   | 0.1    |
| 75th    | 291.9   | 41.8  | 29.4  | 16.6  | 19.9  | 16.4  | 9.0   | 5.2   | 5.1   | 0.6    |

Table J-252. Nitrate loads (lbs/d) by flow percentile for UT to North Branch Casselman River (UNA0015/WM-151)

|         | 0-10    | 10-20   | 20-30 | 30-40 | 40-50   | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|---------|-------|-------|---------|-------|-------|-------|-------|--------|
| Minimum | 33.3    | 21.7    | 2.3   | 24.3  | 17.7    | 5.8   | 4.8   | 1.6   | 2.0   | 0.1    |
| Average | 1,184.7 | 358.2   | 185.6 | 115.3 | 150.9   | 69.8  | 37.6  | 29.2  | 26.2  | 1.5    |
| Maximum | 9,774.7 | 3,020.6 | 961.9 | 643.7 | 1,390.0 | 622.6 | 238.6 | 420.7 | 243.0 | 6.4    |
| Median  | 383.8   | 216.9   | 101.1 | 63.9  | 60.0    | 36.4  | 25.2  | 12.9  | 8.7   | 1.0    |
| 25th    | 206.2   | 123.2   | 60.8  | 40.1  | 23.9    | 14.1  | 10.6  | 5.1   | 5.0   | 0.4    |
| 75th    | 1,694.7 | 355.4   | 210.9 | 104.1 | 99.4    | 82.5  | 40.0  | 23.7  | 23.9  | 1.9    |

Table J-253. Sulfate loads (lbs/d) by flow percentile for UT to North Branch Casselman River (UNA0015/WM-151)

|         | 0-10     | 10-20    | 20-30   | 30-40   | 40-50   | 50-60   | 60-70   | 70-80   | 80-90   | 90-100 |
|---------|----------|----------|---------|---------|---------|---------|---------|---------|---------|--------|
| Minimum | 679.5    | 1,101.1  | 804.5   | 770.8   | 1,034.1 | 375.3   | 390.7   | 340.7   | 252.8   | 50.4   |
| Average | 6,466.4  | 3,355.5  | 2,770.0 | 2,299.9 | 2,332.7 | 1,775.7 | 1,253.9 | 862.5   | 866.2   | 206.7  |
| Maximum | 23,955.5 | 11,113.3 | 6,771.7 | 5,140.2 | 6,121.9 | 4,449.7 | 3,302.3 | 2,084.8 | 2,151.2 | 801.3  |
| Median  | 5,079.1  | 3,125.9  | 2,342.6 | 2,053.1 | 1,981.0 | 1,550.6 | 1,176.0 | 624.1   | 757.0   | 95.1   |
| 25th    | 2,179.8  | 2,226.1  | 2,059.5 | 1,760.1 | 1,673.0 | 1,096.0 | 660.4   | 507.2   | 440.8   | 69.1   |
| 75th    | 9,045.0  | 4,312.8  | 3,443.4 | 2,660.7 | 2,591.3 | 2,284.2 | 1,496.2 | 1,212.1 | 1,177.1 | 194.4  |

Table J-254. Iron loads (lbs/d) by flow percentile for UT to North Branch Casselman River (UNA0015/WM-151)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 18.2    | 15.9  | 8.6   | 11.9  | 11.9  | 4.7   | 4.6   | 4.0   | 2.6   | 0.5    |
| Average | 198.2   | 48.5  | 37.0  | 27.6  | 29.5  | 21.2  | 13.9  | 10.3  | 9.7   | 2.2    |
| Maximum | 2,565.2 | 206.6 | 145.4 | 76.4  | 153.7 | 66.9  | 40.7  | 38.8  | 28.2  | 8.7    |
| Median  | 73.1    | 41.1  | 30.0  | 26.0  | 23.1  | 18.3  | 13.1  | 7.9   | 9.2   | 1.2    |
| 25th    | 43.2    | 26.5  | 24.3  | 20.1  | 17.5  | 13.6  | 7.5   | 5.5   | 4.6   | 0.8    |
| 75th    | 203.0   | 56.5  | 40.4  | 31.1  | 27.7  | 27.3  | 16.6  | 14.3  | 13.1  | 2.0    |

Table J-255. Aluminum loads (lbs/d) by flow percentile for UT to North Branch Casselman River (UNA0015/WM-151)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 6.3     | 10.4  | 6.0   | 6.2   | 7.9   | 2.9   | 2.9   | 2.8   | 1.8   | 0.4    |
| Average | 293.4   | 53.6  | 28.5  | 20.1  | 27.1  | 16.9  | 10.5  | 6.8   | 6.4   | 1.5    |
| Maximum | 1,535.9 | 492.1 | 173.7 | 138.8 | 283.4 | 125.8 | 52.1  | 18.1  | 16.1  | 5.9    |
| Median  | 96.2    | 29.3  | 22.6  | 15.9  | 15.4  | 12.5  | 8.9   | 5.5   | 6.3   | 0.7    |
| 25th    | 29.4    | 18.5  | 16.2  | 13.6  | 12.4  | 9.4   | 5.2   | 3.8   | 3.2   | 0.5    |
| 75th    | 500.8   | 36.2  | 27.4  | 20.0  | 19.5  | 17.5  | 11.5  | 9.6   | 8.6   | 1.4    |

### Little Shade Run (WM-155/LSR0015) plots and tables

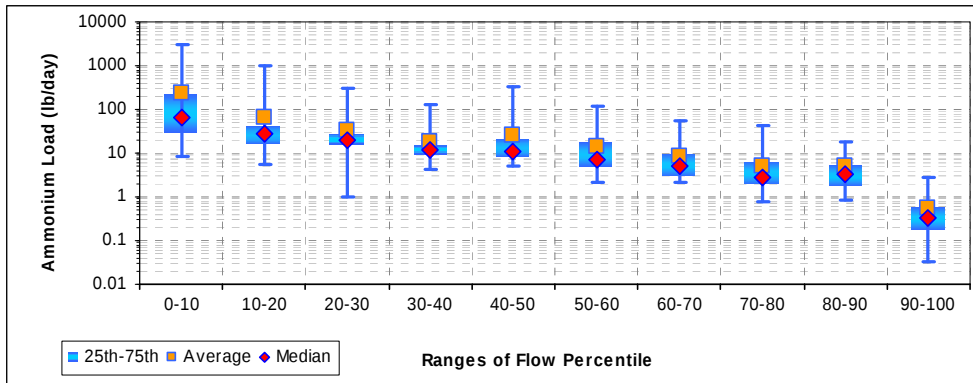


Figure J-256. Ammonium loads by flow percentile for Little Shade Run (LSR0015/WM-155)

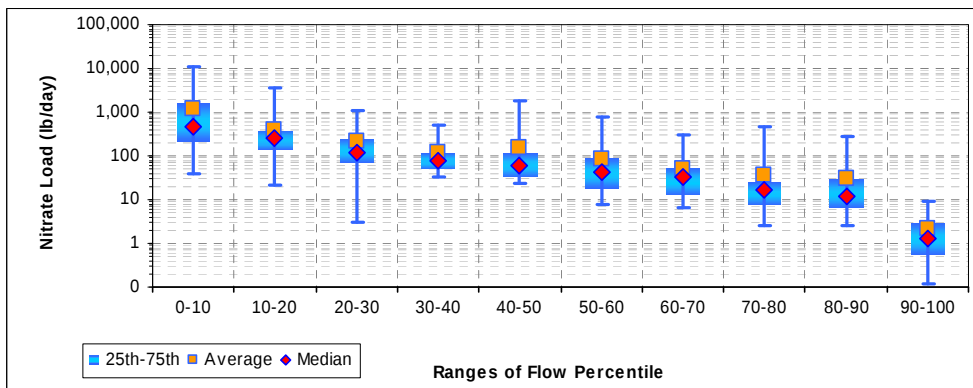


Figure J-257. Nitrate loads by flow percentile for Little Shade Run (LSR0015/WM-155)

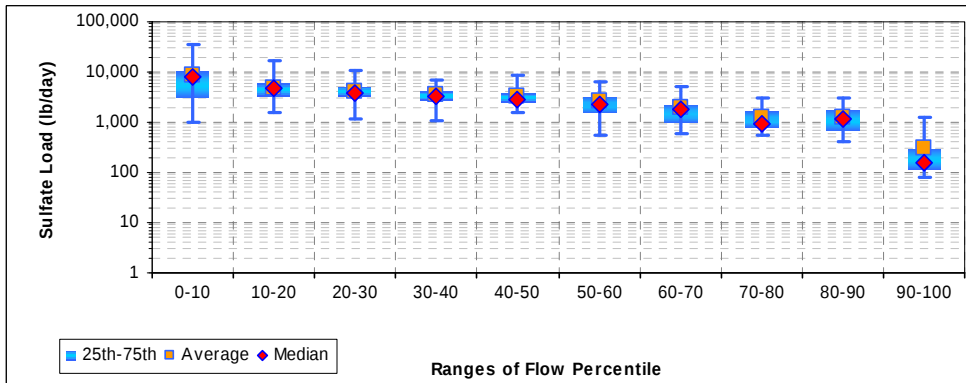


Figure J-258. Sulfate loads by flow percentile for Little Shade Run (LSR0015/WM-155)

Table J-256. Ammonium loads (lb/d) by flow percentile for Little Shade Run (LSR0015/WM-155)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 8.2     | 5.5   | 1.0   | 4.4   | 5.1   | 2.1   | 2.2   | 0.8   | 0.8   | 0.0    |
| Average | 243.6   | 67.5  | 33.6  | 18.8  | 25.8  | 14.3  | 8.5   | 5.0   | 4.9   | 0.5    |
| Maximum | 3,109.8 | 965.0 | 312.7 | 125.8 | 329.3 | 122.4 | 54.4  | 42.3  | 18.6  | 2.7    |
| Median  | 66.7    | 27.0  | 19.0  | 12.3  | 10.5  | 6.9   | 4.9   | 2.9   | 3.2   | 0.3    |
| 25th    | 29.4    | 16.5  | 15.5  | 9.5   | 8.1   | 5.0   | 3.1   | 2.0   | 1.9   | 0.2    |
| 75th    | 237.9   | 42.9  | 27.6  | 15.4  | 22.0  | 18.2  | 10.2  | 6.5   | 5.6   | 0.6    |

Table J-257. Nitrate loads (lbs/d) by flow percentile for Little Shade Run (LSR0015/WM-155)

|         | 0-10     | 10-20   | 20-30   | 30-40 | 40-50   | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|----------|---------|---------|-------|---------|-------|-------|-------|-------|--------|
| Minimum | 38.5     | 20.9    | 3.1     | 32.9  | 23.3    | 8.1   | 6.7   | 2.5   | 2.6   | 0.1    |
| Average | 1,211.9  | 400.9   | 210.9   | 115.3 | 157.7   | 84.4  | 50.6  | 34.6  | 31.5  | 2.2    |
| Maximum | 11,155.0 | 3,471.8 | 1,121.5 | 489.2 | 1,745.0 | 796.0 | 310.9 | 467.5 | 277.9 | 9.0    |
| Median  | 448.3    | 260.8   | 114.4   | 75.3  | 61.5    | 42.2  | 33.5  | 16.6  | 12.3  | 1.3    |
| 25th    | 212.3    | 142.4   | 72.5    | 51.7  | 32.9    | 17.6  | 13.2  | 7.5   | 6.8   | 0.5    |
| 75th    | 1,669.3  | 402.3   | 264.5   | 113.7 | 117.5   | 92.3  | 53.6  | 26.2  | 29.5  | 3.0    |

Table J-258. Sulfate loads (lbs/d) by flow percentile for Little Shade Run (LSR0015/WM-155)

|         | 0-10     | 10-20    | 20-30    | 30-40   | 40-50   | 50-60   | 60-70   | 70-80   | 80-90   | 90-100  |
|---------|----------|----------|----------|---------|---------|---------|---------|---------|---------|---------|
| Minimum | 1,011.8  | 1,535.2  | 1,195.6  | 1,063.3 | 1,520.0 | 565.0   | 604.0   | 547.6   | 401.5   | 77.8    |
| Average | 8,586.6  | 4,853.1  | 4,152.8  | 3,411.6 | 3,392.6 | 2,550.0 | 1,893.5 | 1,275.8 | 1,276.2 | 309.4   |
| Maximum | 34,154.8 | 16,570.7 | 10,490.6 | 6,669.9 | 8,713.5 | 6,629.6 | 5,088.3 | 2,960.0 | 3,036.1 | 1,216.8 |
| Median  | 7,757.7  | 4,807.3  | 3,754.4  | 3,245.2 | 2,906.2 | 2,190.5 | 1,776.9 | 955.3   | 1,143.7 | 160.8   |
| 25th    | 3,093.3  | 3,232.9  | 3,163.8  | 2,602.4 | 2,451.2 | 1,599.5 | 997.9   | 773.0   | 688.7   | 112.0   |
| 75th    | 10,783.3 | 5,867.5  | 4,945.4  | 3,958.1 | 3,936.6 | 3,308.5 | 2,298.5 | 1,661.5 | 1,748.5 | 306.5   |

Table J-259. Iron loads (lbs/d) by flow percentile for Little Shade Run (LSR0015/WM-155)

|         | 0-10  | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 8.9   | 13.7  | 10.6  | 9.4   | 13.8  | 5.0   | 5.2   | 5.0   | 3.5   | 0.7    |
| Average | 146.1 | 47.9  | 37.9  | 30.2  | 31.7  | 23.0  | 16.8  | 11.2  | 11.1  | 2.7    |
| Maximum | 974.0 | 249.3 | 123.7 | 70.3  | 127.5 | 78.7  | 50.6  | 26.0  | 26.4  | 10.7   |
| Median  | 77.7  | 43.1  | 34.3  | 28.7  | 25.4  | 19.4  | 15.8  | 8.4   | 9.9   | 1.4    |
| 25th    | 27.4  | 29.0  | 27.7  | 23.1  | 21.2  | 14.4  | 8.8   | 6.8   | 5.9   | 1.0    |
| 75th    | 192.2 | 52.0  | 43.5  | 34.9  | 33.9  | 28.5  | 20.3  | 14.5  | 15.3  | 2.7    |

Table J-260. Aluminum loads (lbs/d) by flow percentile for Little Shade Run (LSR0015/WM-155)

|         | 0-10    | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Minimum | 7.2     | 12.1  | 8.7   | 7.7   | 11.3  | 4.1   | 4.3   | 4.3   | 2.8   | 0.6    |
| Average | 316.9   | 63.4  | 37.9  | 26.0  | 35.0  | 22.1  | 14.9  | 9.2   | 9.1   | 2.2    |
| Maximum | 2,023.2 | 655.4 | 237.2 | 107.1 | 337.4 | 156.4 | 68.9  | 22.7  | 22.3  | 8.7    |
| Median  | 100.7   | 36.5  | 31.4  | 23.4  | 22.2  | 16.1  | 13.2  | 7.1   | 8.2   | 1.1    |
| 25th    | 23.2    | 23.8  | 23.0  | 18.9  | 18.3  | 13.1  | 7.4   | 5.5   | 4.8   | 0.8    |
| 75th    | 513.4   | 46.8  | 37.8  | 28.4  | 28.6  | 23.4  | 16.6  | 11.8  | 12.4  | 2.2    |