

**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 Youghiogheny River watershed. 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 Youghiogheny River watershed. 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.¹

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

¹ *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.

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 Youghiogheny River watershed. 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 Youghiogheny River watershed:

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 95th 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 Youghiogheny River watershed 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 Youghiogheny River watershed 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 Youghiogheny River watershed.

Calculation Approach for Nonpoint Sources

The specific approach used for application to the Youghiogheny River watershed TMDL 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.

FINAL

2. Conducted a flow duration analysis for the Youghiogheny River watershed 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

The loading plots and tables are on the following pages.

Herrington Creek (HER0014/WM-8) plots and tables

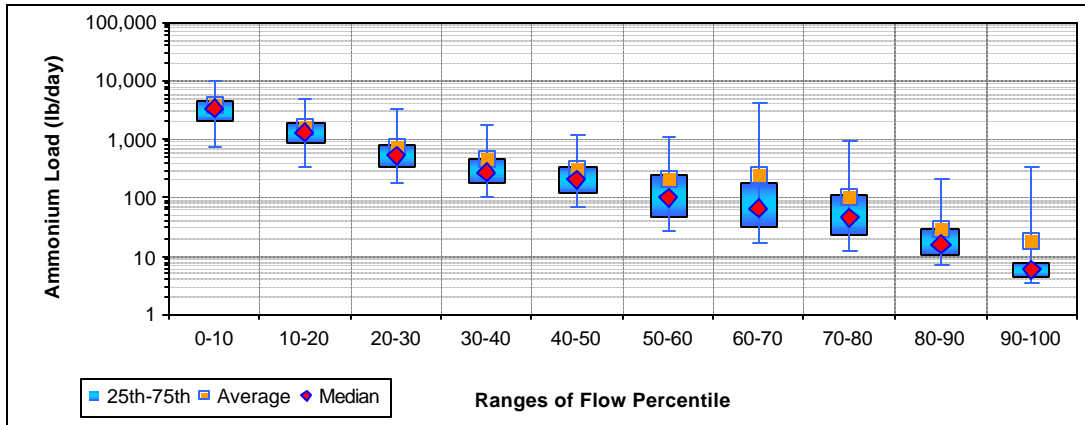


Figure J-1. Ammonium loads by flow percentile for Herrington Creek (HER0014/WM-8)

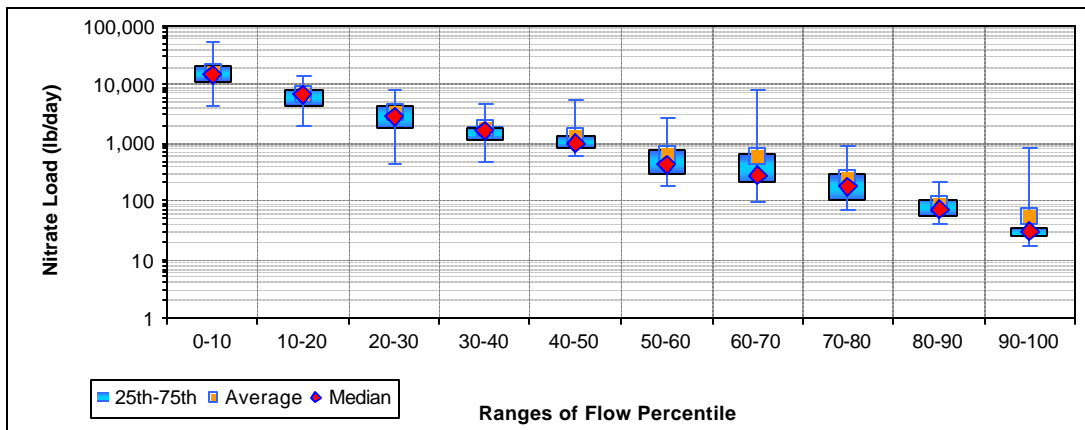


Figure J-2. Nitrate loads by flow percentile for Herrington Creek (HER0014/WM-8)

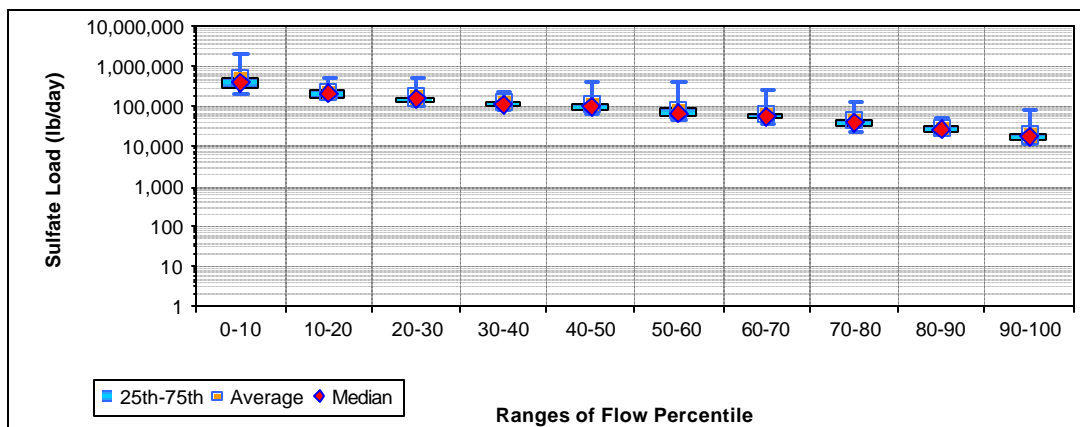


Figure J-3. Sulfate loads by flow percentile for Herrington Creek (HER0014/WM-8)
 ** These plots include upstream loads from Herrington Creek (HER0028/WM-4).

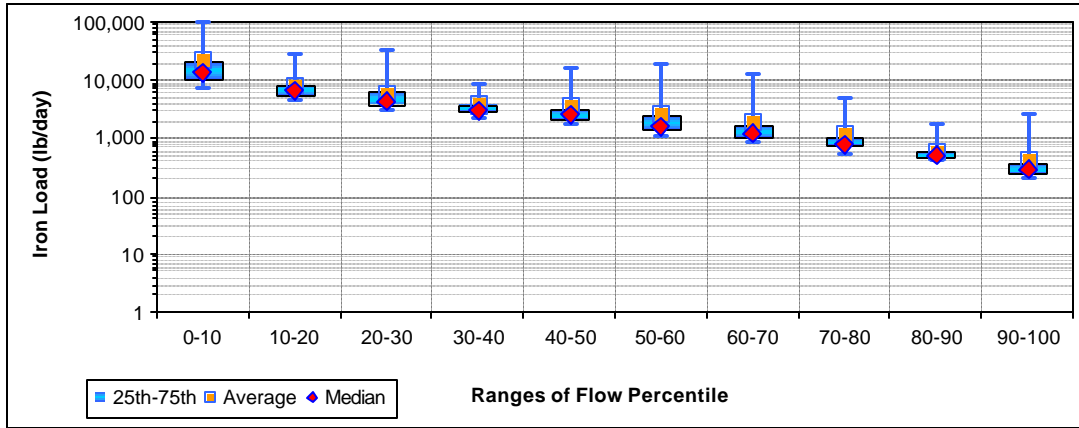


Figure J-4. Iron loads by flow percentile for Herrington Creek (HER0014/WM-8)

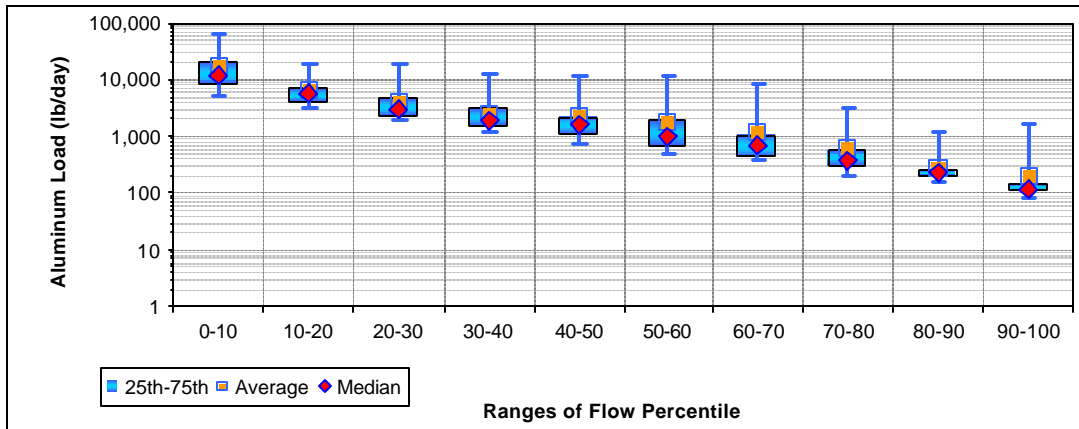


Figure J-5. Aluminum loads by flow percentile for Herrington Creek (HER0014/WM-8)

** These plots include upstream loads from Herrington Creek (HER0028/WM-4).

Table J-1. Ammonium loads (lb/d) by flow percentile for Herrington Creek (HER0014/WM-8)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	765.59	335.63	183.42	104.86	72.81	26.63	16.83	12.19	7.00	3.27
Average	3,727.21	1,643.79	757.92	462.49	326.62	209.59	232.84	100.86	27.34	17.86
Maximum	10,029.79	4,786.93	3,298.18	1,746.03	1,187.45	1,039.28	4,019.08	897.52	203.65	342.19
Median	3,242.25	1,266.66	513.98	276.47	203.56	103.74	63.98	47.63	15.96	5.73
25th	2,037.91	839.02	336.40	174.48	119.08	46.95	33.61	22.03	10.25	4.56
75th	4,512.23	1,845.76	777.41	462.69	330.40	230.35	183.63	110.69	27.25	7.18

Table J-2. Nitrate loads (lbs/d) by flow percentile for Herrington Creek (HER0014/WM-8)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	4,489.40	1,978.93	435.47	478.43	613.35	175.75	93.75	69.55	41.18	17.63
Average	17,109.66	6,679.19	3,354.87	1,799.10	1,296.27	653.57	596.06	251.14	86.97	56.68
Maximum	51,673.51	13,361.29	7,862.35	4,675.78	5,572.32	2,574.40	7,935.72	910.44	226.23	770.75
Median	15,048.51	6,744.19	2,785.64	1,604.93	954.89	413.91	268.71	179.51	70.74	30.35
25th	11,115.16	4,467.74	1,768.84	1,166.53	769.36	288.54	203.45	98.27	57.40	24.23
75th	21,162.25	8,163.13	4,482.37	1,934.98	1,308.24	757.50	633.34	293.52	106.92	36.05

Table J-3. Sulfate loads (lbs/d) by flow percentile for Herrington Creek (HER0014/WM-8)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	215,333.98	148,987.83	103,993.31	81,738.16	68,637.84	44,247.61	37,046.64	24,669.25	19,327.58	11,433.59
Average	559,272.30	238,923.13	172,636.78	124,754.17	113,947.39	87,429.01	68,616.00	44,884.33	28,527.06	19,616.58
Maximum	2,034,691.30	520,607.96	572,112.52	239,224.46	384,626.42	394,665.42	255,029.56	125,497.84	47,933.73	82,087.03
Median	413,579.03	203,902.47	150,666.07	120,104.52	98,564.57	67,787.24	57,223.38	40,709.18	26,864.97	16,706.87
25th	286,118.31	180,127.32	130,837.60	103,660.09	86,708.93	57,544.40	50,287.38	32,736.19	24,367.35	14,089.04
75th	565,069.02	260,840.76	181,927.76	132,702.33	108,612.58	91,440.26	64,889.48	44,765.31	32,868.12	19,902.57

Table J-4. Iron loads (lbs/d) by flow percentile for Herrington Creek (HER0014/WM-8)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	7,095.07	4,513.79	3,097.51	2,276.81	1,669.13	1,085.07	812.49	548.22	395.52	192.69
Average	22,320.73	8,372.10	5,773.93	3,692.51	3,464.27	2,689.57	1,918.94	1,167.08	598.57	404.17
Maximum	99,026.34	27,850.67	31,796.49	8,672.18	16,410.97	18,947.96	12,281.03	5,027.88	1,851.71	2,583.29
Median	13,479.80	6,713.58	4,215.16	3,028.51	2,623.05	1,632.90	1,161.41	774.68	514.54	286.61
25th	9,967.62	5,392.12	3,650.34	2,731.59	2,131.24	1,399.93	994.64	713.46	463.05	240.85
75th	20,305.04	8,381.67	6,009.47	3,647.18	3,114.24	2,506.31	1,586.98	1,004.54	592.34	345.90

Table J-5. Aluminum loads (lbs/d) by flow percentile for Herrington Creek (HER0014/WM-8)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	5,442.06	3,100.69	1,872.27	1,227.14	728.12	495.72	366.55	200.33	154.82	82.02
Average	17,649.37	6,583.64	3,955.74	2,565.45	2,147.53	1,715.40	1,193.51	636.09	283.38	202.96
Maximum	63,767.45	19,068.19	18,499.93	12,624.36	11,927.30	11,964.67	8,363.72	3,147.77	1,247.08	1,592.19
Median	12,286.23	5,532.31	2,910.78	1,883.77	1,619.43	1,014.86	702.37	380.35	224.40	120.73
25th	8,495.61	4,084.54	2,388.22	1,579.56	1,117.24	706.62	453.74	303.47	197.71	105.58
75th	19,413.45	7,255.66	4,691.14	3,109.83	2,200.80	1,893.18	1,096.45	578.73	263.02	142.16

** These tables include upstream loads from Herrington Creek (HER0028/WM-4).

Laurel Run (LRL0018/BM928) plots and tables

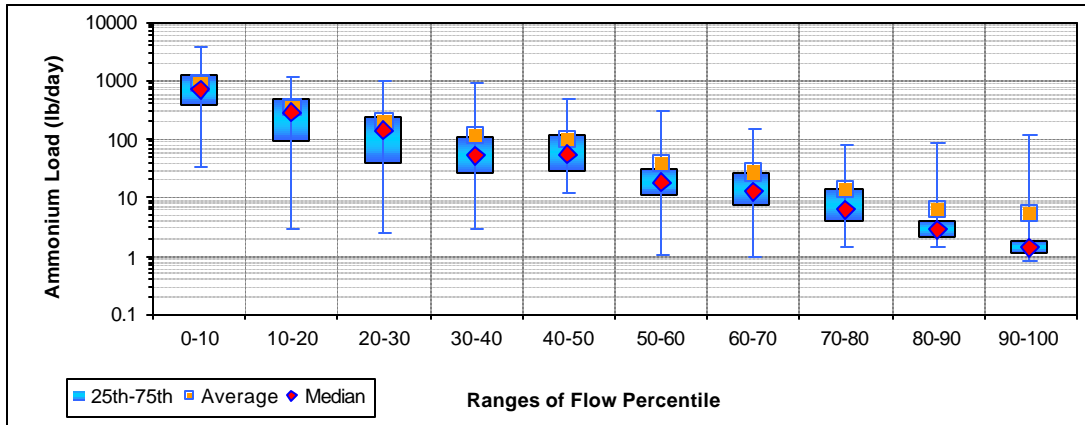


Figure J-6. Ammonium loads by flow percentile for Laurel Run (LRL0018/BM928)

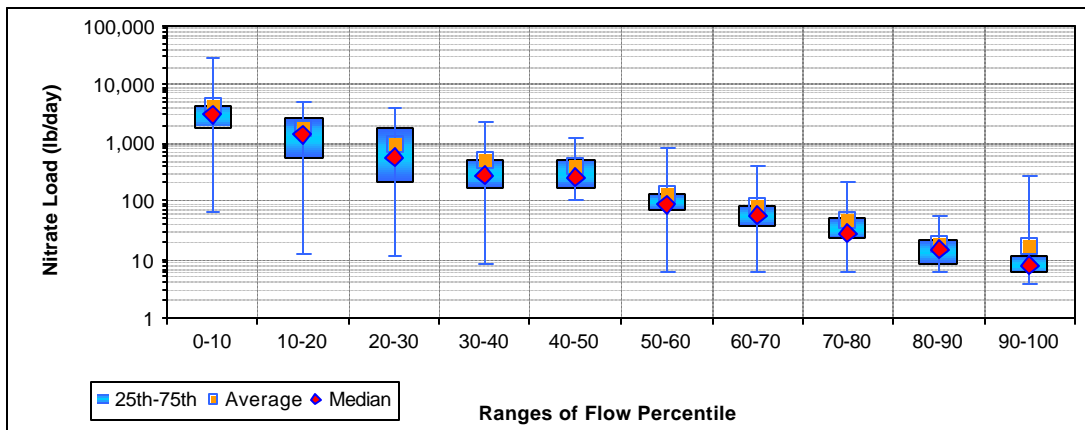


Figure J-7. Nitrate loads by flow percentile for Laurel Run (LRL0018/BM928)

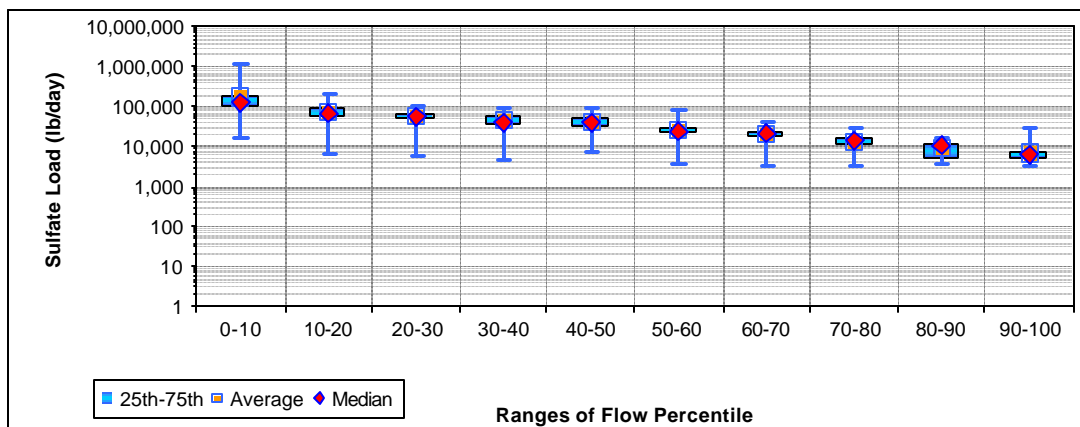


Figure J-8. Sulfate loads by flow percentile for Laurel Run (LRL0018/BM928)

** These plots include upstream loads from Laurel Run (LRL0034/BM929).

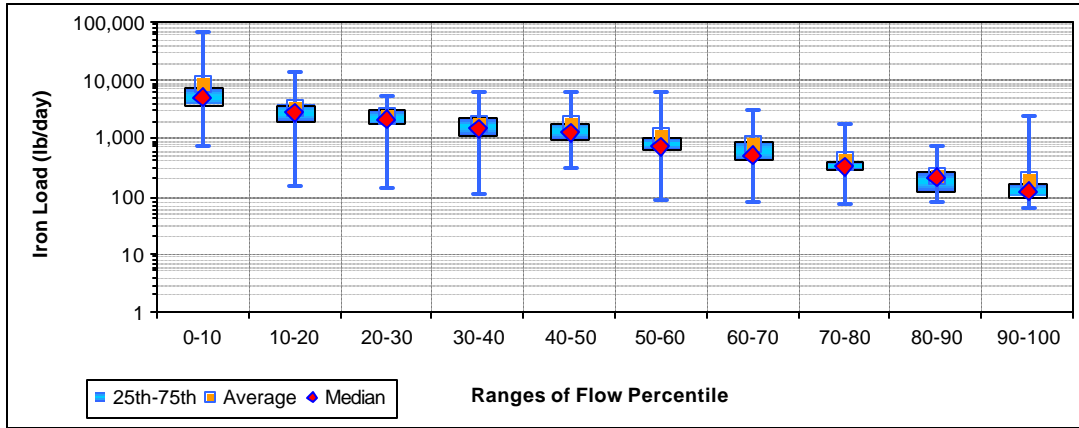


Figure J-9. Iron loads by flow percentile for Laurel Run (LRL0018/BM928)

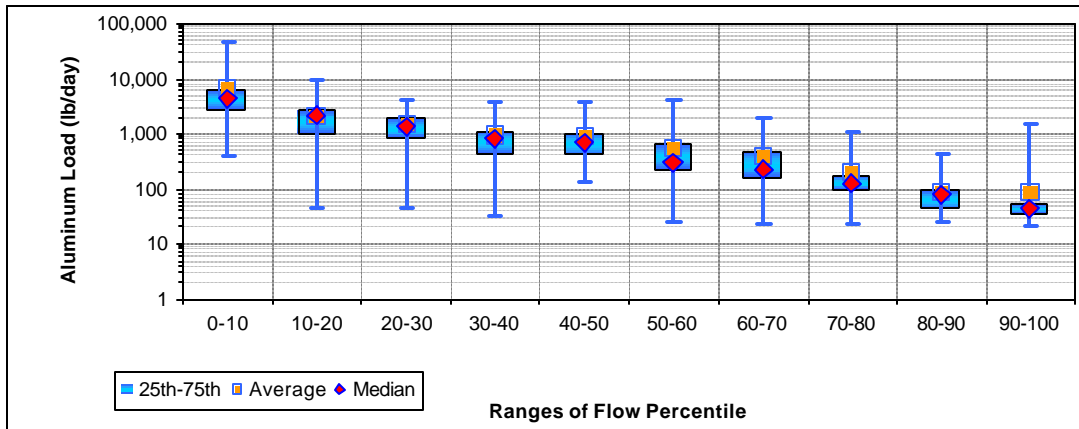


Figure J-10. Aluminum loads by flow percentile for Laurel Run (LRL0018/BM928)

** These plots include upstream loads from Laurel Run (LRL0034/BM929).

Table J-6. Ammonium loads (lb/d) by flow percentile for Laurel Run (LRL0018/BM928)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	33.78	2.75	2.37	2.73	11.66	1.05	1.00	1.36	1.36	0.87
Average	887.65	342.29	197.20	125.50	96.48	38.95	26.77	14.31	6.08	5.32
Maximum	3,655.08	1,187.41	947.10	904.10	479.12	314.33	155.12	77.28	86.64	121.78
Median	702.00	282.62	138.31	51.64	56.19	17.94	12.18	6.37	2.76	1.41
25th	386.29	92.89	40.06	24.75	30.00	10.83	7.80	4.07	2.07	1.15
75th	1,251.92	499.39	242.30	107.55	121.03	32.06	25.02	14.31	4.15	1.90

Table J-7. Nitrate loads (lbs/d) by flow percentile for Laurel Run (LRL0018/BM928)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	66.73	12.63	11.50	8.52	102.80	6.10	5.84	6.26	5.82	3.81
Average	4,541.30	1,696.19	971.66	507.43	403.30	132.18	82.74	47.06	17.83	16.94
Maximum	27,686.82	5,008.72	3,878.68	2,279.66	1,206.89	802.46	403.25	205.48	56.75	275.01
Median	3,068.21	1,421.14	559.85	268.71	248.50	87.56	56.69	28.77	15.38	7.83
25th	1,920.55	559.35	216.69	170.54	172.77	69.82	37.04	22.20	8.26	5.86
75th	4,504.21	2,591.50	1,709.79	536.47	530.98	133.72	83.14	49.69	21.23	10.90

Table J-8. Sulfate loads (lbs/d) by flow percentile for Laurel Run (LRL0018/BM928)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	15,575.71	6,082.67	5,789.15	4,365.61	6,583.01	3,601.62	3,294.56	3,241.01	3,834.93	3,221.82
Average	179,613.46	72,182.46	59,897.41	45,258.22	41,341.83	27,627.89	21,272.63	13,509.07	9,198.48	7,030.11
Maximum	1,118,687.36	210,633.29	105,446.74	97,692.34	88,281.49	79,767.63	38,722.71	29,595.07	16,177.77	30,724.82
Median	126,850.78	69,336.00	57,551.12	42,270.92	39,678.79	24,937.96	21,138.74	14,830.50	10,217.16	6,309.22
25th	100,169.14	53,344.70	47,267.58	38,332.33	31,247.22	22,819.89	18,242.14	11,332.38	5,147.80	4,924.13
75th	185,977.89	88,245.67	69,075.81	52,992.98	47,927.76	30,458.83	24,563.24	15,922.59	11,753.78	7,846.26

Table J-9. Iron loads (lbs/d) by flow percentile for Laurel Run (LRL0018/BM928)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	739.88	153.18	143.69	110.52	312.47	85.69	76.49	74.81	80.55	64.38
Average	8,790.22	3,193.97	2,383.30	1,711.61	1,661.16	1,081.33	746.33	406.43	222.74	186.86
Maximum	66,543.65	13,591.67	5,434.66	6,004.76	6,039.09	6,239.27	3,025.76	1,851.87	727.79	2,343.35
Median	5,042.40	2,848.70	2,102.47	1,503.86	1,281.93	745.14	492.01	335.16	218.25	118.38
25th	3,824.53	1,924.27	1,653.88	1,099.71	971.76	636.17	410.69	287.63	119.03	95.61
75th	7,341.22	3,838.85	2,920.61	2,209.59	1,880.28	1,003.54	904.07	389.65	256.39	158.78

Table J-10. Aluminum loads (lbs/d) by flow percentile for Laurel Run (LRL0018/BM928)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	388.96	45.51	42.68	31.59	128.39	25.43	23.10	22.77	24.95	20.74
Average	6,545.79	2,216.97	1,446.47	968.49	876.22	556.27	387.13	188.38	85.45	82.31
Maximum	47,904.05	9,288.39	3,932.74	3,542.37	3,760.83	3,867.82	2,012.02	1,090.86	401.33	1,440.40
Median	4,113.43	2,223.80	1,388.35	805.02	681.57	297.41	220.01	125.47	76.94	42.70
25th	2,803.06	1,026.45	838.92	443.18	404.15	222.44	155.37	97.95	42.06	33.23
75th	6,009.84	2,796.20	1,840.70	1,114.28	1,007.21	646.27	461.79	162.00	93.97	53.98

** These tables include upstream loads from Laurel Run (LRL0034/BM929).

Laurel Run (LRL0034/BM929) plots and tables

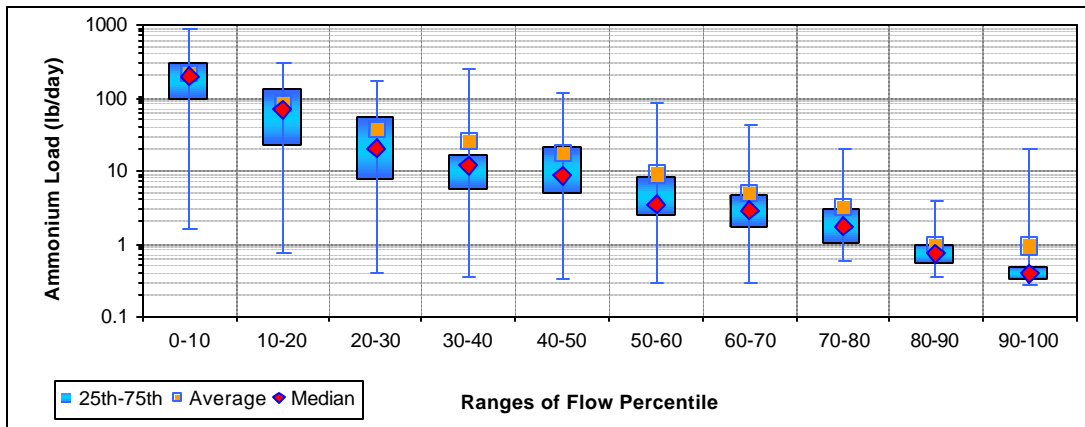


Figure J-11. Ammonium loads by flow percentile for Laurel Run (LRL0034/BM929)

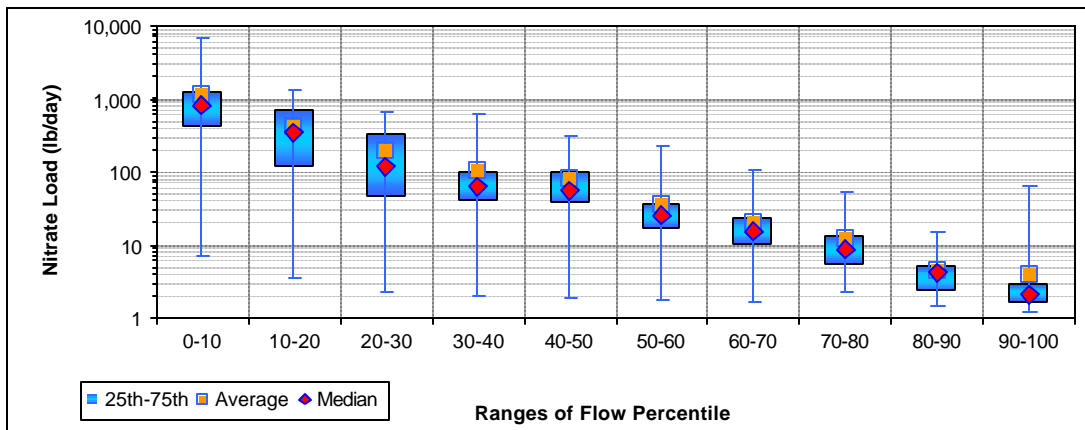


Figure J-12. Nitrate loads by flow percentile for Laurel Run (LRL0034/BM929)

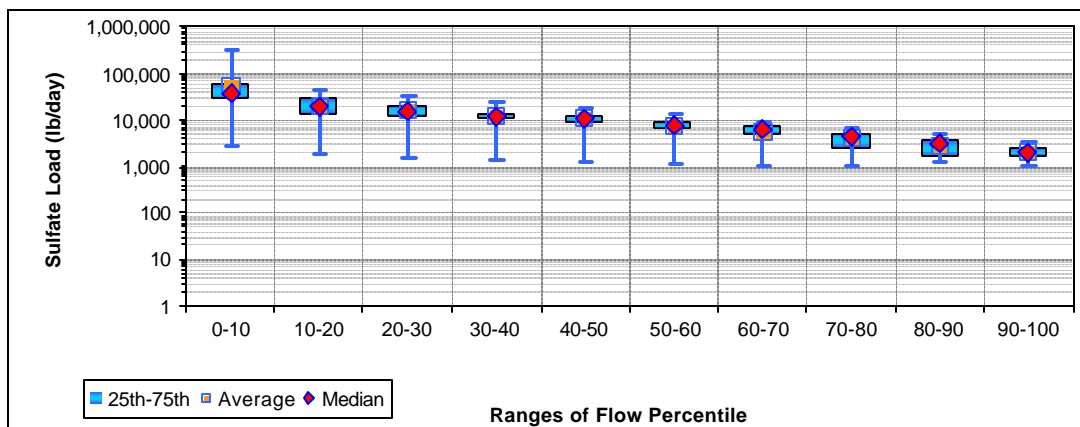


Figure J-13. Sulfate loads by flow percentile for Laurel Run (LRL0034/BM929)

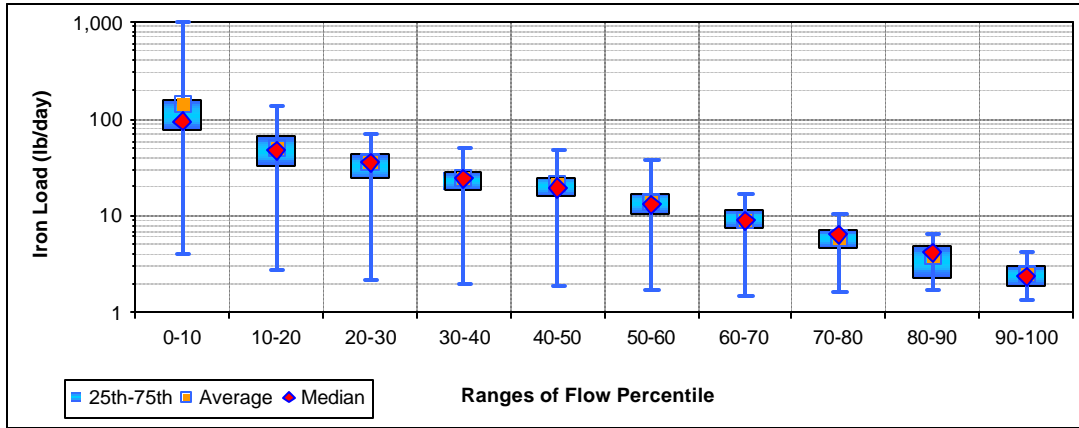


Figure J-14. Iron loads by flow percentile for Laurel Run (LRL0034/BM929)

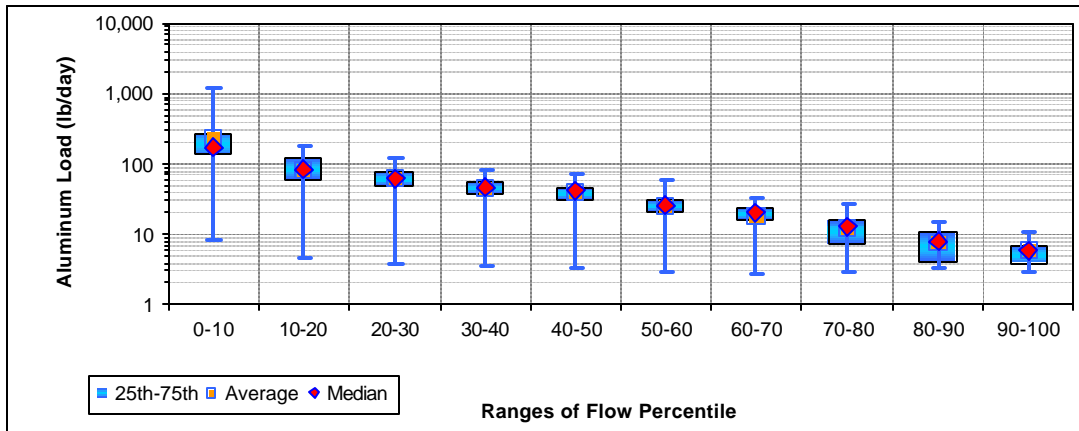


Figure J-15. Aluminum loads by flow percentile for Laurel Run (LRL0034/BM929)

Table J-11. Ammonium loads (lb/d) by flow percentile for Laurel Run (LRL0034/BM929)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	1.53	0.74	0.39	0.34	0.33	0.29	0.28	0.58	0.34	0.27
Average	219.49	82.08	36.56	25.14	17.76	8.81	4.85	3.26	0.97	0.91
Maximum	824.61	305.88	172.64	236.75	117.33	81.95	40.56	20.17	3.85	19.73
Median	193.35	70.95	20.12	11.81	8.33	3.43	2.87	1.71	0.72	0.38
25th	98.09	21.92	7.45	5.73	4.85	2.37	1.75	1.04	0.56	0.32
75th	303.86	126.70	55.66	16.44	20.82	7.81	4.43	3.02	0.98	0.47

Table J-12. Nitrate loads (lbs/d) by flow percentile for Laurel Run (LRL0034/BM929)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	7.05	3.48	2.19	1.94	1.90	1.73	1.65	2.27	1.46	1.17
Average	1,164.78	427.76	200.01	106.58	85.62	35.34	20.35	12.33	4.77	3.89
Maximum	6,595.21	1,320.82	659.59	614.38	309.71	215.75	108.30	55.00	15.56	63.37
Median	821.98	351.02	115.37	63.78	57.10	25.51	15.54	8.78	4.09	2.10
25th	441.69	121.99	48.84	43.42	37.90	17.61	10.36	5.43	2.38	1.71
75th	1,226.01	678.76	339.25	101.47	100.43	35.88	22.59	13.06	5.33	2.97

Table J-13. Sulfate loads (lbs/d) by flow percentile for Laurel Run (LRL0034/BM929)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	2,872.26	1,801.56	1,441.73	1,323.24	1,275.16	1,144.61	1,044.45	1,048.42	1,292.84	1,059.11
Average	52,919.23	20,357.33	16,562.45	12,149.58	10,768.85	7,525.44	5,712.51	3,936.19	2,846.12	2,049.58
Maximum	308,252.79	44,947.12	33,478.51	23,194.68	18,198.71	13,326.56	8,504.36	6,723.26	5,119.82	3,351.12
Median	37,829.20	19,989.47	15,703.56	11,981.71	11,071.90	7,465.24	6,146.39	4,267.64	3,135.66	2,023.02
25th	28,994.84	13,799.55	13,233.04	10,847.55	9,184.03	6,662.71	5,316.58	2,495.46	1,644.25	1,566.55
75th	59,377.49	27,364.90	18,953.20	13,514.68	12,467.90	9,057.05	7,452.86	5,193.47	3,714.13	2,440.06

Table J-14. Iron loads (lbs/d) by flow percentile for Laurel Run (LRL0034/BM929)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	4.03	2.68	2.15	1.95	1.89	1.67	1.48	1.60	1.69	1.33
Average	143.80	50.46	35.32	24.57	21.04	13.88	8.79	5.82	3.76	2.47
Maximum	999.80	133.79	70.30	50.68	46.68	37.70	16.80	10.66	6.49	4.28
Median	95.20	48.04	35.08	23.98	19.29	13.22	8.84	6.39	4.04	2.39
25th	75.43	32.18	24.15	18.67	16.46	10.55	7.47	4.78	2.30	1.90
75th	155.18	67.48	43.43	28.45	25.04	17.09	11.33	7.13	4.94	3.02

Table J-15. Aluminum loads (lbs/d) by flow percentile for Laurel Run (LRL0034/BM929)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	8.42	4.76	3.68	3.41	3.26	2.96	2.77	2.92	3.32	2.81
Average	222.75	85.16	63.15	45.50	39.30	25.69	18.25	11.68	8.01	5.89
Maximum	1,169.53	176.59	118.51	84.87	68.70	60.19	32.30	26.74	15.20	10.38
Median	166.38	85.68	61.13	45.14	40.43	25.47	19.93	12.37	8.08	5.99
25th	132.27	58.22	49.50	37.18	31.44	20.82	15.97	7.36	4.21	3.98
75th	268.26	118.71	76.66	54.62	45.87	30.62	23.48	16.00	10.85	6.76

Muddy Creek (MYC0002/WM-1) plots and tables

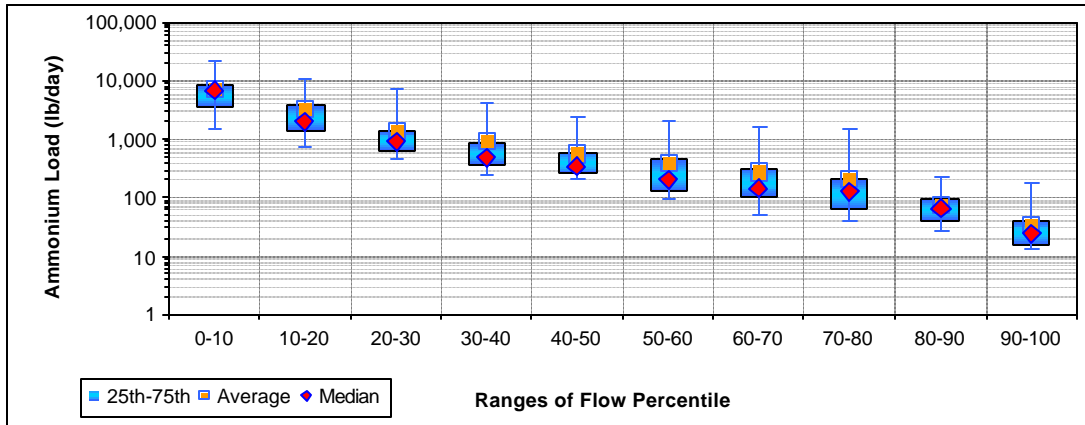


Figure J-16. Ammonium loads by flow percentile for Muddy Creek (MYC0002/WM-1)

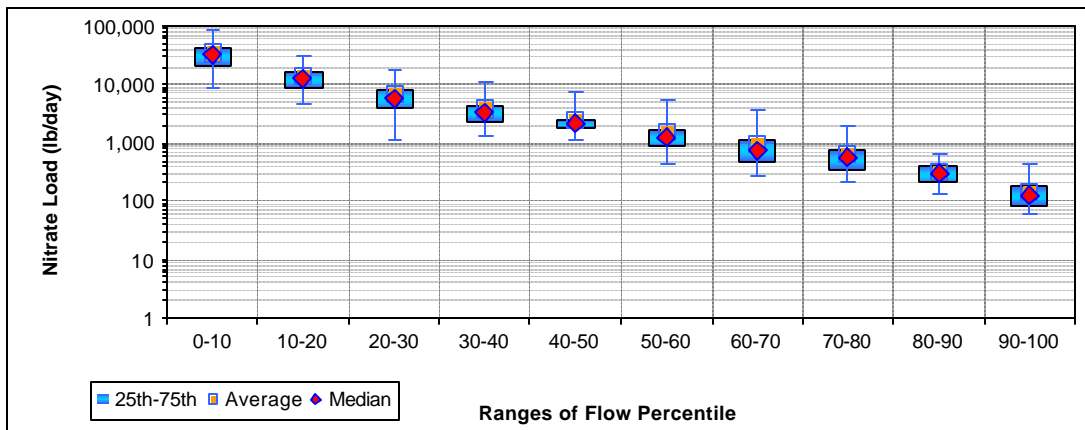


Figure J-17. Nitrate loads by flow percentile for Muddy Creek (MYC0002/WM-1)

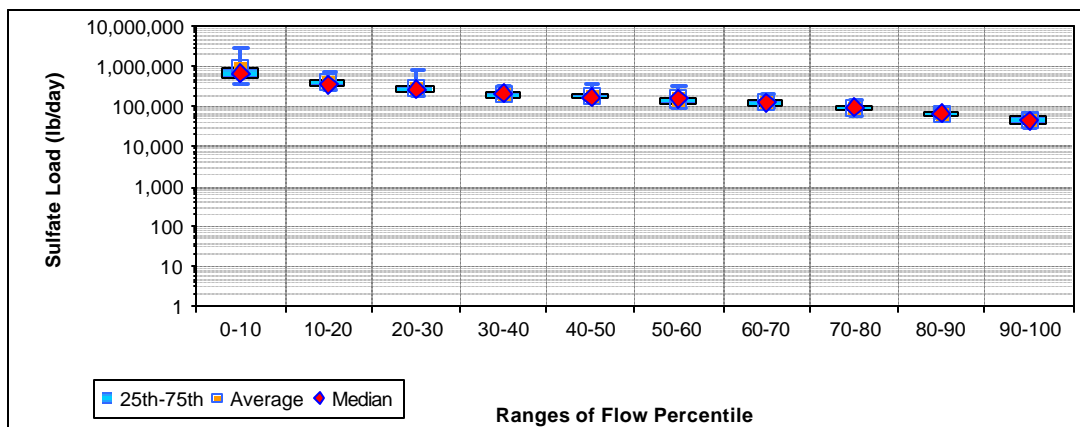


Figure J-18. Sulfate loads by flow percentile for Muddy Creek (MYC0002/WM-1)
 ** These plots include upstream loads from Muddy Creek (MYC0018/WM-17).

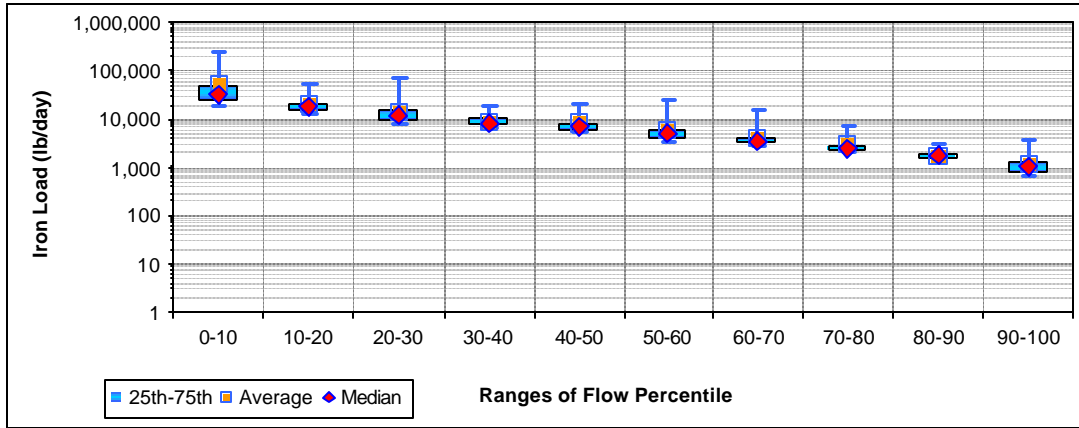


Figure J-19. Iron loads by flow percentile for Muddy Creek (MYC0002/WM-1)

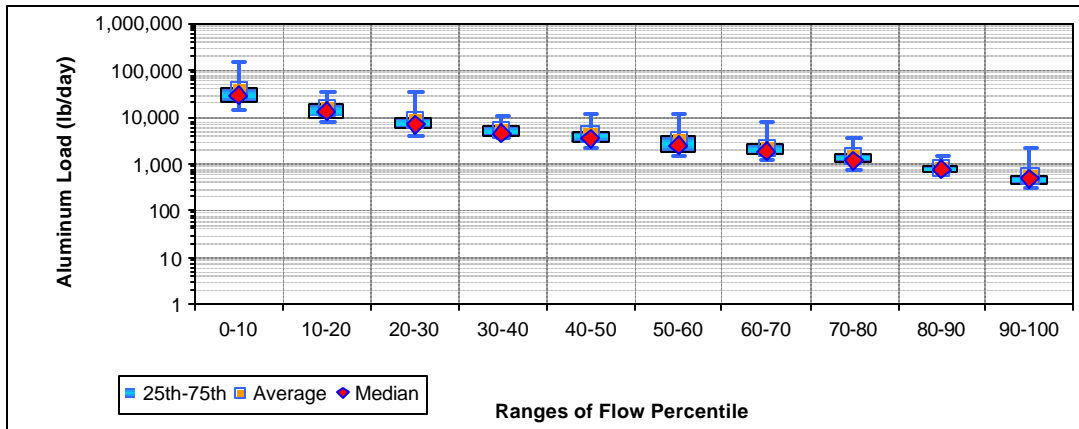


Figure J-20. Aluminum loads by flow percentile for Muddy Creek (MYC0002/WM-1)

** These plots include upstream loads from Muddy Creek (MYC0018/WM-17).

Table J-16. Ammonium loads (lb/d) by flow percentile for Muddy Creek (MYC0002/WM-1)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	1,487.98	758.89	435.88	235.57	201.88	91.99	50.25	40.02	25.95	13.17
Average	7,351.37	3,360.62	1,450.47	889.96	574.64	404.40	280.45	204.84	77.69	34.50
Maximum	21,748.81	11,227.62	7,428.67	4,027.78	2,433.18	2,058.08	1,647.56	1,457.91	227.80	182.21
Median	6,593.76	2,055.84	944.12	488.97	332.56	202.42	142.92	123.26	67.14	24.50
25th	3,587.10	1,436.55	632.65	368.45	258.95	129.20	102.42	63.41	39.39	16.56
75th	8,557.58	3,736.75	1,416.92	828.03	607.12	440.00	320.31	211.79	97.05	41.47

Table J-17. Nitrate loads (lbs/d) by flow percentile for Muddy Creek (MYC0002/WM-1)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	9,235.21	4,567.63	1,171.12	1,357.30	1,112.16	459.53	265.34	212.17	137.31	60.50
Average	33,625.65	13,392.31	6,516.58	3,809.69	2,573.23	1,536.47	991.06	643.28	318.27	144.91
Maximum	84,074.76	28,977.27	18,086.17	10,980.72	7,039.17	5,288.54	3,451.63	2,037.83	626.41	449.74
Median	31,826.34	12,652.54	5,679.68	3,268.71	2,103.68	1,207.01	763.88	547.06	301.75	128.81
25th	21,506.39	9,183.41	3,684.87	2,312.32	1,707.57	837.93	482.13	334.91	207.53	83.27
75th	44,159.19	16,292.85	8,519.45	4,271.70	2,567.24	1,674.17	1,098.59	741.89	401.09	179.22

Table J-18. Sulfate loads (lbs/d) by flow percentile for Muddy Creek (MYC0002/WM-1)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	350,980.89	261,603.35	189,691.19	153,310.58	140,863.81	96,657.65	90,120.94	64,207.83	50,360.49	29,584.99
Average	882,061.02	412,783.59	292,892.86	221,915.23	190,938.79	149,726.88	125,626.16	94,575.04	71,525.65	45,313.82
Maximum	2,924,016.27	716,498.09	839,933.74	335,947.79	354,682.78	326,912.63	202,596.42	137,687.71	90,335.10	66,167.10
Median	663,768.53	362,210.03	267,532.65	216,307.67	181,966.93	152,742.38	126,520.56	93,574.28	70,867.56	45,372.14
25th	521,999.55	320,028.95	230,731.45	181,729.91	164,476.85	118,499.56	107,247.92	83,504.50	64,309.58	37,174.82
75th	939,791.10	469,300.99	310,840.79	246,611.64	204,818.52	172,204.85	136,715.94	102,929.36	79,402.60	52,661.72

Table J-19. Iron loads (lbs/d) by flow percentile for Muddy Creek (MYC0002/WM-1)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	19,416.79	12,050.18	8,026.60	6,435.57	5,265.26	3,543.23	2,581.47	2,061.95	1,352.96	675.46
Average	52,791.43	20,735.36	13,920.24	9,217.58	8,016.37	5,762.58	4,201.25	2,887.94	1,817.52	1,137.01
Maximum	234,620.66	55,671.29	68,558.55	18,408.48	21,390.61	24,210.17	14,488.21	7,016.85	3,036.34	3,870.65
Median	33,154.59	17,751.26	11,267.84	8,285.78	6,932.57	4,822.24	3,519.26	2,493.07	1,798.58	1,026.89
25th	25,110.00	14,621.43	9,746.14	7,280.68	5,990.45	4,075.00	3,181.48	2,353.57	1,551.36	841.55
75th	51,001.92	21,322.71	14,323.64	10,292.55	8,001.20	6,020.69	4,097.88	2,751.10	1,951.65	1,225.61

Table J-20. Aluminum loads (lbs/d) by flow percentile for Muddy Creek (MYC0002/WM-1)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	13,716.82	7,649.63	4,186.17	3,305.81	2,202.30	1,406.64	1,192.29	796.55	622.59	322.59
Average	39,394.34	15,232.38	8,576.95	5,418.08	4,315.09	3,097.87	2,207.58	1,378.85	835.31	537.97
Maximum	140,210.13	33,702.42	33,076.62	10,811.87	12,302.42	12,156.60	7,561.00	3,499.86	1,407.69	2,309.62
Median	27,879.04	13,499.51	7,263.89	4,539.53	3,588.59	2,459.85	1,803.60	1,147.04	796.66	476.22
25th	20,710.89	10,063.32	5,803.94	3,810.95	2,970.26	1,799.90	1,490.28	1,077.60	704.89	391.96
75th	42,539.95	17,984.20	8,872.59	6,540.75	5,069.58	3,858.85	2,549.82	1,490.99	908.95	558.64

** These tables include upstream loads from Muddy Creek (MYC0018/WM-17).

Muddy Creek (MYC0018/WM-17) plots and tables

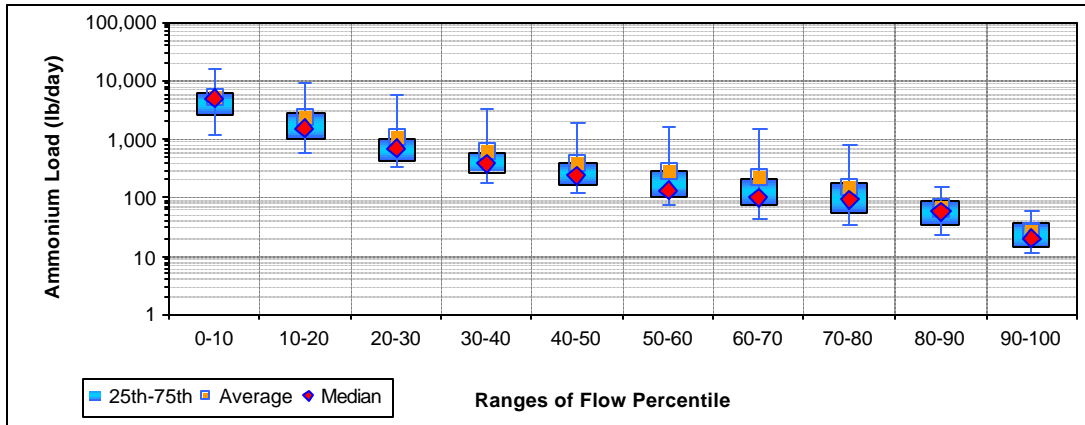


Figure J-21. Ammonium loads by flow percentile for Muddy Creek (MYC0018/WM-17)

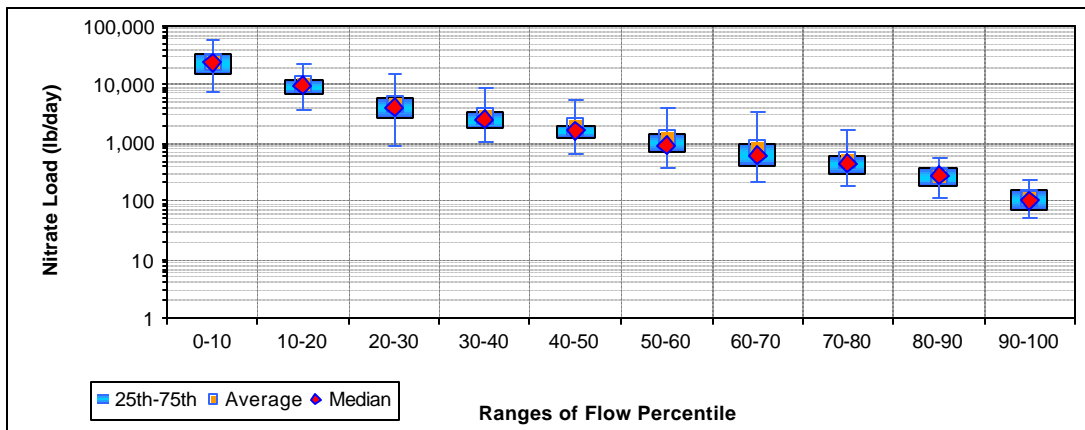


Figure J-22. Nitrate loads by flow percentile for Muddy Creek (MYC0018/WM-17)

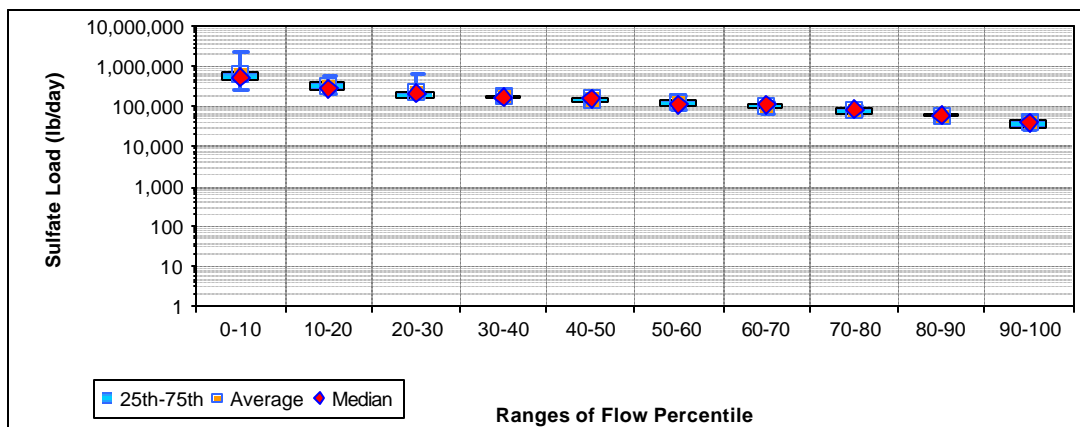


Figure J-23. Sulfate loads by flow percentile for Muddy Creek (MYC0018/WM-17)

** These plots include upstream loads from Ned Run (NED0005/WM-16).

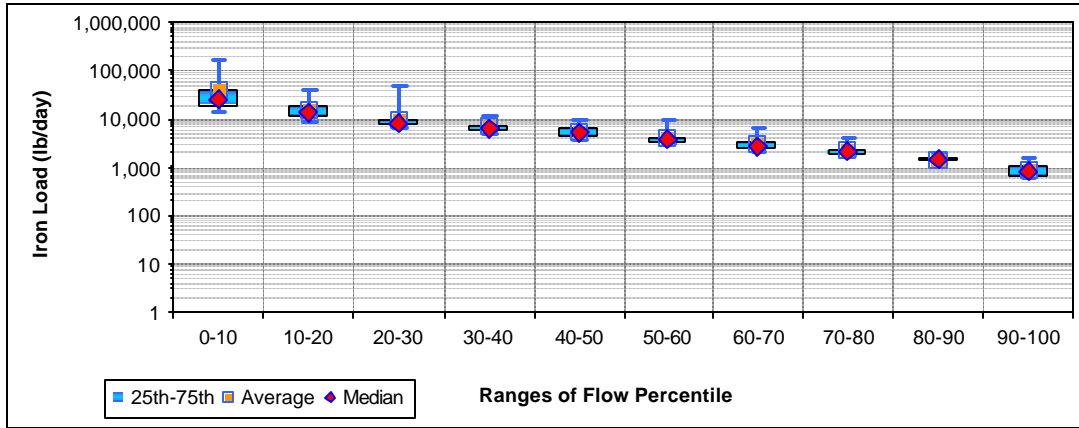


Figure J-24. Iron loads by flow percentile for Muddy Creek (MYC0018/WM-17)

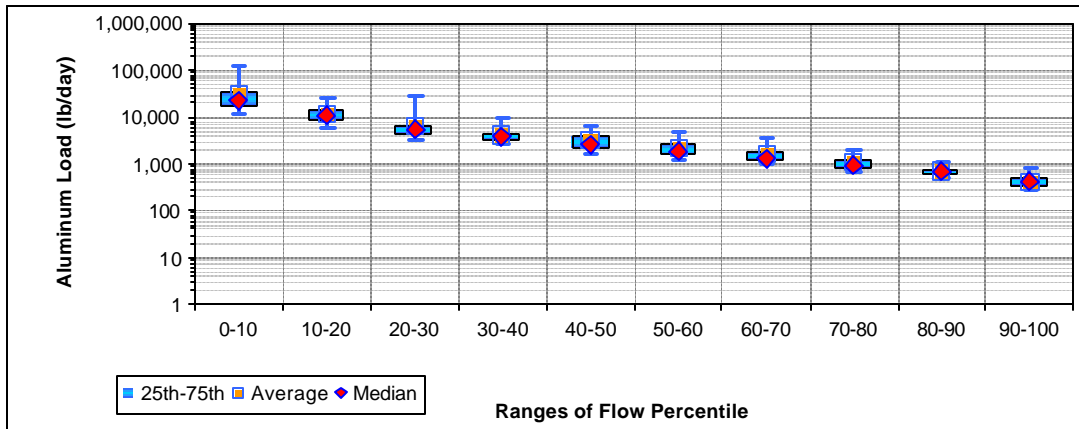


Figure J-25. Aluminum loads by flow percentile for Muddy Creek (MYC0018/WM-17)

** These plots include upstream loads from Ned Run (NED0005/WM-16).

Table J-21. Ammonium loads (lb/d) by flow percentile for Muddy Creek (MYC0018/WM-17)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	1,101.20	581.79	336.67	174.78	114.62	74.02	42.84	34.37	22.39	11.46
Average	5,404.89	2,524.27	1,049.83	657.29	397.90	298.83	214.87	150.55	64.52	26.49
Maximum	15,780.59	9,013.50	5,837.02	3,257.17	1,922.18	1,572.18	1,517.66	804.82	151.57	58.27
Median	4,943.66	1,494.13	673.27	378.96	246.55	136.61	102.94	92.64	57.75	19.98
25th	2,620.33	1,021.52	432.52	267.42	170.22	102.96	75.14	53.89	34.68	14.16
75th	6,299.30	2,828.24	978.45	610.92	398.71	298.11	200.01	178.80	86.54	36.78

Table J-22. Nitrate loads (lbs/d) by flow percentile for Muddy Creek (MYC0018/WM-17)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	6,991.13	3,553.08	920.01	1,087.25	663.80	374.25	225.22	181.29	117.63	51.85
Average	24,795.06	10,035.71	4,755.94	2,908.01	1,875.49	1,217.17	805.45	522.65	281.29	119.51
Maximum	55,136.44	23,234.39	14,216.53	8,898.31	5,385.79	4,062.93	3,225.72	1,602.95	570.41	234.86
Median	23,799.28	9,319.93	4,206.43	2,479.21	1,616.79	949.77	590.74	465.72	271.63	104.71
25th	14,917.69	6,807.82	2,750.58	1,789.11	1,203.54	700.19	384.46	285.36	184.08	69.99
75th	33,632.40	12,031.87	5,877.82	3,287.36	1,987.03	1,398.41	954.13	595.27	363.10	155.23

Table J-23. Sulfate loads (lbs/d) by flow percentile for Muddy Creek (MYC0018/WM-17)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	271,543.95	206,872.32	154,224.57	128,092.19	115,163.89	79,891.98	65,563.55	55,311.42	42,474.32	25,466.05
Average	697,063.86	338,526.17	236,009.18	182,757.22	152,228.73	121,373.07	104,113.14	80,457.61	62,752.27	38,766.75
Maximum	2,332,409.38	630,495.72	700,279.57	276,306.84	218,334.75	190,610.52	126,333.81	103,049.63	78,729.89	54,883.69
Median	544,982.15	298,340.53	207,806.75	182,349.05	149,744.29	120,285.63	109,522.86	82,453.97	62,720.23	38,487.10
25th	433,406.08	255,597.47	181,778.11	150,786.90	130,787.54	98,108.85	88,365.05	69,292.83	56,521.74	30,772.08
75th	751,486.35	381,294.86	244,243.16	200,002.72	164,899.21	138,788.73	117,994.61	90,201.78	70,330.92	45,023.75

Table J-24. Iron loads (lbs/d) by flow percentile for Muddy Creek (MYC0018/WM-17)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	14,174.88	8,771.79	6,123.57	5,094.72	3,823.27	2,921.39	1,987.77	1,711.99	1,077.35	564.59
Average	38,019.22	15,474.12	10,104.58	6,898.28	5,516.76	3,960.32	2,967.49	2,177.38	1,478.87	875.13
Maximum	170,599.53	38,869.98	51,274.11	11,559.98	9,748.59	9,918.06	6,489.01	4,190.37	1,908.77	1,606.10
Median	25,427.70	13,153.54	8,075.28	6,563.42	5,114.38	3,626.80	2,773.50	2,044.19	1,479.83	841.05
25th	19,980.64	11,375.14	7,497.44	5,745.33	4,590.93	3,153.90	2,523.48	1,876.58	1,314.61	691.25
75th	39,000.86	16,992.31	9,435.88	7,190.88	6,157.60	4,058.23	3,218.15	2,206.63	1,623.50	1,021.11

Table J-25. Aluminum loads (lbs/d) by flow percentile for Muddy Creek (MYC0018/WM-17)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	11,478.72	5,666.79	3,298.10	2,574.48	1,644.54	1,177.61	1,003.98	685.15	493.77	275.46
Average	31,144.11	12,364.42	6,705.49	4,284.55	3,111.53	2,212.81	1,598.31	1,077.13	700.68	417.82
Maximum	115,999.48	27,078.99	28,728.79	8,806.31	6,453.84	5,124.86	3,465.73	2,008.07	1,048.78	819.39
Median	22,667.45	10,505.29	5,280.91	3,616.84	2,671.39	1,825.41	1,347.84	954.11	708.18	403.69
25th	16,546.78	8,111.26	4,417.85	3,075.57	2,159.67	1,511.95	1,208.61	861.51	611.67	334.34
75th	33,381.74	14,727.87	6,534.72	4,656.00	3,743.43	2,550.43	1,884.68	1,232.08	765.13	476.16

** These tables include upstream loads from Ned Run (NED0005/WM-16).

Ned Run (NED0005/WM-16) plots and tables

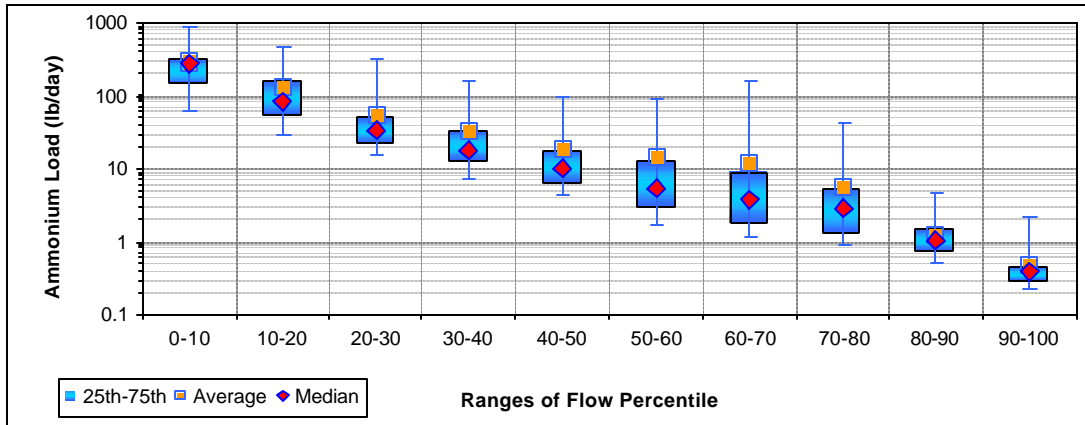


Figure J-. Ammonium loads by flow percentile for Ned Run (NED0005/WM-16)

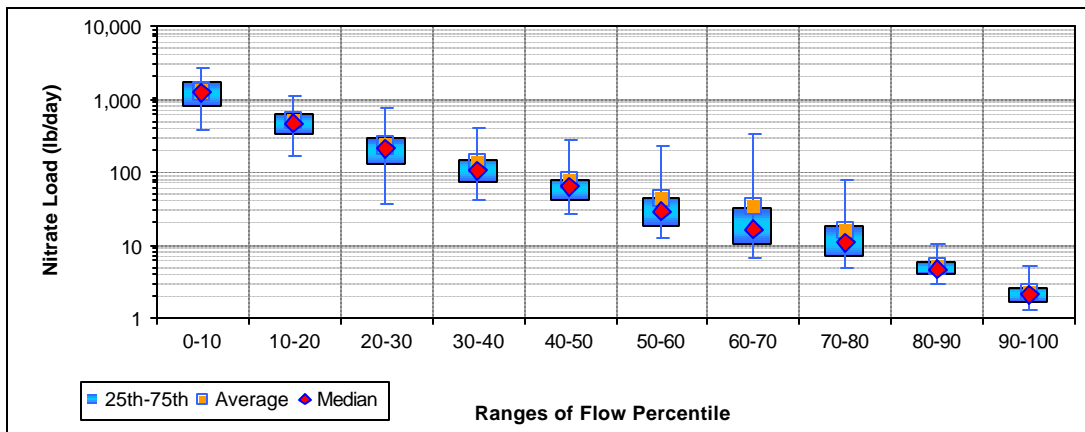


Figure J-1. Nitrate loads by flow percentile for Ned Run (NED0005/WM-16)

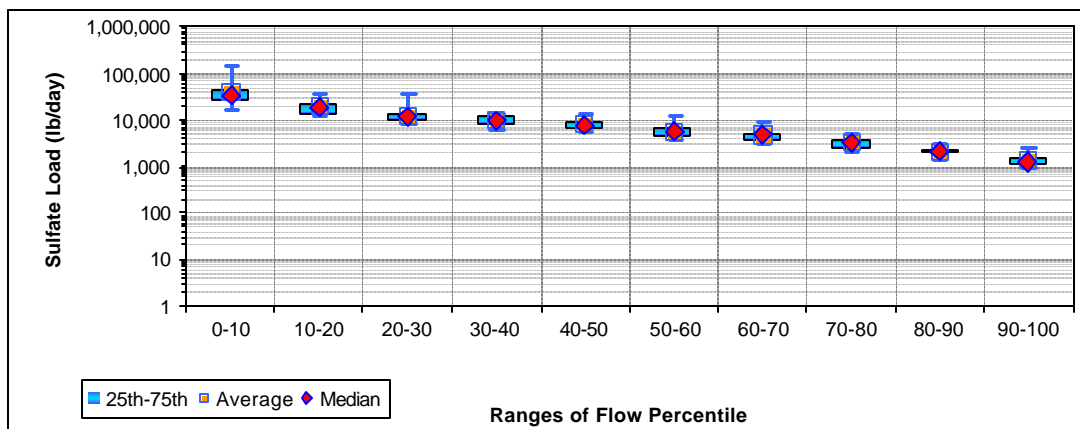


Figure J-2. Sulfate loads by flow percentile for Ned Run (NED0005/WM-16)

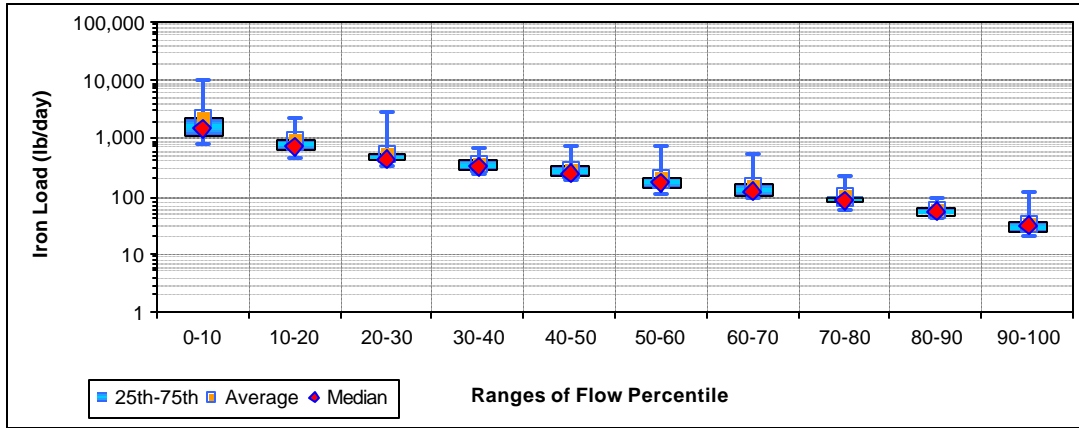


Figure J-3. Iron loads by flow percentile for Ned Run (NED0005/WM-16)

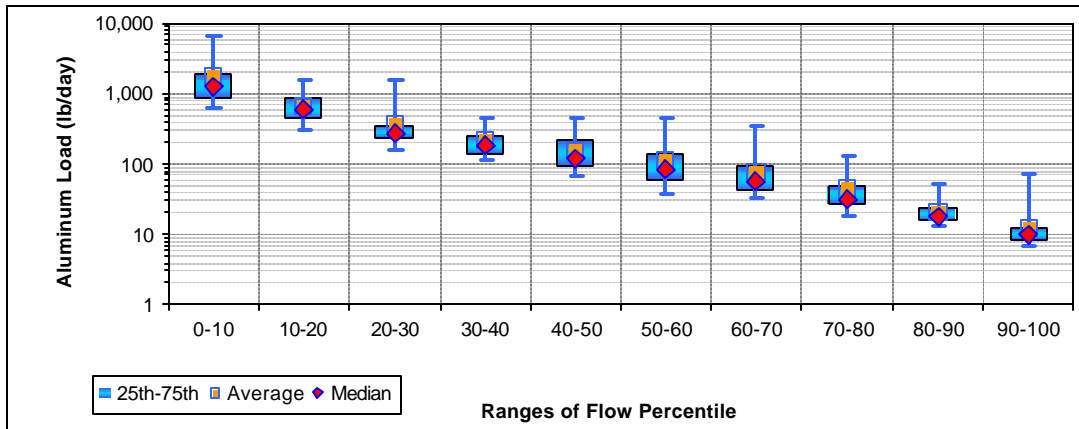


Figure J-4. Aluminum loads by flow percentile for Ned Run (NED0005/WM-16)

Table J-. Ammonium loads (lb/d) by flow percentile for Ned Run (NED0005/WM-16)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	60.57	28.40	16.00	7.04	4.16	1.75	1.14	0.85	0.49	0.23
Average	287.42	131.89	54.32	32.56	18.79	13.85	11.59	5.82	1.24	0.46
Maximum	829.90	460.03	320.38	161.46	96.91	92.06	164.89	40.47	4.39	2.13
Median	266.89	80.93	33.87	18.14	10.04	5.39	3.74	2.81	1.01	0.39
25th	141.33	54.33	22.28	12.54	6.52	3.04	1.83	1.31	0.75	0.30
75th	328.90	150.33	49.49	33.11	17.37	12.28	8.70	5.30	1.45	0.45

Table J-1. Nitrate loads (lbs/d) by flow percentile for Ned Run (NED0005/WM-16)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	363.17	171.10	35.83	41.14	27.69	12.20	6.56	4.90	2.91	1.24
Average	1,270.80	508.68	231.92	131.49	77.94	45.95	33.37	15.95	5.27	2.21
Maximum	2,682.78	1,118.75	732.50	419.20	276.80	220.54	331.91	78.45	10.57	5.32
Median	1,236.28	461.33	205.08	108.46	62.56	28.64	16.26	10.82	4.68	2.12
25th	807.31	329.10	128.59	75.80	43.28	17.81	10.49	6.81	3.95	1.68
75th	1,741.58	617.67	289.99	150.58	80.81	44.44	31.99	17.96	5.90	2.58

Table J-2. Sulfate loads (lbs/d) by flow percentile for Ned Run (NED0005/WM-16)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	15,928.78	11,516.20	7,801.44	6,340.54	5,694.78	3,567.45	2,994.73	1,910.73	1,360.13	947.89
Average	42,145.25	19,517.47	13,149.77	9,751.56	8,019.29	5,784.41	4,653.01	3,242.72	2,207.80	1,356.90
Maximum	145,582.77	37,472.81	38,617.49	14,466.70	14,385.05	11,205.12	8,839.52	5,020.28	3,061.14	2,598.70
Median	32,944.52	17,385.15	11,161.48	9,826.07	7,733.86	5,526.35	4,634.88	3,345.47	2,166.94	1,305.74
25th	25,665.60	14,497.15	10,038.91	7,833.58	6,628.28	4,396.87	3,700.80	2,626.76	1,951.31	1,108.73
75th	44,301.69	22,498.41	14,344.25	11,593.48	8,951.01	6,518.26	5,247.89	3,710.67	2,409.00	1,528.11

Table J-3. Iron loads (lbs/d) by flow percentile for Ned Run (NED0005/WM-16)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	794.63	472.99	316.29	242.89	186.75	114.96	88.62	59.40	40.71	20.48
Average	2,210.09	864.97	550.82	359.14	292.49	202.73	145.60	96.69	57.09	33.06
Maximum	10,353.74	2,244.27	2,767.75	669.50	706.28	728.88	547.69	237.51	90.09	116.44
Median	1,439.26	738.44	444.05	335.68	251.41	172.51	116.82	82.16	55.52	30.24
25th	1,111.73	627.66	406.81	289.79	223.08	143.93	101.87	78.25	48.58	25.05
75th	2,243.41	947.57	547.97	400.73	321.87	215.29	164.13	97.12	62.55	36.44

Table J-4. Aluminum loads (lbs/d) by flow percentile for Ned Run (NED0005/WM-16)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	623.85	301.97	161.66	111.87	67.47	36.77	31.95	18.25	13.60	7.11
Average	1,762.02	675.87	359.32	214.86	160.04	111.04	75.56	43.66	20.80	11.91
Maximum	6,674.53	1,536.26	1,586.78	462.98	462.84	449.64	347.48	125.98	52.14	71.17
Median	1,265.35	573.06	270.03	182.90	121.07	82.68	54.50	30.53	18.20	9.96
25th	910.22	433.57	223.51	142.57	95.74	57.32	40.77	27.24	15.74	8.44
75th	1,882.01	823.14	353.61	236.12	211.92	136.98	94.02	48.99	22.51	11.84

Toliver Run (TOL0001/WM-14) plots and tables

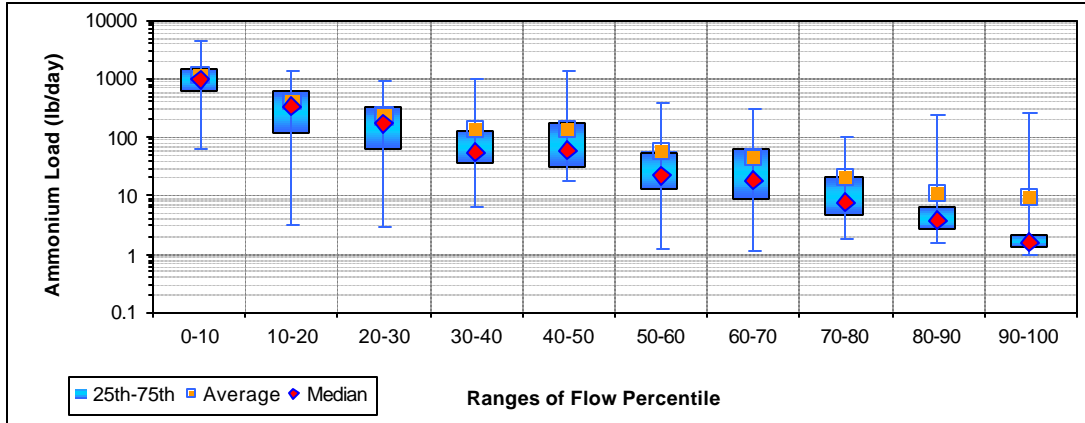


Figure J-31. Ammonium loads by flow percentile for Toliver Run (TOL0001/WM-14)

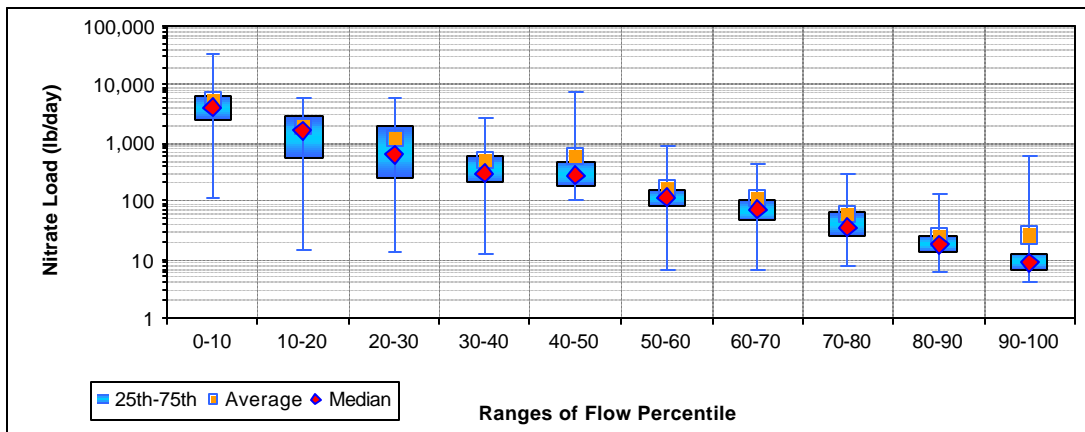


Figure J-32. Nitrate loads by flow percentile for Toliver Run (TOL0001/WM-14)

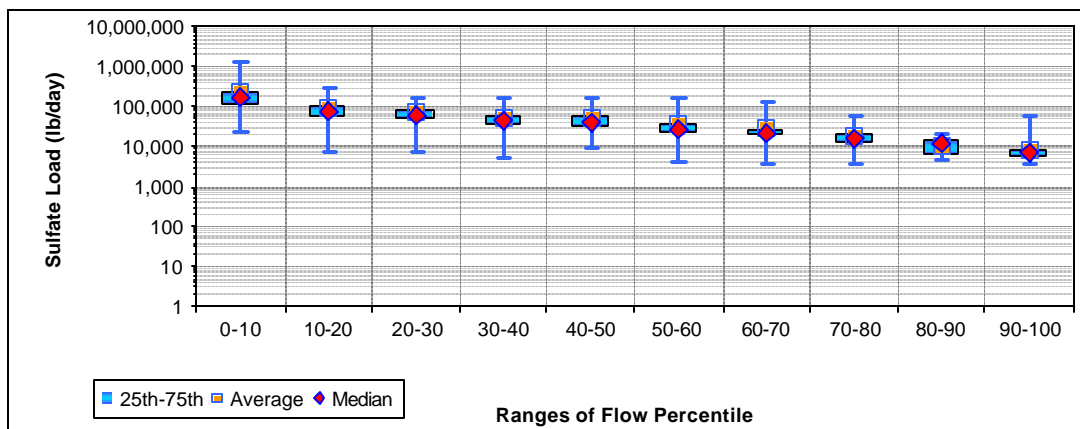


Figure J-33. Sulfate loads by flow percentile for Toliver Run (TOL0001/WM-14)

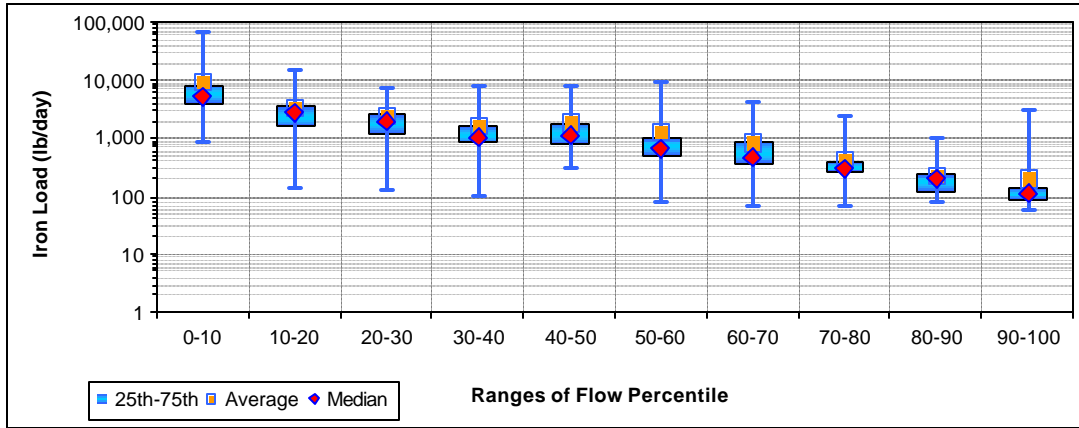


Figure J-34. Iron loads by flow percentile for Toliver Run (TOL0001/WM-14)

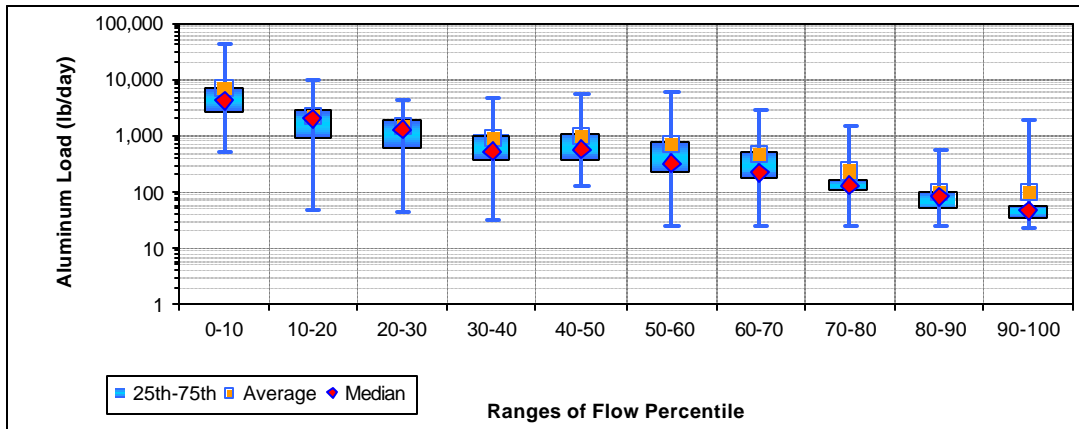


Figure J-35. Aluminum loads by flow percentile for Toliver Run (TOL0001/WM-14)

Table J-31. Ammonium loads (lb/d) by flow percentile for Toliver Run (TOL0001/WM-14)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	66.43	3.28	2.87	6.34	18.38	1.21	1.14	1.79	1.54	0.98
Average	1,145.38	410.64	233.46	144.51	144.01	58.16	45.00	20.29	11.16	9.56
Maximum	4,421.10	1,323.49	913.69	1,050.28	1,379.70	367.83	296.78	97.38	226.60	262.26
Median	970.41	333.95	172.85	56.63	58.38	21.44	17.91	7.85	3.66	1.64
25th	640.19	118.05	64.47	37.23	31.79	12.75	8.81	4.71	2.66	1.33
75th	1,503.52	621.62	335.40	130.23	180.06	53.89	63.88	20.17	6.20	2.20

Table J-32. Nitrate loads (lbs/d) by flow percentile for Toliver Run (TOL0001/WM-14)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	115.12	14.63	13.57	12.60	102.87	7.00	6.70	7.61	6.48	4.18
Average	5,597.26	1,972.61	1,190.09	531.49	594.21	172.47	116.64	62.43	23.79	27.17
Maximum	32,753.81	5,858.04	5,641.27	2,622.10	7,111.20	925.66	463.94	286.31	133.07	589.97
Median	4,018.36	1,608.71	624.51	298.46	281.23	115.66	72.06	35.76	19.03	9.13
25th	2,537.48	564.77	254.06	207.15	182.86	82.33	47.99	25.97	13.74	6.81
75th	6,290.92	2,943.16	2,055.86	597.86	498.68	151.60	99.98	64.31	24.63	12.94

Table J-33. Sulfate loads (lbs/d) by flow percentile for Toliver Run (TOL0001/WM-14)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	25,151.82	6,813.32	6,619.53	5,088.16	9,077.16	4,142.92	3,768.52	3,679.96	4,326.87	3,648.15
Average	237,531.50	88,147.09	71,672.98	49,917.80	51,869.65	36,861.25	29,724.19	16,944.71	10,876.51	8,638.51
Maximum	1,368,440.34	304,392.91	181,436.82	177,955.25	174,594.70	178,923.93	132,206.07	54,776.33	21,057.27	61,846.17
Median	168,099.90	77,033.09	61,843.01	43,077.98	41,815.79	27,367.20	22,772.90	16,411.54	11,868.80	7,197.22
25th	112,929.10	56,976.74	50,492.72	37,719.28	32,125.80	23,239.69	20,087.62	13,037.93	6,004.96	5,498.25
75th	246,076.71	106,650.78	85,037.00	53,461.00	54,728.25	38,073.06	27,063.76	18,783.64	14,148.45	8,799.65

Table J-34. Iron loads (lbs/d) by flow percentile for Toliver Run (TOL0001/WM-14)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	923.03	136.68	131.13	104.39	304.73	79.00	70.01	69.77	76.06	59.46
Average	9,522.35	3,255.05	2,376.10	1,569.73	1,782.91	1,247.65	814.83	439.86	227.75	194.91
Maximum	63,741.39	14,888.02	7,338.39	8,006.21	8,407.99	9,498.02	4,289.85	2,482.67	1,022.05	2,975.60
Median	5,376.11	2,705.44	1,948.38	1,050.60	1,076.09	652.70	462.41	302.99	196.46	112.32
25th	3,881.31	1,598.72	1,173.93	823.52	754.80	499.36	363.79	267.28	117.16	87.12
75th	8,163.14	3,476.93	2,570.99	1,628.61	1,829.15	1,037.95	923.69	391.39	240.05	142.22

Table J-35. Aluminum loads (lbs/d) by flow percentile for Toliver Run (TOL0001/WM-14)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	518.17	46.05	44.17	32.88	129.40	26.41	23.86	25.48	26.49	21.68
Average	7,005.95	2,246.96	1,487.56	902.95	984.34	710.50	473.08	228.57	100.66	96.72
Maximum	45,765.29	9,876.91	4,211.83	4,910.52	5,450.05	5,938.51	2,937.51	1,504.66	585.21	1,849.29
Median	4,160.58	2,051.03	1,285.08	511.01	584.18	315.65	225.38	133.91	81.85	46.25
25th	2,612.72	885.89	625.98	371.21	375.19	217.19	170.64	102.49	48.36	34.78
75th	7,157.06	2,817.63	1,882.54	1,032.73	1,149.76	776.70	516.81	167.61	99.64	57.33

Trap Run (TRR0007/BM930) plots and tables

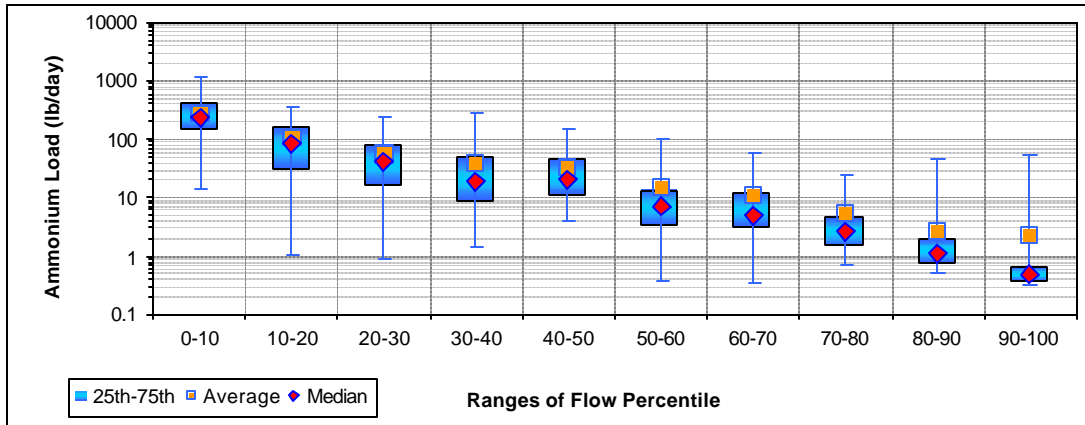


Figure J-36. Ammonium loads by flow percentile for Trap Run (TRR0007/BM930)

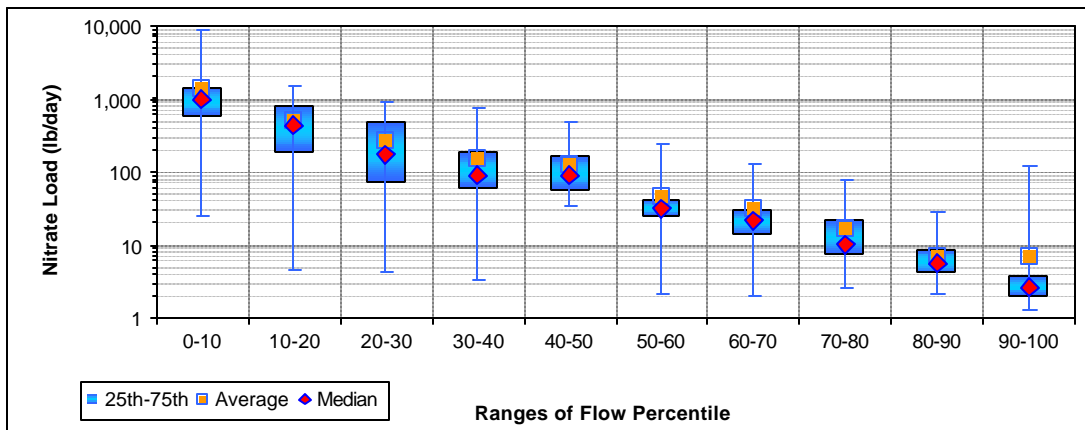


Figure J-37. Nitrate loads by flow percentile for Trap Run (TRR0007/BM930)

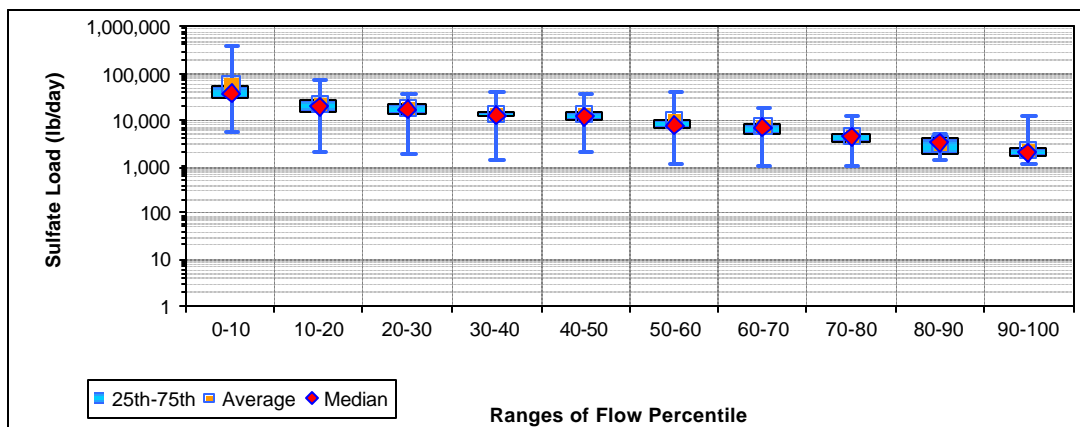


Figure J-38. Sulfate loads by flow percentile for Trap Run (TRR0007/BM930)

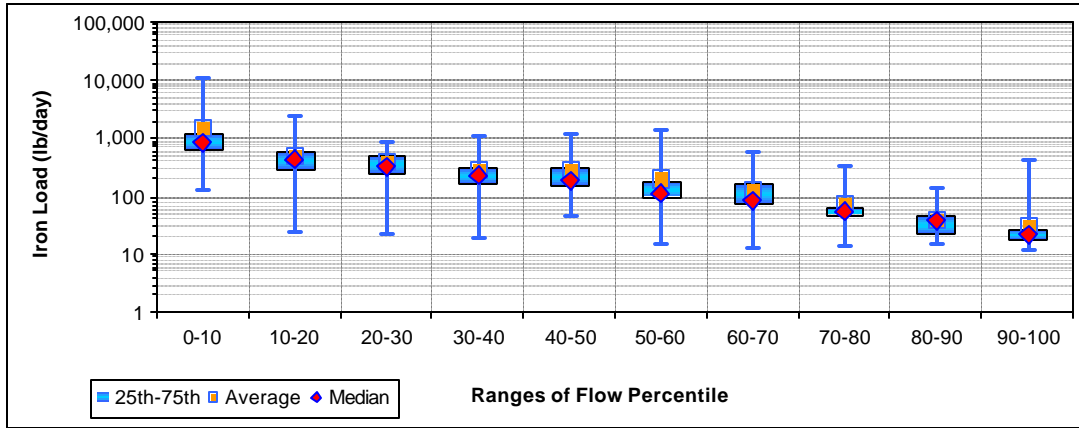


Figure J-39. Iron loads by flow percentile for Trap Run (TRR0007/BM930)

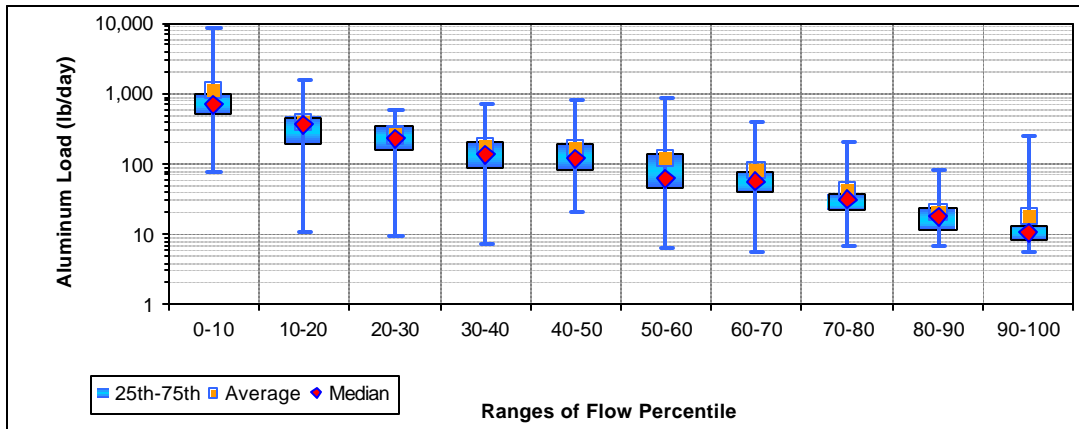


Figure J-40. Aluminum loads by flow percentile for Trap Run (TRR0007/BM930)

Table J-36. Ammonium loads (lb/d) by flow percentile for Trap Run (TRR0007/BM930)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	13.98	1.03	0.91	1.39	3.98	0.36	0.34	0.70	0.50	0.31
Average	288.40	107.98	57.74	39.11	32.90	15.09	10.85	5.32	2.70	2.32
Maximum	1,174.12	366.42	242.10	286.98	152.92	100.20	59.83	24.55	44.84	52.56
Median	223.30	86.96	42.30	19.86	20.15	6.88	5.13	2.56	1.10	0.48
25th	151.24	31.38	16.26	8.76	11.01	3.52	3.32	1.46	0.79	0.39
75th	416.03	158.14	76.93	48.67	44.46	13.27	11.34	4.76	2.05	0.62

Table J-37. Nitrate loads (lbs/d) by flow percentile for Trap Run (TRR0007/BM930)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	25.82	4.60	4.04	3.28	33.21	2.07	1.98	2.70	2.11	1.35
Average	1,430.56	526.29	282.18	154.67	128.90	47.65	31.30	17.16	6.92	7.08
Maximum	8,804.03	1,546.79	925.07	716.13	479.20	252.49	126.75	77.63	27.90	119.04
Median	984.98	429.85	178.17	87.20	87.60	32.73	22.05	10.46	5.55	2.63
25th	590.84	183.16	76.64	60.19	57.47	25.65	14.32	7.77	4.07	2.02
75th	1,414.16	798.58	484.46	182.09	163.47	41.17	30.16	21.29	8.71	3.67

Table J-38. Sulfate loads (lbs/d) by flow percentile for Trap Run (TRR0007/BM930)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	5,871.30	1,901.41	1,790.43	1,411.13	2,204.87	1,178.80	1,079.20	1,091.52	1,334.33	1,123.43
Average	57,250.88	22,212.48	18,487.01	14,043.02	13,314.39	9,446.81	7,238.19	4,454.37	3,014.05	2,349.59
Maximum	371,889.88	76,514.03	35,434.63	39,701.64	38,469.52	41,496.43	18,290.39	12,338.94	4,997.88	13,004.21
Median	37,791.84	19,558.28	16,721.58	12,207.27	11,367.46	7,346.71	6,620.87	4,475.54	3,254.80	2,026.41
25th	28,929.11	15,772.64	13,955.24	11,111.47	9,407.22	6,528.13	5,355.50	3,421.57	1,769.64	1,600.31
75th	53,682.01	26,314.58	21,736.36	15,215.66	14,976.74	9,318.61	8,154.38	5,306.12	3,833.73	2,591.12

Table J-39. Iron loads (lbs/d) by flow percentile for Trap Run (TRR0007/BM930)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	130.74	25.22	23.58	18.85	44.81	14.86	13.25	13.93	15.52	12.09
Average	1,473.47	515.90	383.14	278.39	279.39	198.37	132.69	71.11	39.40	31.98
Maximum	11,275.93	2,359.52	850.65	1,104.55	1,148.83	1,408.88	566.03	337.94	140.19	393.60
Median	830.03	432.15	331.35	229.14	186.84	111.83	87.19	55.92	37.04	21.23
25th	630.69	289.43	239.44	163.98	150.43	99.28	71.91	48.68	22.77	16.90
75th	1,203.38	583.05	494.65	296.14	314.78	175.05	157.12	63.55	43.97	26.81

Table J-40. Aluminum loads (lbs/d) by flow percentile for Trap Run (TRR0007/BM930)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	74.50	10.39	9.65	7.31	19.81	6.09	5.56	6.46	6.70	5.51
Average	1,140.71	383.17	258.45	178.71	168.97	121.72	83.34	40.82	20.44	17.61
Maximum	8,185.70	1,616.24	587.80	695.50	771.38	890.28	398.73	208.97	84.60	245.93
Median	704.94	371.26	234.67	136.71	117.52	63.99	54.08	30.30	18.18	10.80
25th	522.94	195.59	160.87	89.71	83.59	46.70	39.51	21.53	11.24	8.33
75th	1,026.35	472.26	346.22	198.37	186.52	135.58	80.16	36.22	22.83	13.52

UT to Bear Creek (ZWI0000/WM-21) plots and tables

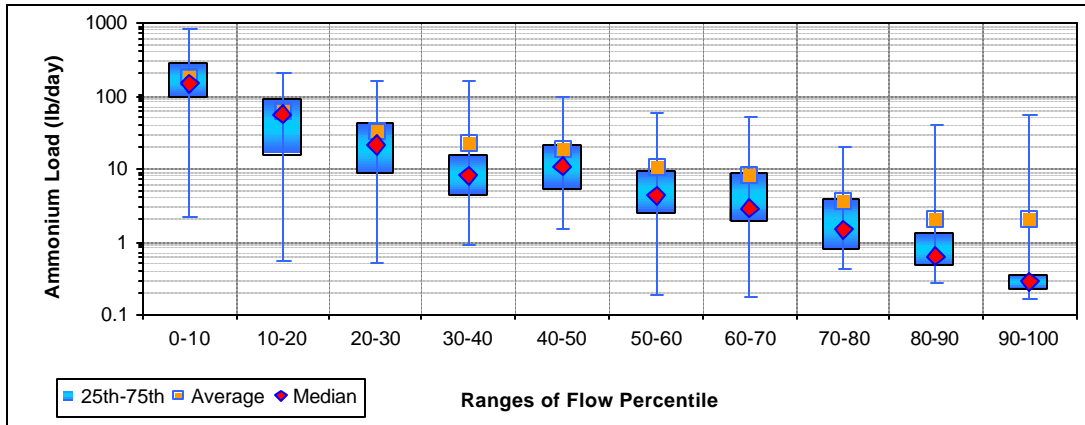


Figure J-41. Ammonium loads by flow percentile for UT to Bear Creek (ZWI0000/WM-21)

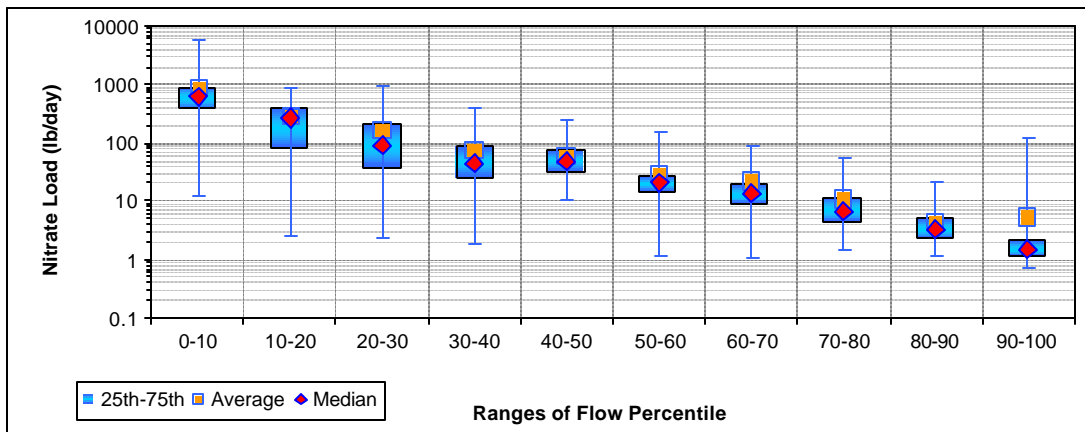


Figure J-42. Nitrate loads by flow percentile for UT to Bear Creek (ZWI0000/WM-21)

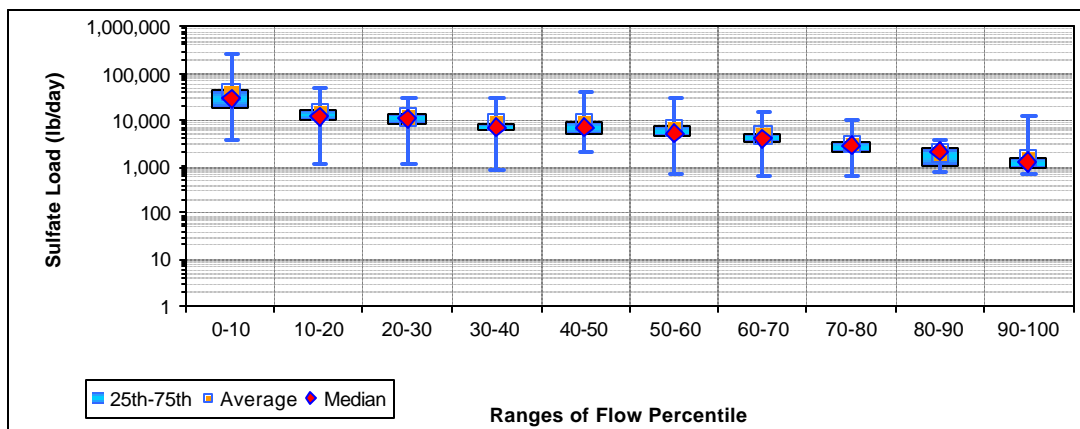


Figure J-43. Sulfate loads by flow percentile for UT to Bear Creek (ZWI0000/WM-21)

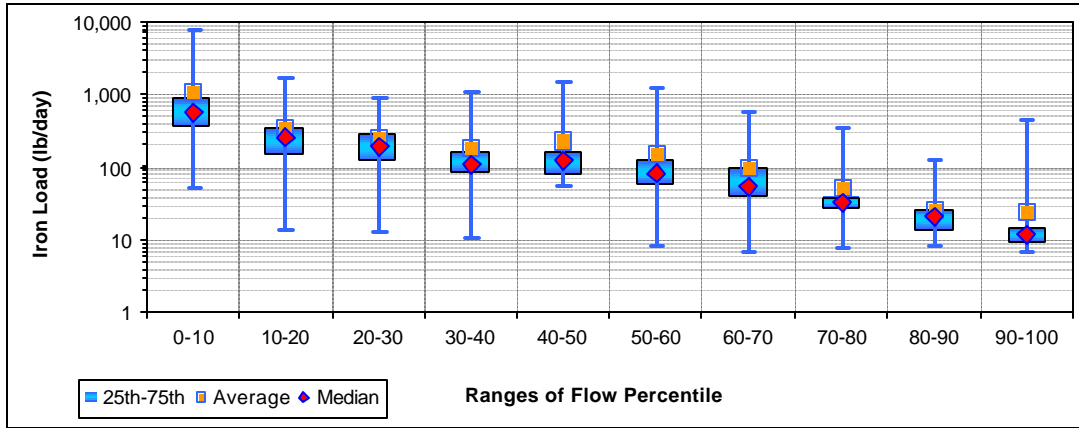


Figure J-44. Iron loads by flow percentile for UT to Bear Creek (ZWI0000/WM-21)

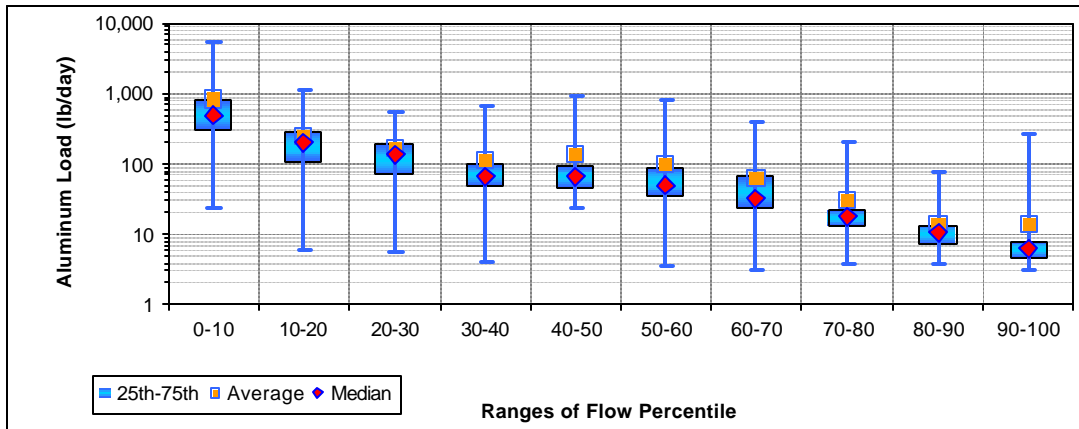


Figure J-45. Aluminum loads by flow percentile for UT to Bear Creek (ZWI0000/WM-21)

Table J-41. Ammonium loads (lb/d) by flow percentile for UT to Bear Creek (ZWI0000/WM-21)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	2.10	0.55	0.49	0.87	1.42	0.19	0.18	0.41	0.27	0.17
Average	178.95	61.87	32.79	21.72	18.39	10.36	7.95	3.65	2.07	1.98
Maximum	793.28	200.23	153.01	164.38	96.00	57.48	53.28	19.33	38.65	54.25
Median	143.88	56.21	20.66	7.82	10.31	4.17	2.91	1.47	0.62	0.27
25th	97.21	16.13	8.57	4.38	5.37	2.48	1.89	0.79	0.45	0.22
75th	265.83	91.99	42.37	14.69	21.51	9.32	8.57	3.83	1.30	0.35

Table J-42. Nitrate loads (lbs/d) by flow percentile for UT to Bear Creek (ZWI0000/WM-21)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	12.43	2.46	2.23	1.84	9.96	1.10	1.05	1.51	1.11	0.72
Average	879.61	291.67	160.59	72.68	60.42	30.09	21.59	11.02	4.44	5.40
Maximum	5,620.51	897.19	989.27	414.11	247.89	146.21	88.23	56.37	22.77	120.60
Median	647.36	271.35	91.76	46.41	47.00	19.99	13.37	6.48	3.19	1.50
25th	379.78	80.16	35.86	24.85	30.74	14.91	8.80	4.41	2.36	1.10
75th	867.51	423.20	217.51	85.11	72.30	27.60	19.13	11.76	4.81	2.07

Table J-43. Sulfate loads (lbs/d) by flow percentile for UT to Bear Creek (ZWI0000/WM-21)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	3,656.40	1,146.76	1,109.39	837.06	1,964.86	689.11	626.66	634.52	770.07	655.84
Average	41,473.73	14,522.49	11,703.32	8,589.59	9,171.26	6,615.80	4,805.04	2,971.02	1,902.35	1,520.02
Maximum	253,907.63	49,403.75	31,735.24	30,762.24	41,696.89	32,148.94	15,265.94	9,771.69	3,578.85	11,978.61
Median	28,222.99	12,055.77	10,197.75	6,980.94	6,663.33	5,315.36	3,984.94	2,893.70	2,043.07	1,207.90
25th	18,450.47	9,488.17	8,081.78	6,142.28	5,354.71	4,326.63	3,402.71	2,197.81	1,077.78	940.66
75th	42,927.49	17,169.89	14,478.77	8,331.03	8,983.75	7,121.53	4,571.09	3,271.32	2,452.33	1,554.99

Table J-44. Iron loads (lbs/d) by flow percentile for UT to Bear Creek (ZWI0000/WM-21)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	51.09	14.16	13.49	10.63	53.31	8.12	7.19	7.66	8.51	6.82
Average	1,085.09	349.70	251.88	181.49	224.00	156.89	99.55	52.91	26.37	24.45
Maximum	7,886.40	1,721.16	905.23	1,047.64	1,530.96	1,283.34	570.12	337.10	130.04	446.52
Median	574.14	251.10	189.60	106.15	118.98	82.06	53.63	32.83	21.27	11.92
25th	360.85	157.92	125.35	87.68	79.71	57.87	40.14	28.40	14.14	9.45
75th	883.05	351.63	290.88	159.48	159.04	120.85	97.71	39.41	25.62	15.00

Table J-45. Aluminum loads (lbs/d) by flow percentile for UT to Bear Creek (ZWI0000/WM-21)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	22.98	5.92	5.66	4.14	23.57	3.39	3.08	3.57	3.72	3.13
Average	814.82	247.48	171.04	115.49	133.61	99.21	63.98	30.98	13.89	14.03
Maximum	5,699.82	1,142.55	554.65	659.88	925.06	808.41	397.88	208.86	79.51	280.31
Median	482.66	207.60	130.48	64.29	66.11	48.46	33.02	18.15	10.73	6.18
25th	301.90	103.97	70.21	49.11	45.29	33.72	24.59	13.78	7.32	4.75
75th	782.70	290.20	195.34	100.45	92.85	86.41	65.12	21.19	13.77	7.73

UT to Little Bear Creek (ZWL0005/WM-22) plots and tables

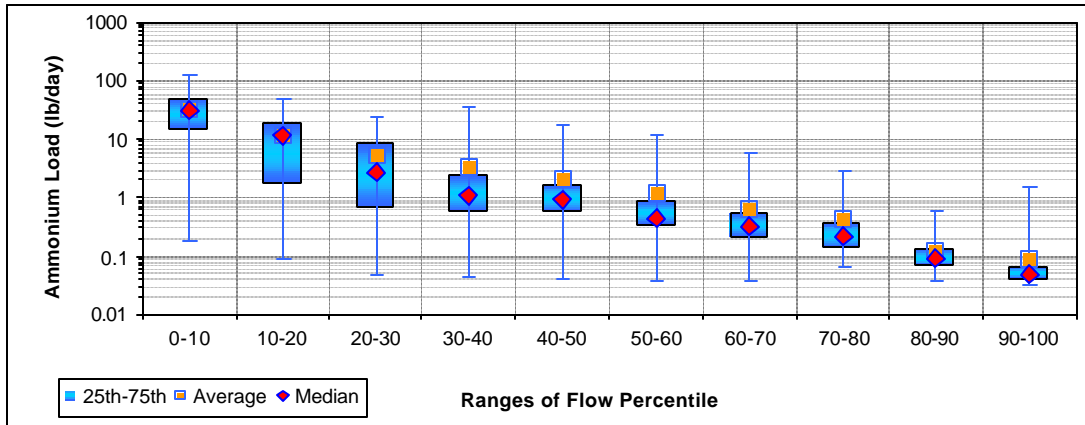


Figure J-46. Ammonium loads by flow percentile for UT to Little Bear Creek (ZWL0005/WM-22)

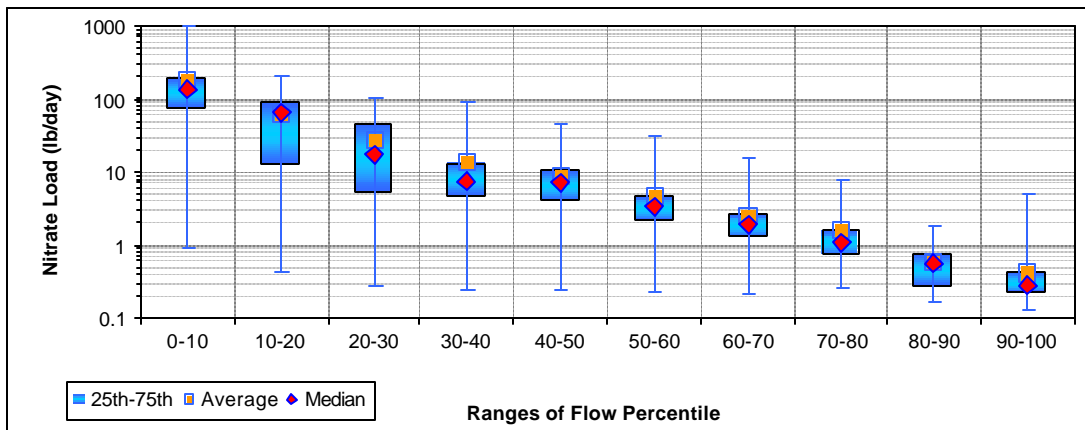


Figure J-47. Nitrate loads by flow percentile for UT to Little Bear Creek (ZWL0005/WM-22)

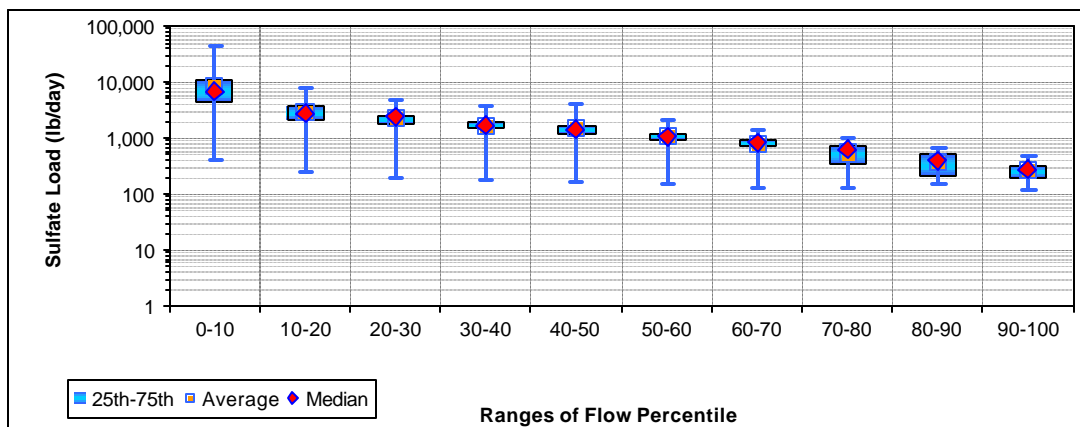


Figure J-48. Sulfate loads by flow percentile for UT to Little Bear Creek (ZWL0005/WM-22)

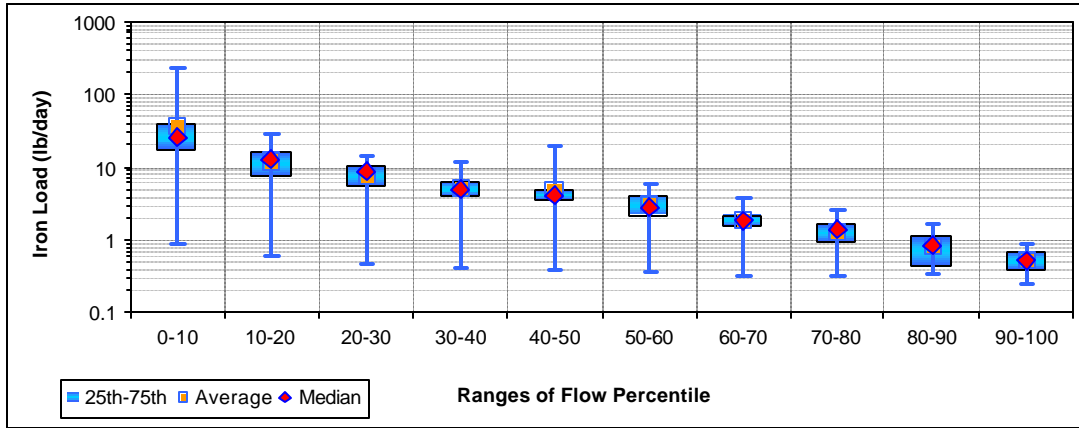


Figure J-49. Iron loads by flow percentile for UT to Little Bear Creek (ZWL0005/WM-22)

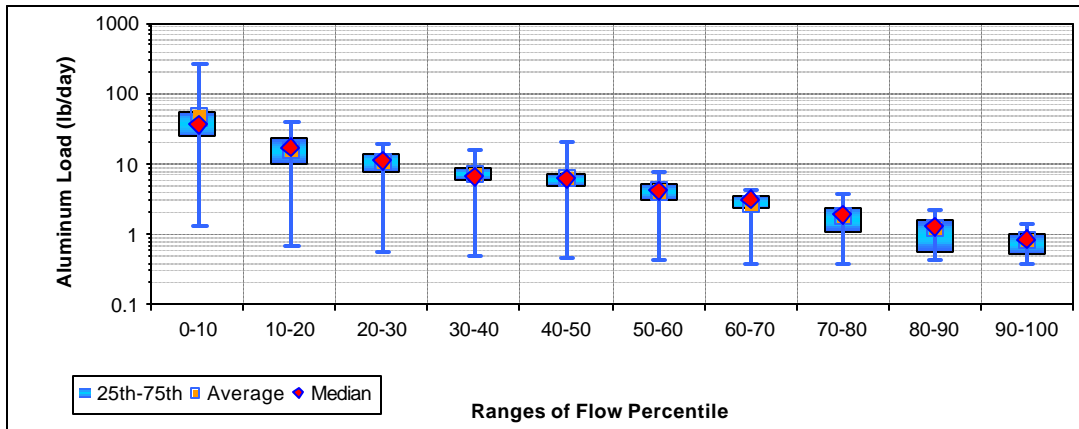


Figure J-50. Aluminum loads by flow percentile for UT to Little Bear Creek (ZWL0005/WM-22)

Table J-46. Ammonium loads (lb/d) by flow percentile for UT to Little Bear Creek (ZWL0005/WM-22)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	0.18	0.09	0.05	0.04	0.04	0.04	0.03	0.06	0.04	0.03
Average	34.14	11.93	5.12	3.36	2.12	1.19	0.62	0.43	0.12	0.09
Maximum	129.84	45.51	24.71	34.80	17.25	12.05	5.96	2.96	0.56	1.59
Median	29.86	11.34	2.77	1.12	0.97	0.44	0.32	0.22	0.09	0.05
25th	14.79	1.73	0.71	0.58	0.56	0.34	0.22	0.13	0.07	0.04
75th	48.72	18.38	8.35	2.45	1.71	0.90	0.52	0.39	0.13	0.06

Table J-47. Nitrate loads (lbs/d) by flow percentile for UT to Little Bear Creek (ZWL0005/WM-22)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	0.91	0.44	0.28	0.25	0.24	0.22	0.21	0.26	0.17	0.13
Average	177.36	61.09	27.82	13.89	9.17	4.73	2.55	1.62	0.59	0.43
Maximum	992.24	200.34	100.02	90.38	45.60	31.79	15.94	8.08	1.77	5.10
Median	138.41	64.88	17.48	7.74	7.25	3.38	1.93	1.08	0.54	0.28
25th	77.05	12.76	5.44	4.68	4.13	2.12	1.27	0.72	0.27	0.22
75th	196.37	92.12	47.38	13.44	10.48	4.84	2.73	1.64	0.75	0.40

Table J-48. Sulfate loads (lbs/d) by flow percentile for UT to Little Bear Creek (ZWL0005/WM-22)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	404.51	250.44	198.97	180.28	171.48	153.23	138.83	132.86	160.39	126.96
Average	8,552.17	3,085.32	2,333.06	1,675.72	1,569.47	1,085.30	775.24	565.20	389.13	274.77
Maximum	45,130.59	8,085.71	4,827.93	3,680.04	4,110.76	2,136.49	1,415.05	977.60	704.06	463.96
Median	6,938.35	2,927.94	2,402.19	1,691.44	1,465.49	1,041.23	845.03	629.33	423.30	276.31
25th	4,266.52	2,081.08	1,870.45	1,541.67	1,286.35	932.14	748.00	353.39	205.50	195.90
75th	10,724.89	3,920.74	2,717.16	1,904.73	1,660.36	1,262.65	942.50	726.31	528.30	338.07

Table J-49. Iron loads (lbs/d) by flow percentile for UT to Little Bear Creek (ZWL0005/WM-22)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	0.89	0.59	0.47	0.42	0.40	0.35	0.31	0.31	0.33	0.25
Average	36.42	12.04	7.74	5.28	4.82	3.06	1.83	1.31	0.81	0.52
Maximum	232.05	28.96	14.28	11.24	18.84	5.83	3.77	2.65	1.64	0.86
Median	25.99	12.63	8.53	4.97	4.23	2.78	1.82	1.38	0.85	0.51
25th	17.20	7.87	5.33	4.05	3.56	2.19	1.52	0.94	0.45	0.39
75th	39.53	16.25	10.12	6.23	4.86	4.09	2.21	1.60	1.08	0.67

Table J-50. Aluminum loads (lbs/d) by flow percentile for UT to Little Bear Creek (ZWL0005/WM-22)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	1.26	0.71	0.55	0.50	0.47	0.43	0.39	0.39	0.44	0.36
Average	47.67	16.21	10.54	7.18	6.37	4.08	2.67	1.80	1.16	0.84
Maximum	253.88	38.42	18.73	16.46	20.03	7.54	4.41	3.68	2.20	1.43
Median	37.27	16.82	11.40	6.69	6.16	4.01	2.99	1.91	1.27	0.86
25th	24.46	10.19	7.88	5.82	4.92	3.09	2.26	1.07	0.56	0.53
75th	56.36	22.94	13.84	8.81	6.97	5.20	3.44	2.45	1.65	0.99

UT to Mill Run (ZWH0000/WM-26) plots and tables

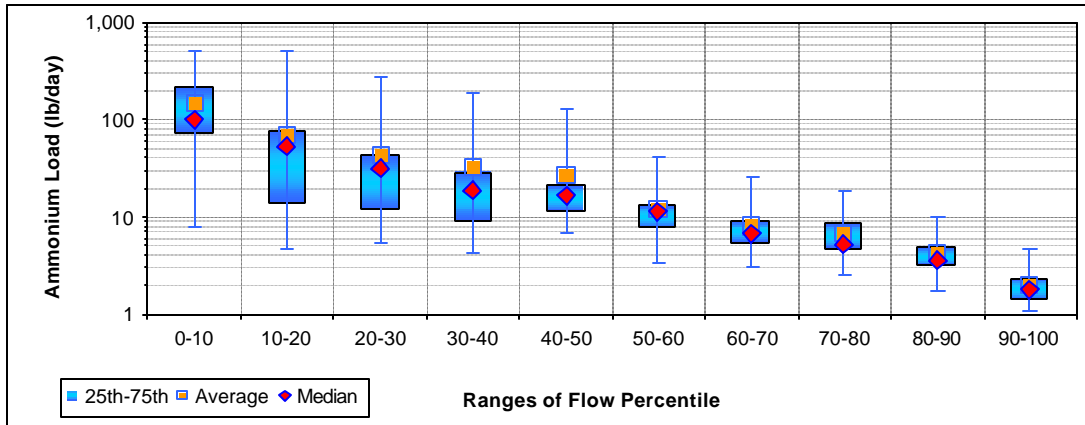


Figure J-51. Ammonium loads by flow percentile for UT to Mill Run (ZWH0000/WM-26)

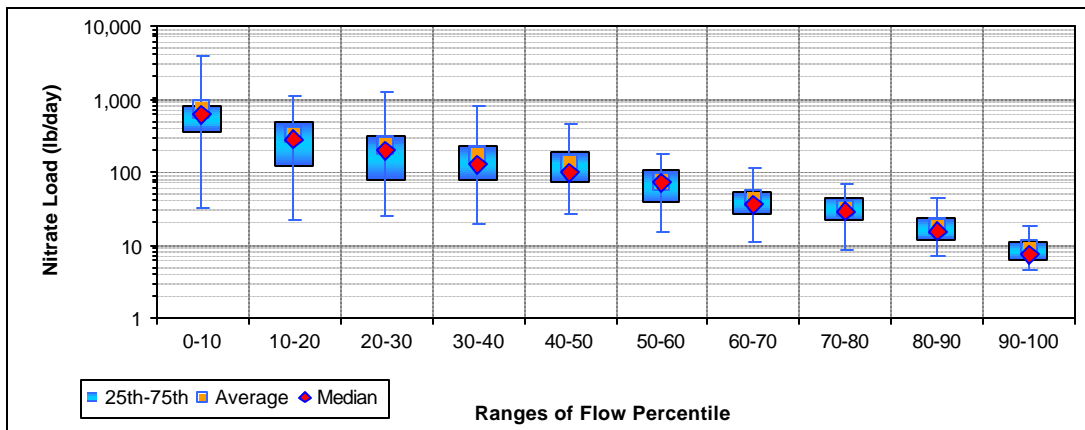


Figure J-52. Nitrate loads by flow percentile for UT to Mill Run (ZWH0000/WM-26)

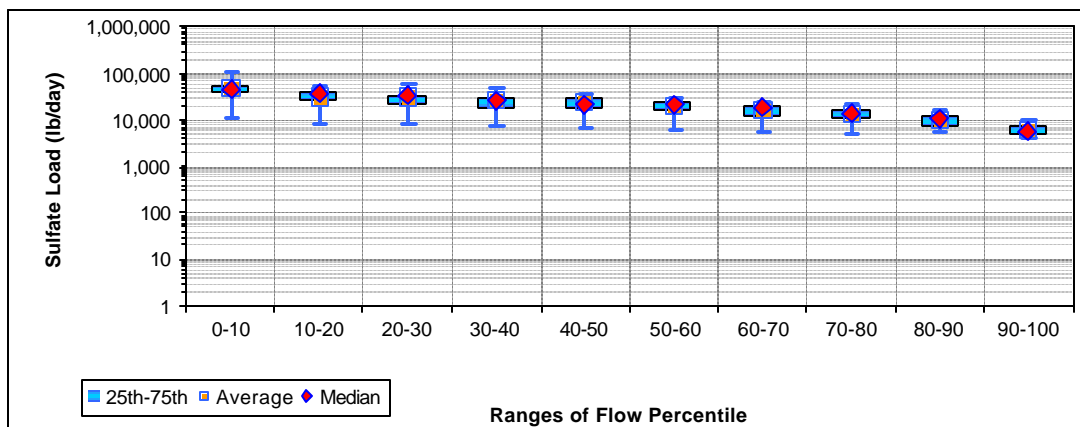


Figure J-53. Sulfate loads by flow percentile for UT to Mill Run (ZWH0000/WM-26)

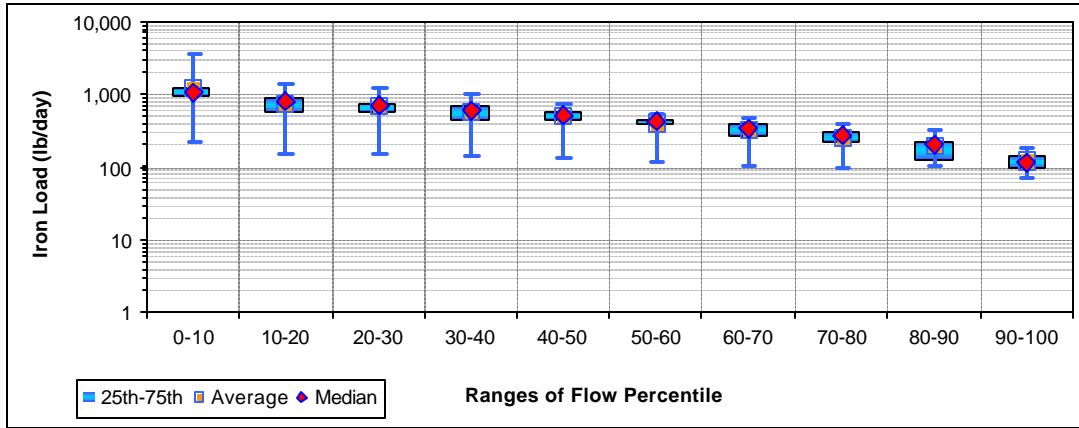


Figure J-54. Iron loads by flow percentile for UT to Mill Run (ZWH0000/WM-26)

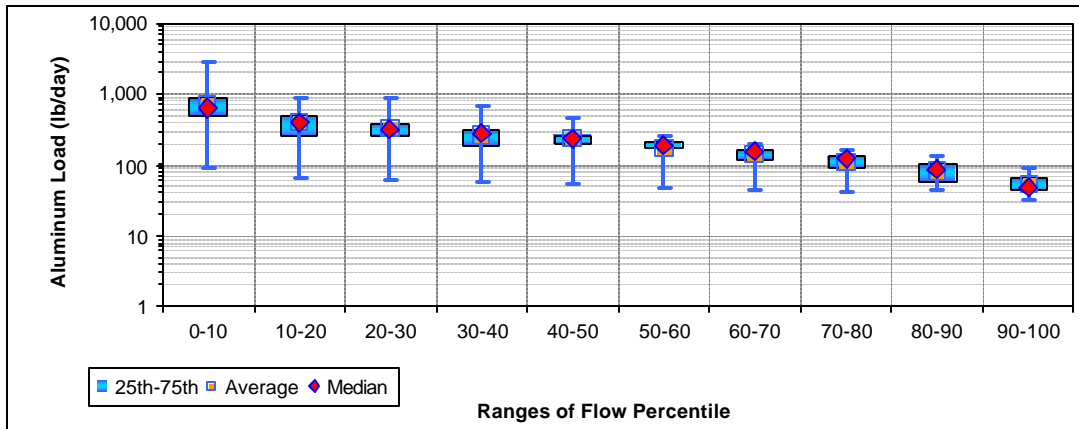


Figure J-55. Aluminum loads by flow percentile for UT to Mill Run (ZWH0000/WM-26)

Table J-51. Ammonium loads (lb/d) by flow percentile for UT to Mill Run (ZWH0000/WM-26)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	8.19	4.61	5.43	4.31	6.71	3.34	3.01	2.59	1.71	1.11
Average	143.88	70.50	43.46	33.41	26.90	11.93	8.06	6.93	4.31	1.95
Maximum	498.08	496.89	282.47	191.22	127.34	41.32	25.95	17.93	10.18	4.60
Median	100.83	53.47	31.21	18.88	16.35	11.31	6.86	5.31	3.54	1.80
25th	75.77	14.29	11.87	9.13	11.20	7.73	5.44	4.72	3.10	1.43
75th	216.23	76.12	43.27	28.47	21.55	13.28	9.00	8.97	4.85	2.33

Table J-52. Nitrate loads (lbs/d) by flow percentile for UT to Mill Run (ZWH0000/WM-26)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	31.34	21.40	25.01	19.43	26.91	15.48	10.62	8.49	7.06	4.63
Average	738.94	329.16	231.94	171.84	140.32	77.28	44.46	32.29	18.62	8.93
Maximum	3,756.57	1,082.95	1,191.99	833.08	453.13	173.27	114.48	68.87	44.38	17.83
Median	613.05	273.44	194.20	125.20	100.48	70.33	35.67	28.32	15.44	7.40
25th	359.19	120.96	81.32	81.83	74.96	38.14	27.10	21.30	11.74	6.06
75th	842.10	497.24	316.25	220.31	186.01	106.29	54.15	45.29	22.91	11.06

Table J-53. Sulfate loads (lbs/d) by flow percentile for UT to Mill Run (ZWH0000/WM-26)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	10,996.79	8,288.03	7,944.95	7,404.27	7,001.64	6,171.78	5,570.03	5,157.18	5,527.69	4,026.12
Average	47,838.31	32,109.93	30,020.36	26,176.23	23,264.13	19,544.25	15,891.76	13,372.09	9,980.41	6,230.67
Maximum	111,528.73	50,524.80	58,885.33	50,149.90	38,396.75	27,196.96	23,191.18	20,895.13	16,995.40	9,957.49
Median	46,175.44	36,495.82	33,460.61	26,859.76	21,968.09	20,711.76	17,444.80	14,115.88	10,333.19	5,794.41
25th	41,906.76	25,333.80	22,162.81	18,441.73	18,481.16	16,974.75	12,236.61	10,880.75	7,279.68	4,837.65
75th	52,677.24	39,602.51	34,736.08	31,987.38	28,618.45	22,891.23	19,516.68	15,943.21	11,965.87	7,486.52

Table J-54. Iron loads (lbs/d) by flow percentile for UT to Mill Run (ZWH0000/WM-26)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	221.74	157.08	151.59	142.15	136.02	116.67	105.29	96.39	101.74	74.57
Average	1,175.94	750.29	670.90	572.30	515.71	404.17	320.06	261.73	190.94	122.57
Maximum	3,557.62	1,432.87	1,238.99	1,001.61	772.43	533.40	471.05	408.71	332.26	185.97
Median	1,066.63	823.71	708.71	610.37	510.89	418.53	337.58	273.53	198.85	113.97
25th	948.02	578.81	557.54	443.01	465.30	374.80	269.21	224.54	133.08	99.13
75th	1,219.14	889.63	758.00	675.13	587.04	467.94	376.47	304.09	231.42	146.85

Table J-55. Aluminum loads (lbs/d) by flow percentile for UT to Mill Run (ZWH0000/WM-26)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	94.08	63.29	61.12	57.22	55.25	47.04	42.45	39.20	44.24	32.07
Average	730.95	398.97	326.07	269.04	236.33	179.04	140.32	111.82	81.94	53.24
Maximum	2,893.06	924.98	883.74	671.78	436.47	263.93	192.57	162.05	131.19	90.80
Median	633.61	395.17	322.68	271.46	235.24	184.63	153.31	121.83	86.57	48.81
25th	490.27	254.85	248.02	183.16	196.77	171.69	115.36	93.57	57.40	42.19
75th	834.41	495.02	375.25	320.17	265.58	204.88	166.80	132.33	100.31	65.20

White Rock Glade (WRG0003/BM933) plots and tables

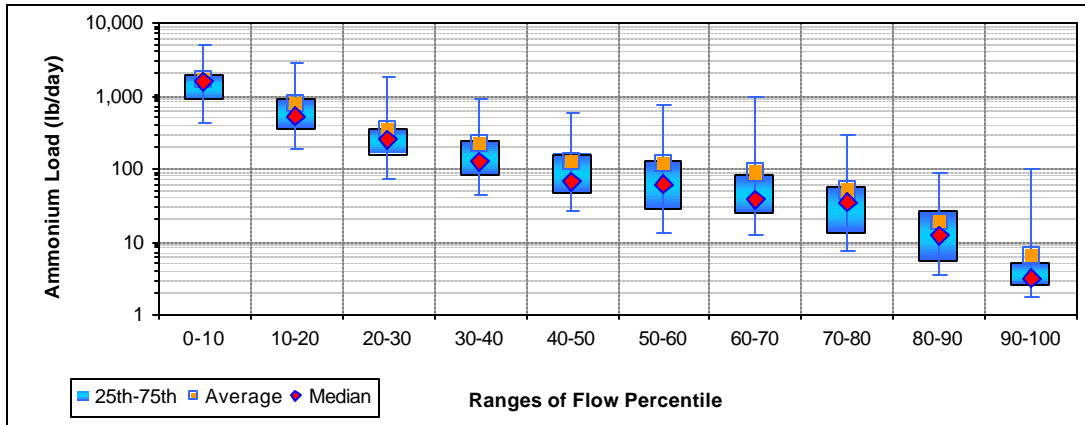


Figure J-56. Ammonium loads by flow percentile for White Rock Glade (WRG0003/BM933)

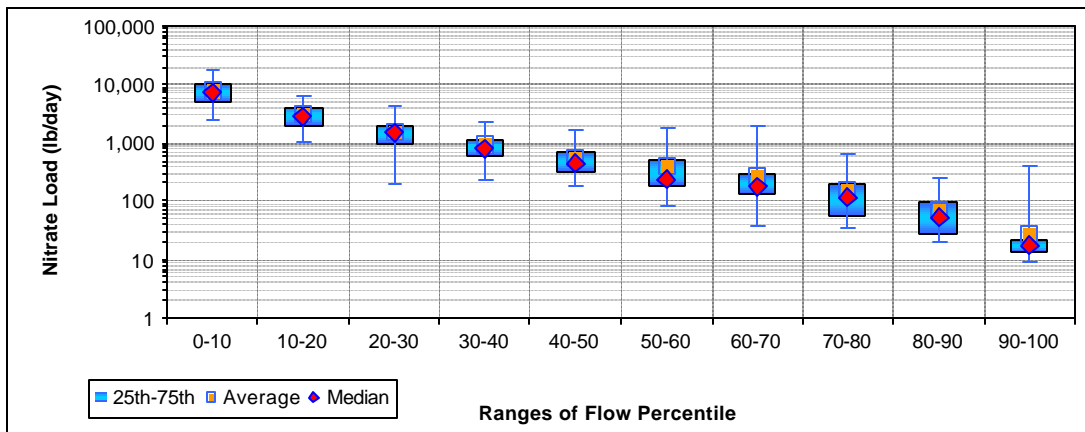


Figure J-57. Nitrate loads by flow percentile for White Rock Glade (WRG0003/BM933)

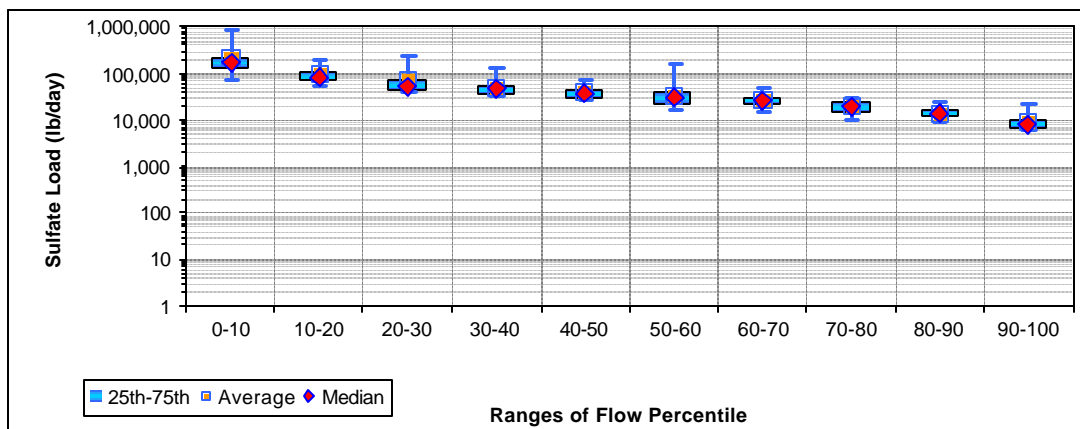


Figure J-58. Sulfate loads by flow percentile for White Rock Glade (WRG0003/BM933)

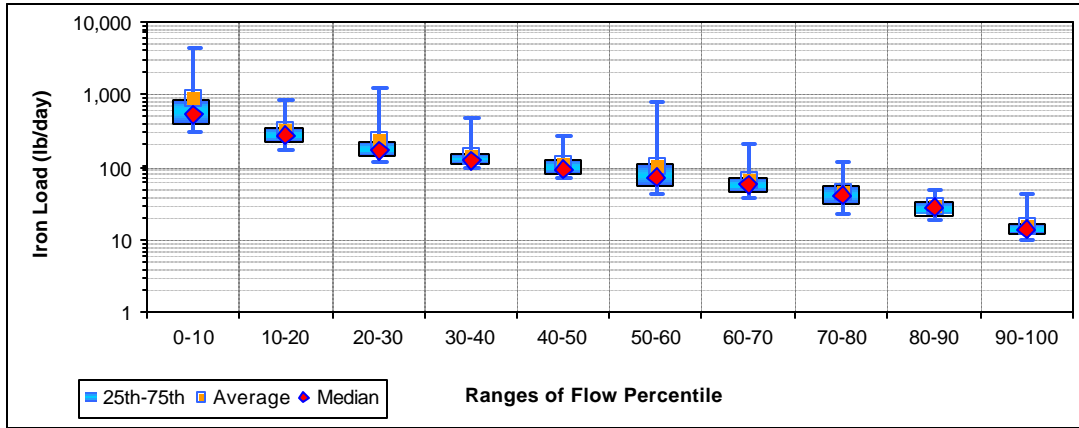


Figure J-59. Iron loads by flow percentile for White Rock Glade (WRG0003/BM933)

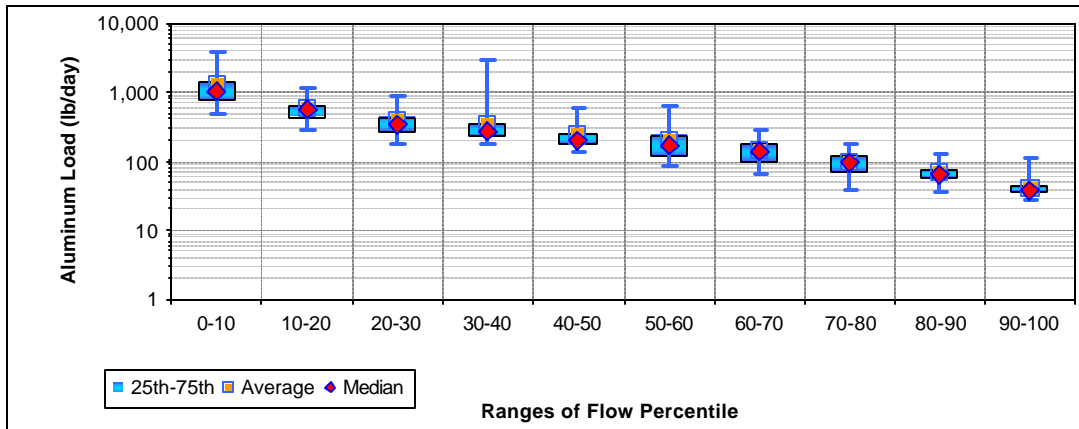


Figure J-60. Aluminum loads by flow percentile for White Rock Glade (WRG0003/BM933)

Table J-56. Ammonium loads (lb/d) by flow percentile for White Rock Glade (WRG0003/BM933)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	414.82	184.34	70.36	43.77	25.21	12.61	12.48	7.40	3.47	1.75
Average	1,705.94	766.04	343.25	217.48	127.10	116.29	87.60	51.74	19.08	6.46
Maximum	5,189.49	2,645.99	1,849.07	856.33	571.99	728.38	978.40	289.81	82.36	100.08
Median	1,497.08	524.65	241.86	125.58	66.14	59.71	37.86	33.12	12.41	3.08
25th	850.21	345.83	154.07	81.92	44.41	26.82	23.49	13.12	5.38	2.50
75th	1,974.39	851.27	357.10	237.44	153.98	124.33	77.92	55.26	25.83	4.84

Table J-57. Nitrate loads (lbs/d) by flow percentile for White Rock Glade (WRG0003/BM933)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	2,486.40	1,080.42	192.95	234.36	178.10	83.52	37.22	35.87	19.85	9.30
Average	7,824.90	3,090.09	1,551.95	908.66	555.99	397.22	278.74	154.62	71.42	27.89
Maximum	18,636.38	6,286.23	4,409.70	2,320.52	1,574.89	1,808.23	2,041.67	638.81	263.11	391.28
Median	7,028.94	2,815.27	1,481.91	807.03	438.40	242.84	177.33	117.58	54.91	16.82
25th	4,945.98	1,964.38	954.13	586.41	318.06	179.14	131.35	57.81	28.35	13.78
75th	10,020.19	4,101.27	2,052.07	1,108.44	686.32	507.16	303.48	193.09	94.11	20.65

Table J-58. Sulfate loads (lbs/d) by flow percentile for White Rock Glade (WRG0003/BM933)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	69,857.89	54,682.14	38,705.88	32,524.95	25,513.95	16,196.75	14,767.44	9,703.92	8,632.39	5,997.19
Average	220,384.93	94,799.34	67,759.94	49,495.53	39,692.70	34,923.31	26,973.11	19,630.13	14,322.35	8,528.31
Maximum	853,762.58	195,936.28	238,060.34	130,070.70	76,047.00	157,958.72	48,789.46	28,157.67	23,287.01	22,252.71
Median	161,767.47	82,644.92	54,308.00	47,808.57	35,728.12	31,439.42	26,275.63	20,063.53	14,113.52	8,114.98
25th	125,445.12	70,495.34	45,173.25	37,829.88	31,526.61	21,393.81	21,196.51	14,835.83	12,194.95	7,021.34
75th	221,865.76	105,397.04	69,915.28	54,998.17	44,480.38	39,837.23	30,621.92	24,147.79	16,185.16	9,389.31

Table J-59. Iron loads (lbs/d) by flow percentile for White Rock Glade (WRG0003/BM933)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	302.21	168.48	115.60	94.45	68.16	42.98	36.31	22.85	18.07	9.64
Average	894.22	319.03	225.41	143.12	110.25	103.96	65.73	46.01	28.58	15.61
Maximum	4,477.95	853.58	1,298.65	489.80	276.11	784.23	209.46	115.81	48.51	44.67
Median	543.92	274.42	167.95	120.46	92.85	73.89	58.59	40.35	27.64	14.25
25th	411.05	231.31	141.07	111.41	80.84	56.17	47.00	31.85	22.57	12.16
75th	840.17	351.37	218.61	155.52	118.73	110.18	70.86	54.65	33.07	16.44

Table J-60. Aluminum loads (lbs/d) by flow percentile for White Rock Glade (WRG0003/BM933)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	507.71	287.83	177.85	173.82	136.58	86.70	63.24	39.40	35.31	26.99
Average	1,258.86	579.98	387.15	352.49	237.79	200.02	148.97	96.44	67.77	40.55
Maximum	3,707.85	1,172.70	909.82	3,040.18	603.21	610.40	282.16	174.16	131.47	111.76
Median	1,010.04	542.28	342.12	274.77	196.07	171.43	141.24	94.84	65.20	36.87
25th	767.11	436.86	269.85	222.30	181.02	112.90	96.24	69.94	55.10	34.05
75th	1,357.47	614.65	437.08	344.42	260.80	237.63	181.65	118.60	76.63	43.24

White Rock Run (WRR0008/BM931) plots and tables

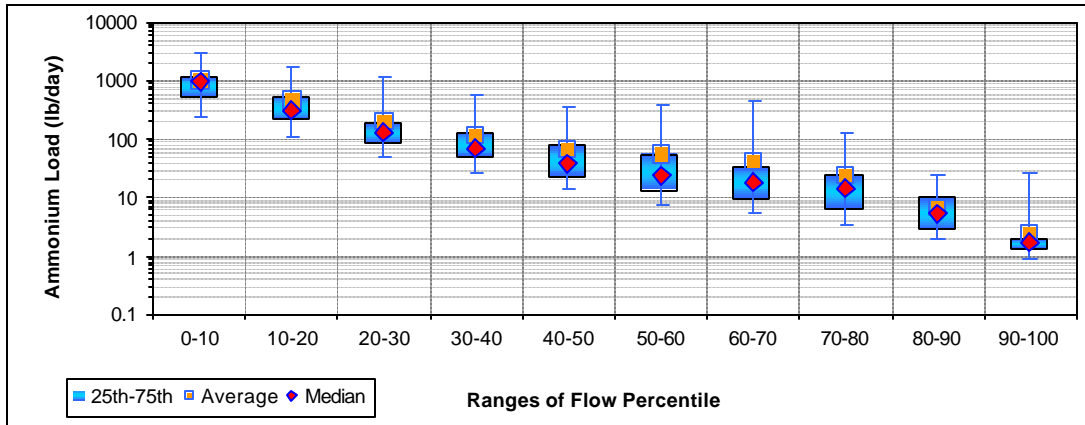


Figure J-61. Ammonium loads by flow percentile for White Rock Run (WRR0008/BM931)

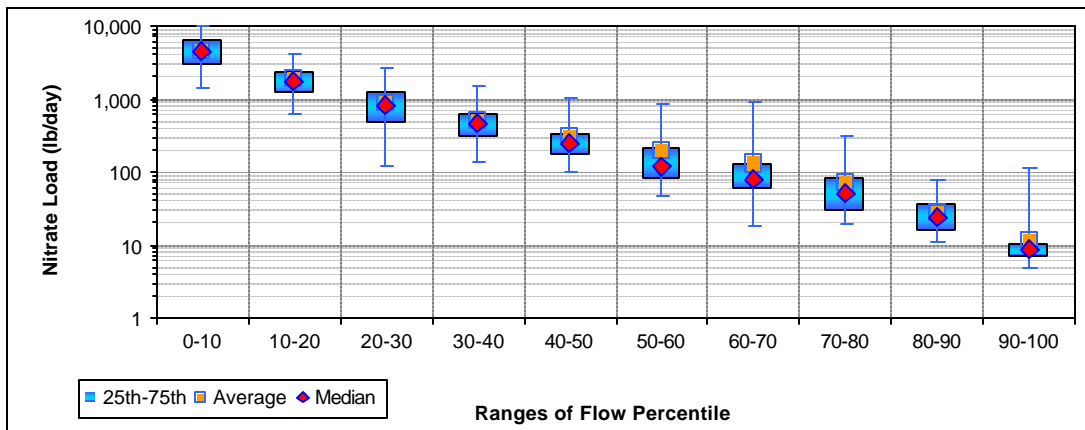


Figure J-62. Nitrate loads by flow percentile for White Rock Run (WRR0008/BM931)

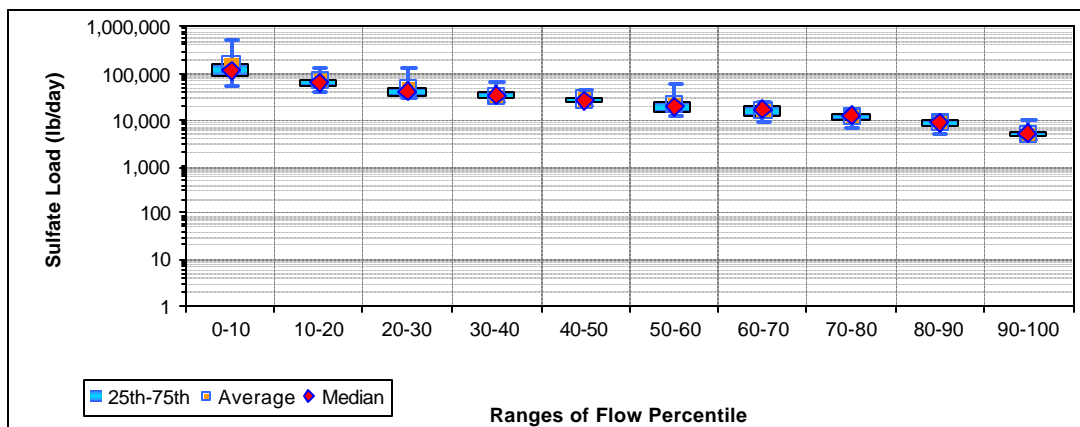


Figure J-63. Sulfate loads by flow percentile for White Rock Run (WRR0008/BM931)

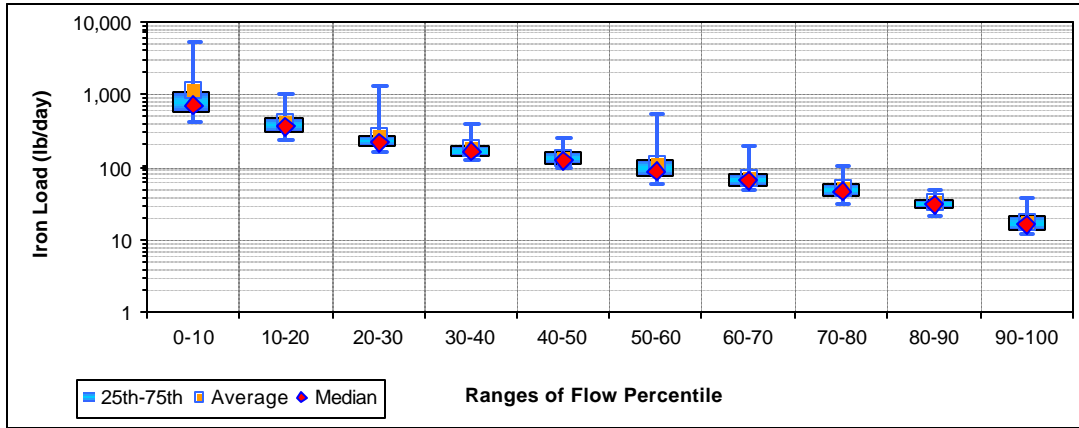


Figure J-64. Iron loads by flow percentile for White Rock Run (WRR0008/BM931)

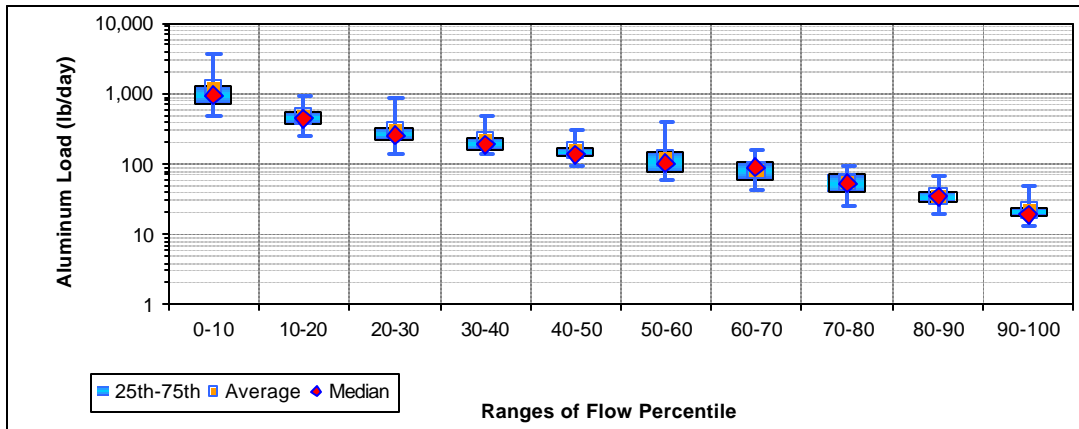


Figure J-65. Aluminum loads by flow percentile for White Rock Run (WRR0008/BM931)

Table J-61. Ammonium loads (lb/d) by flow percentile for White Rock Run (WRR0008/BM931)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	236.38	105.66	49.08	25.71	14.35	7.73	5.51	3.50	1.91	0.93
Average	1,041.19	480.95	204.41	123.83	70.81	57.07	41.43	23.70	7.34	2.50
Maximum	2,961.28	1,661.96	1,162.27	575.02	354.12	370.56	438.44	129.62	24.47	27.54
Median	950.77	311.37	131.78	67.27	38.52	23.43	17.93	14.17	5.29	1.66
25th	524.07	216.13	85.83	49.41	22.92	13.48	9.38	6.53	2.88	1.29
75th	1,208.28	535.24	184.65	132.62	77.59	55.40	33.68	23.60	9.94	2.00

Table J-62. Nitrate loads (lbs/d) by flow percentile for White Rock Run (WRR0008/BM931)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	1,409.67	631.53	119.96	138.96	102.56	48.84	17.80	18.89	10.75	5.04
Average	4,656.61	1,885.99	892.88	516.68	303.32	193.46	130.26	70.48	29.12	11.65
Maximum	9,956.16	4,019.54	2,661.35	1,494.65	1,006.30	888.85	910.27	316.11	80.66	111.17
Median	4,393.27	1,750.35	824.08	456.39	249.50	118.81	79.84	49.65	23.56	8.76
25th	2,959.27	1,202.70	488.53	312.75	173.69	83.85	59.02	30.81	15.87	7.02
75th	6,262.42	2,470.40	1,196.73	616.04	336.34	205.19	124.23	82.42	36.58	10.17

Table J-63. Sulfate loads (lbs/d) by flow percentile for White Rock Run (WRR0008/BM931)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	53,533.59	41,027.55	27,971.99	23,434.16	19,092.53	11,903.94	8,925.64	6,921.93	5,171.11	3,797.36
Average	150,153.06	68,871.07	46,485.07	34,817.11	27,683.45	21,571.58	16,874.56	12,159.08	8,721.70	5,250.21
Maximum	528,603.50	134,016.36	131,726.44	61,828.74	42,661.69	59,819.25	24,047.29	16,679.97	12,886.67	9,936.24
Median	113,658.65	61,500.10	39,358.48	34,816.28	26,424.24	20,524.21	17,269.57	12,415.22	8,855.07	5,064.20
25th	92,442.19	52,259.30	33,339.50	27,432.92	23,286.77	15,476.25	13,022.81	9,763.36	7,544.78	4,347.41
75th	156,183.34	75,441.22	49,126.30	39,454.58	31,597.87	24,658.64	19,697.83	14,368.81	9,866.38	5,866.38

Table J-64. Iron loads (lbs/d) by flow percentile for White Rock Run (WRR0008/BM931)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	431.36	238.25	158.11	130.72	94.72	59.07	48.20	30.42	20.25	11.57
Average	1,114.94	427.14	276.23	182.49	138.26	110.11	72.65	50.63	31.85	17.78
Maximum	5,293.83	1,008.64	1,339.25	407.43	263.11	552.49	188.38	100.34	47.93	36.68
Median	731.73	362.08	219.44	166.19	125.06	87.56	65.62	45.54	31.05	16.84
25th	561.86	310.92	197.55	148.99	111.99	76.26	56.33	40.46	27.36	14.17
75th	1,086.45	490.53	266.66	195.40	159.39	122.09	82.30	56.55	35.64	20.16

Table J-65. Aluminum loads (lbs/d) by flow percentile for White Rock Run (WRR0008/BM931)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	496.59	246.47	136.12	130.98	96.51	59.34	42.82	25.17	18.71	13.38
Average	1,162.71	496.20	299.73	210.42	158.89	121.93	86.24	55.30	35.32	21.04
Maximum	3,763.60	925.05	846.44	480.69	316.06	386.92	162.17	91.69	65.46	49.45
Median	918.78	435.32	263.49	191.85	132.69	102.66	88.76	52.90	34.68	19.40
25th	720.09	368.83	210.55	158.89	124.56	75.80	60.03	39.94	29.69	17.55
75th	1,256.35	566.40	321.47	234.49	174.06	153.07	104.44	69.54	39.93	22.92

Buffalo Run (BUF0082/BM909) plots and tables

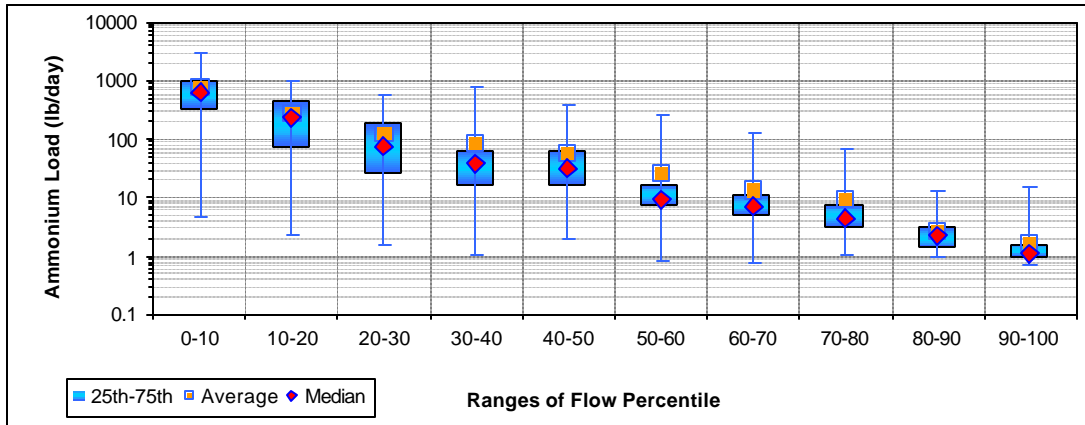


Figure J-66. Ammonium loads by flow percentile for Buffalo Run (BUF0082/BM909)

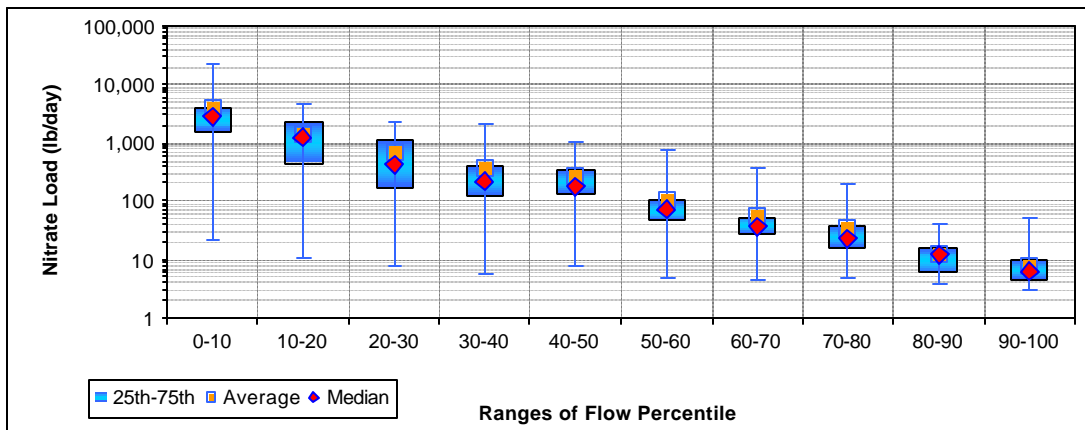


Figure J-67. Nitrate loads by flow percentile for Buffalo Run (BUF0082/BM909)

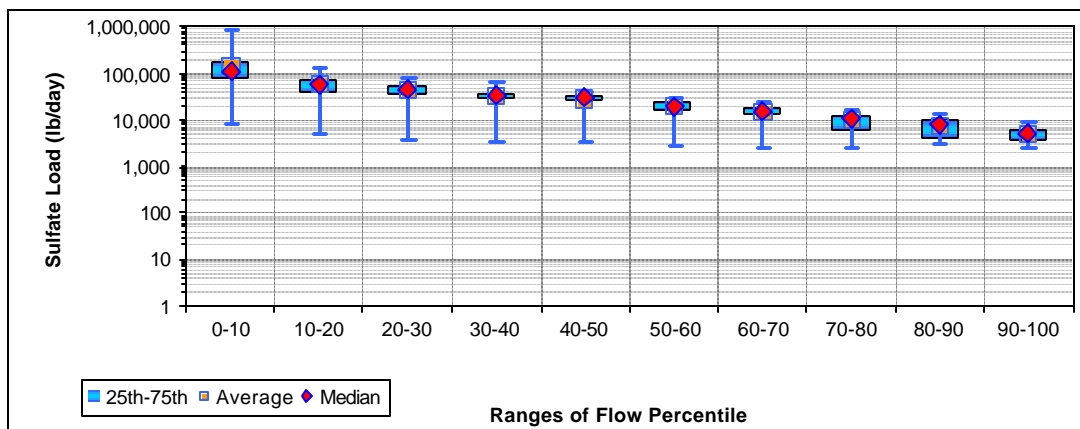


Figure J-68. Sulfate loads by flow percentile for Buffalo Run (BUF0082/BM909)

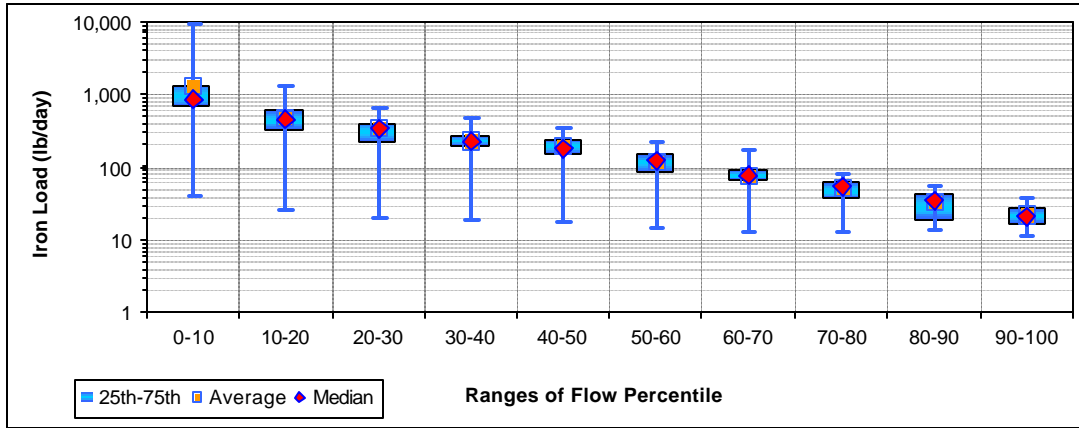


Figure J-69. Iron loads by flow percentile for Buffalo Run (BUF0082/BM909)

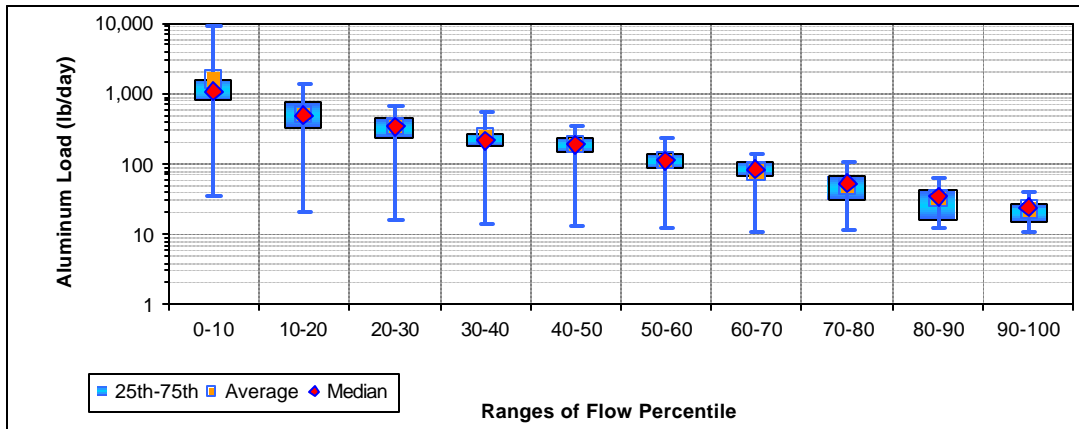


Figure J-70. Aluminum loads by flow percentile for Buffalo Run (BUF0082/BM909)

Table J-66. Ammonium loads (lb/d) by flow percentile for Buffalo Run (BUF0082/BM909)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	4.68	2.23	1.59	1.02	1.93	0.82	0.78	1.01	0.98	0.70
Average	749.31	280.75	127.69	86.13	58.36	25.46	13.78	9.45	2.70	1.69
Maximum	2,986.62	1,015.84	564.84	784.87	390.05	272.08	134.68	67.02	12.80	15.01
Median	609.28	238.05	74.88	38.17	32.02	9.59	7.21	4.38	2.35	1.10
25th	331.38	72.97	26.06	16.97	16.58	7.59	5.00	3.28	1.38	0.96
75th	1,051.01	430.80	185.62	64.83	65.72	17.03	10.59	7.58	3.09	1.59

Table J-67. Nitrate loads (lbs/d) by flow percentile for Buffalo Run (BUF0082/BM909)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	20.51	10.08	7.68	5.66	8.10	4.77	4.56	4.77	3.94	3.01
Average	3,951.54	1,452.83	687.38	364.31	276.56	101.95	55.72	34.98	12.94	8.12
Maximum	23,265.35	4,575.95	2,285.83	2,083.80	1,050.09	731.35	366.92	186.18	40.73	49.08
Median	2,774.82	1,204.84	429.55	215.62	182.67	73.60	37.24	23.17	12.44	6.41
25th	1,465.53	461.23	162.19	128.56	131.79	44.89	27.94	15.69	5.75	4.55
75th	3,978.06	2,279.46	1,149.93	392.80	337.33	101.75	54.33	36.46	16.02	9.65

Table J-68. Sulfate loads (lbs/d) by flow percentile for Buffalo Run (BUF0082/BM909)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	7,790.24	4,734.88	3,710.13	3,417.83	3,217.40	2,824.83	2,576.43	2,526.94	2,993.73	2,513.07
Average	140,623.18	55,853.08	45,200.03	33,640.86	29,291.58	19,109.32	14,872.05	10,018.34	7,116.34	5,174.91
Maximum	832,032.70	128,857.78	85,371.05	63,551.62	41,177.78	29,628.12	24,400.76	16,951.55	13,382.14	8,735.60
Median	103,100.45	55,225.41	43,425.14	33,725.08	30,081.65	19,406.26	15,799.09	11,079.30	7,879.81	5,125.67
25th	79,051.80	40,726.12	36,576.38	29,882.05	24,754.73	16,934.08	13,372.62	6,276.26	3,881.31	3,724.84
75th	161,794.77	74,537.33	52,125.31	37,721.49	34,147.31	23,123.80	18,721.53	12,927.21	9,467.62	6,247.32

Table J-69. Iron loads (lbs/d) by flow percentile for Buffalo Run (BUF0082/BM909)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	40.05	25.57	19.84	18.16	17.44	14.61	12.98	12.98	14.28	11.11
Average	1,331.29	481.18	335.94	235.35	196.77	116.79	78.46	50.82	32.43	22.08
Maximum	9,498.05	1,356.82	633.48	482.15	336.96	213.92	173.88	84.18	54.71	35.86
Median	859.74	453.54	334.59	231.72	183.34	120.90	75.23	55.79	34.86	21.29
25th	674.48	322.37	232.99	190.23	151.87	87.42	64.26	36.84	18.52	16.60
75th	1,356.39	620.22	407.99	278.03	241.89	151.05	93.03	62.48	42.95	27.84

Table J-70. Aluminum loads (lbs/d) by flow percentile for Buffalo Run (BUF0082/BM909)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	35.42	20.53	15.58	14.21	13.67	11.77	10.79	10.94	12.19	10.37
Average	1,591.12	528.50	353.58	241.29	196.32	112.61	79.82	49.35	31.85	23.26
Maximum	8,914.33	1,357.69	673.58	559.73	347.77	229.33	145.96	103.24	61.14	39.75
Median	1,048.42	500.31	351.58	221.80	187.58	110.94	82.84	53.16	35.26	23.71
25th	777.55	331.30	229.10	182.39	148.26	91.28	66.99	30.18	15.95	15.22
75th	1,580.13	733.93	435.72	279.21	235.19	133.17	105.64	65.03	42.48	27.81

Bull Glade Run (BUG0013/WM-10) plots and tables

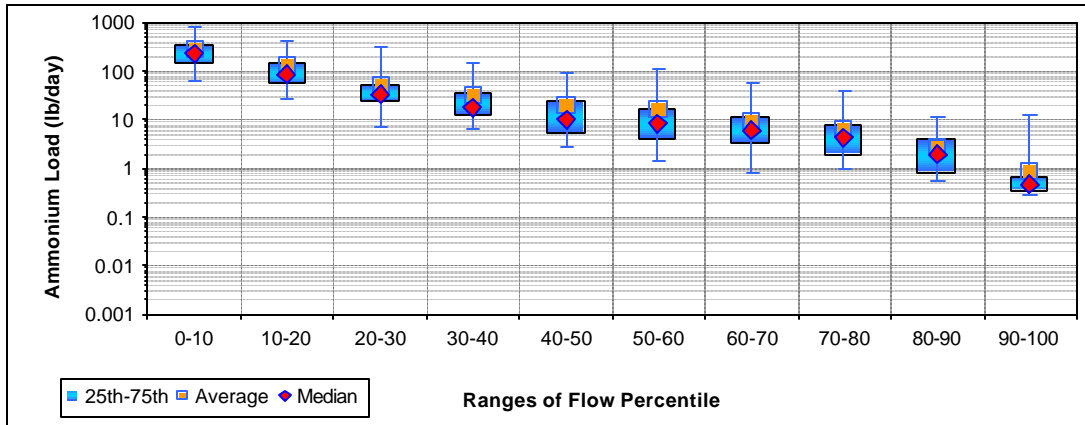


Figure J-71. Ammonium loads by flow percentile for Bull Glade Run (BUG0013/WM-10)

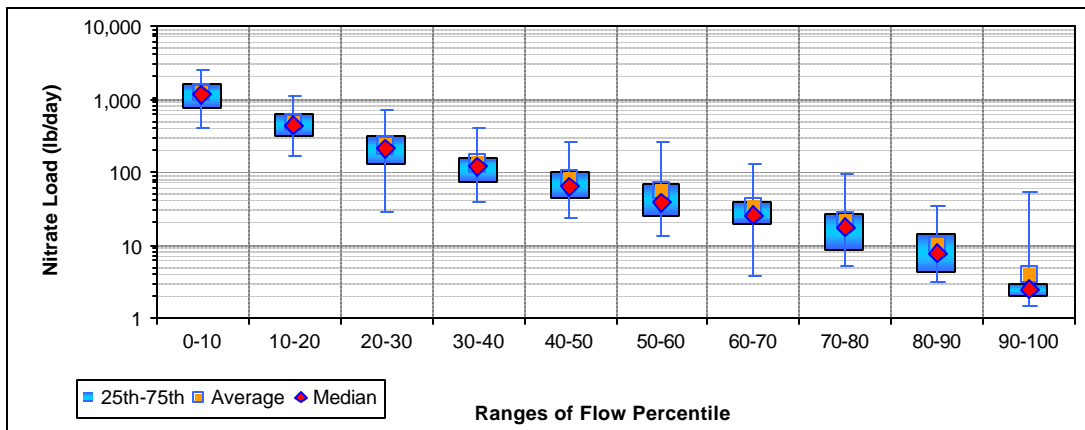


Figure J-72. Nitrate loads by flow percentile for Bull Glade Run (BUG0013/WM-10)

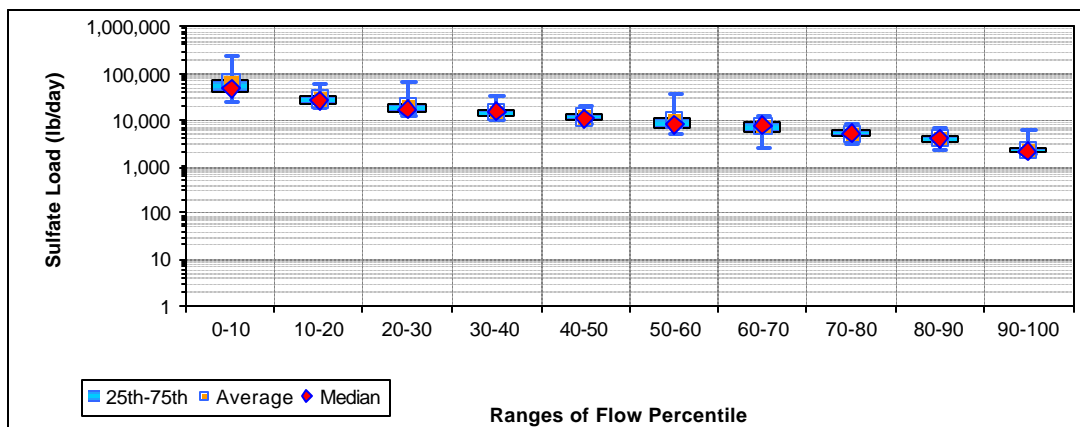


Figure J-73. Sulfate loads by flow percentile for Bull Glade Run (BUG0013/WM-10)

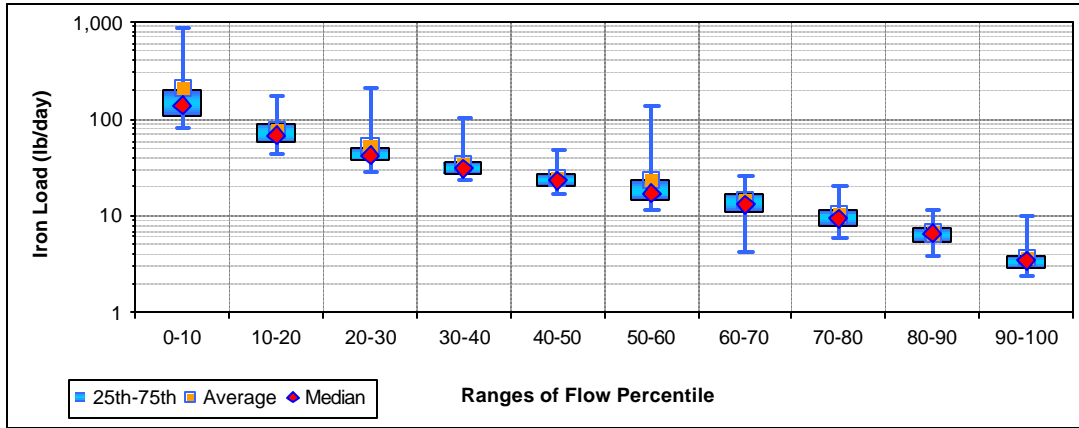


Figure J-74. Iron loads by flow percentile for Bull Glade Run (BUG0013/WM-10)

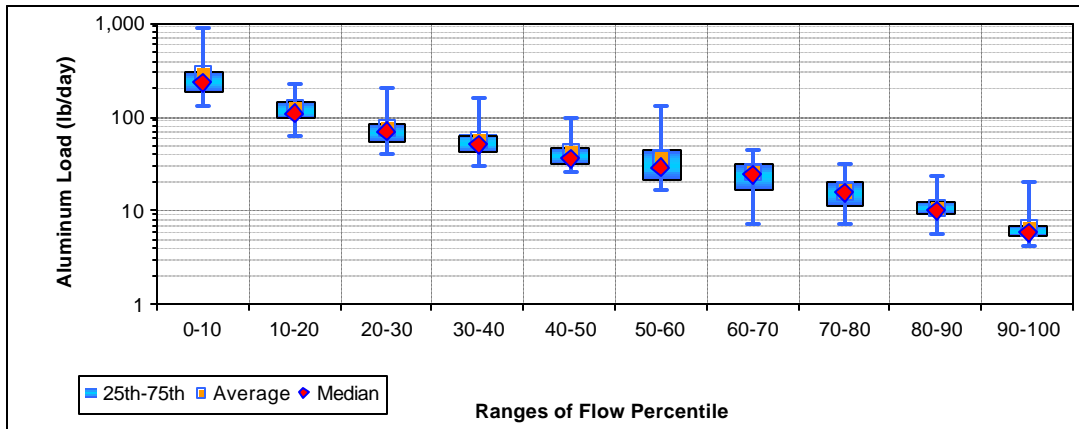


Figure J-75. Aluminum loads by flow percentile for Bull Glade Run (BUG0013/WM-10)

Table J-71. Ammonium loads (lb/d) by flow percentile for Bull Glade Run (BUG0013/WM-10)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	64.21	28.41	7.37	6.62	2.87	1.39	0.85	0.98	0.57	0.28
Average	268.19	124.01	52.36	32.07	19.00	17.12	9.27	6.74	2.71	0.90
Maximum	752.74	439.98	308.41	145.59	92.39	112.84	56.08	39.36	10.66	13.44
Median	234.74	80.88	33.15	18.23	9.71	8.12	6.01	4.45	1.98	0.48
25th	135.49	53.35	23.27	12.58	5.60	3.86	3.38	1.94	0.82	0.37
75th	318.57	140.80	50.84	34.77	23.18	16.68	10.60	7.90	3.76	0.65

Table J-72. Nitrate loads (lbs/d) by flow percentile for Bull Glade Run (BUG0013/WM-10)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	382.07	166.15	29.27	37.21	24.20	12.90	3.74	5.09	3.04	1.45
Average	1,219.14	490.15	233.45	135.15	82.09	57.70	33.20	21.48	10.01	3.99
Maximum	2,599.35	1,074.97	696.67	388.28	263.96	267.89	134.55	94.68	33.73	54.24
Median	1,141.61	436.57	205.93	115.62	64.33	37.18	25.72	17.41	7.87	2.50
25th	789.93	303.84	125.78	77.14	44.02	25.48	19.31	8.92	4.06	1.94
75th	1,626.88	629.58	309.77	157.21	99.60	66.47	37.92	26.89	14.17	2.87

Table J-73. Sulfate loads (lbs/d) by flow percentile for Bull Glade Run (BUG0013/WM-10)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	24,566.68	17,534.61	11,775.49	9,596.24	8,488.84	5,326.60	2,642.92	3,129.11	2,298.56	1,733.65
Average	65,839.68	29,052.27	20,326.66	15,059.41	11,794.29	9,837.65	7,304.26	5,367.44	3,983.68	2,366.44
Maximum	235,740.83	56,528.51	60,784.27	34,869.43	19,422.20	37,185.07	11,745.11	7,996.84	6,744.71	5,969.67
Median	50,233.65	26,176.60	16,985.67	14,780.26	10,789.70	8,326.54	7,322.19	5,241.63	3,893.37	2,196.07
25th	39,807.83	21,998.48	15,178.77	11,770.87	9,836.40	6,794.18	5,784.27	4,245.27	3,346.32	1,947.32
75th	67,326.29	32,768.15	21,699.47	16,896.27	13,761.80	11,046.86	8,743.96	6,270.19	4,443.01	2,530.47

Table J-74. Iron loads (lbs/d) by flow percentile for Bull Glade Run (BUG0013/WM-10)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	78.30	43.90	28.60	22.45	16.93	11.49	4.36	5.93	3.72	2.39
Average	202.21	76.12	50.74	34.05	25.24	22.44	14.09	10.08	6.66	3.63
Maximum	870.71	171.94	217.92	101.44	48.05	134.93	25.78	19.89	11.51	10.28
Median	136.35	68.18	40.96	30.96	23.08	16.94	13.18	9.43	6.49	3.41
25th	105.65	57.57	36.25	26.70	19.87	14.19	11.19	8.00	5.41	2.89
75th	198.51	88.82	49.97	35.92	27.65	23.01	17.24	11.57	7.54	3.82

Table J-75. Aluminum loads (lbs/d) by flow percentile for Bull Glade Run (BUG0013/WM-10)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	128.30	62.77	38.98	30.69	26.28	16.48	7.24	7.28	5.53	4.22
Average	285.64	122.06	78.05	56.44	42.66	35.49	24.82	16.34	11.00	6.49
Maximum	890.46	222.19	206.38	163.80	98.65	129.29	45.44	31.30	22.77	20.63
Median	230.73	106.96	68.70	51.66	36.55	28.43	23.77	15.38	10.07	5.87
25th	183.88	93.91	54.03	43.15	32.08	21.25	16.70	11.37	9.00	5.31
75th	307.20	139.59	83.47	63.77	47.99	44.76	31.04	20.13	12.29	6.82

Cherry Bottom Run (CHB0005/WM-3) plots and tables

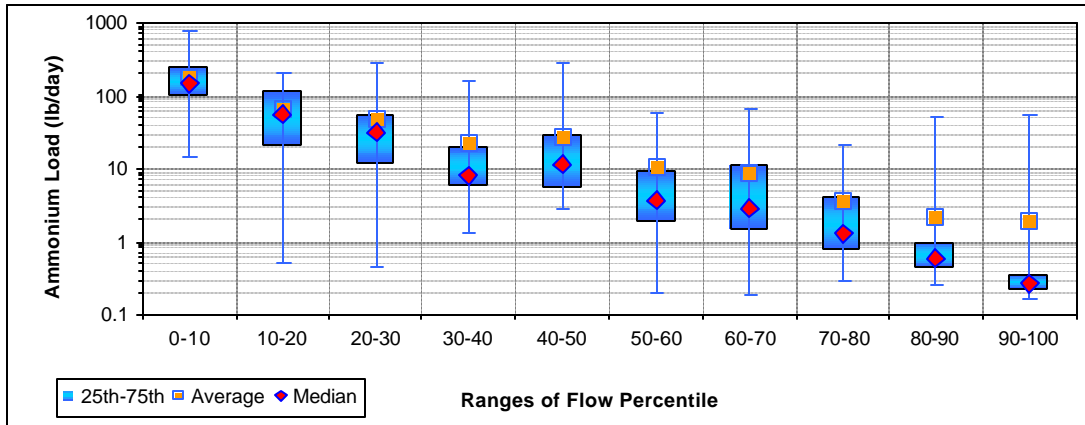


Figure J-. Ammonium loads by flow percentile for Cherry Bottom Run (CHB0005/WM-3)

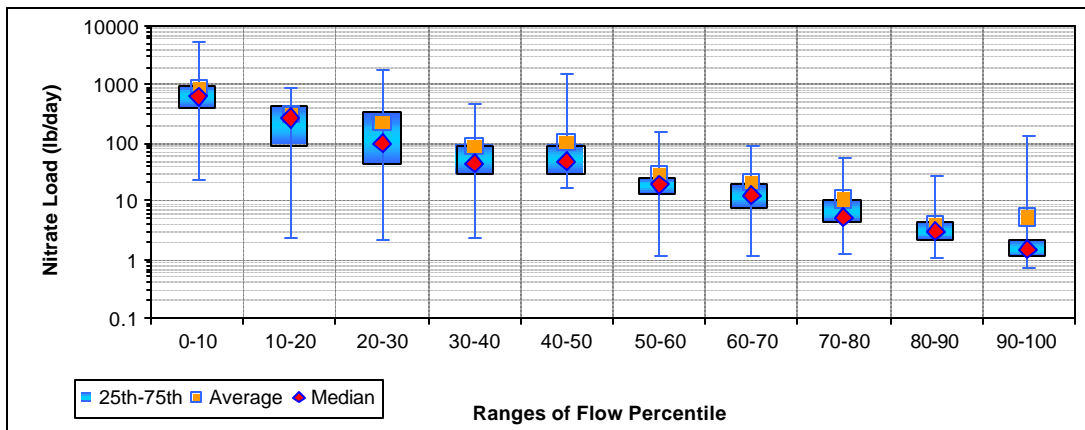


Figure J-1. Nitrate loads by flow percentile for Cherry Bottom Run (CHB0005/WM-3)

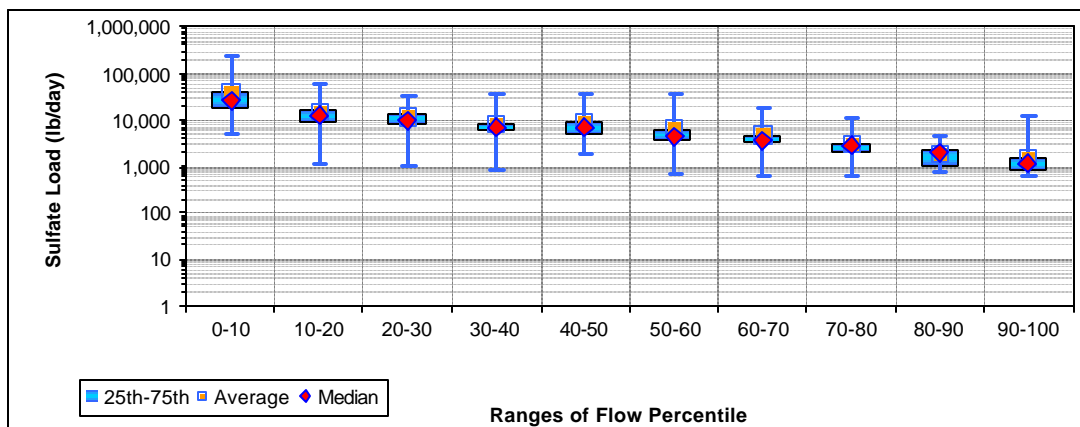


Figure J-2. Sulfate loads by flow percentile for Cherry Bottom Run (CHB0005/WM-3)

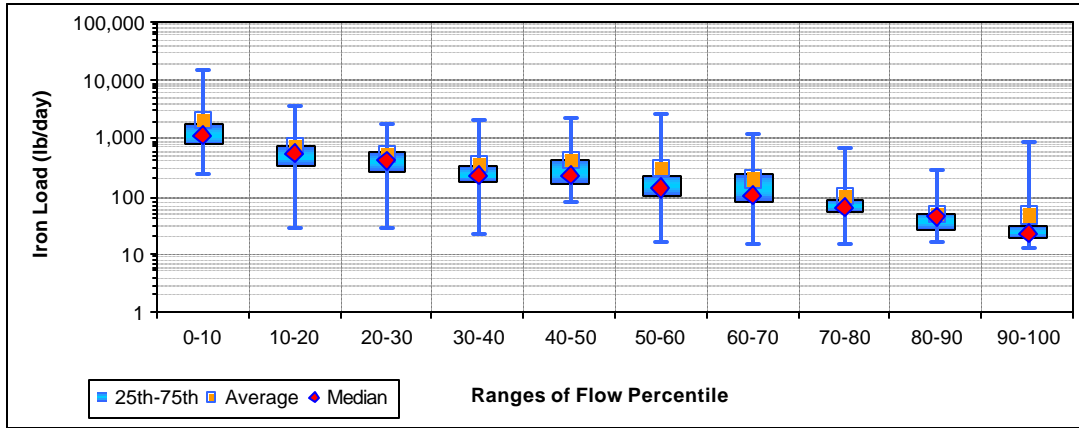


Figure J-3. Iron loads by flow percentile for Cherry Bottom Run (CHB0005/WM-3)

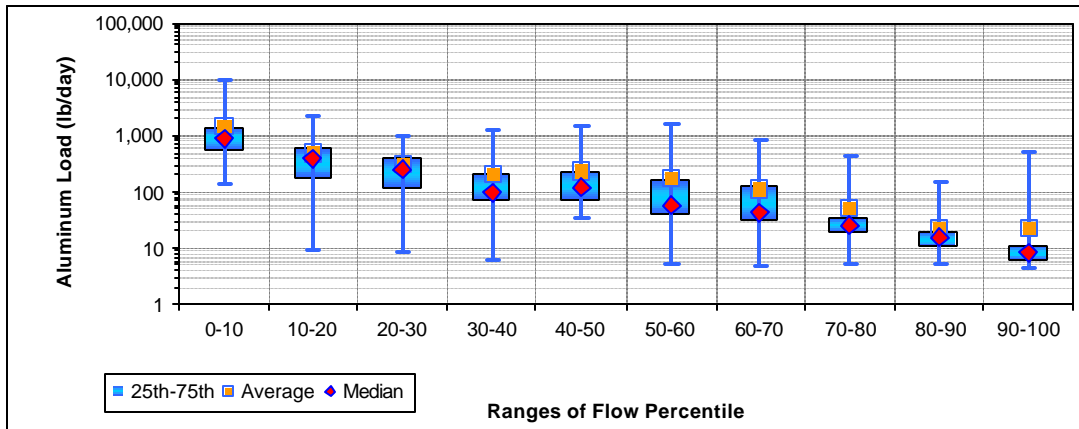


Figure J-4. Aluminum loads by flow percentile for Cherry Bottom Run (CHB0005/WM-3)

Table J-. Ammonium loads (lb/d) by flow percentile for Cherry Bottom Run (CHB0005/WM-3)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	14.03	0.51	0.45	1.30	2.84	0.20	0.19	0.27	0.25	0.17
Average	182.38	67.06	45.49	22.64	26.10	10.51	8.39	3.62	2.20	1.92
Maximum	734.07	199.81	264.74	165.38	293.28	58.17	63.86	20.82	49.02	56.55
Median	146.46	56.51	31.07	8.15	10.97	3.68	2.80	1.29	0.57	0.27
25th	103.09	20.53	11.97	5.94	5.77	1.97	1.47	0.76	0.43	0.22
75th	243.38	112.46	55.21	20.30	27.71	9.26	11.47	3.92	0.95	0.36

Table J-1. Nitrate loads (lbs/d) by flow percentile for Cherry Bottom Run (CHB0005/WM-3)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	23.44	2.33	2.17	2.29	16.70	1.15	1.10	1.21	1.07	0.72
Average	892.88	311.48	233.19	87.76	106.48	29.31	20.99	10.79	4.14	5.20
Maximum	5,394.30	916.07	1,814.39	455.74	1,511.12	146.07	83.68	54.60	28.29	126.82
Median	632.16	261.88	96.17	46.67	49.12	19.48	12.38	5.50	3.12	1.49
25th	406.87	93.41	41.58	29.35	29.98	13.84	7.85	4.22	2.10	1.11
75th	977.47	452.75	320.45	91.50	92.73	25.80	19.15	10.12	4.41	2.10

Table J-2. Sulfate loads (lbs/d) by flow percentile for Cherry Bottom Run (CHB0005/WM-3)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	4,918.73	1,123.21	1,088.07	845.45	1,723.23	683.19	622.60	620.15	723.33	634.25
Average	40,331.89	14,793.48	12,085.60	8,419.98	9,103.02	6,579.27	4,882.51	2,940.71	1,844.65	1,503.09
Maximum	242,504.16	56,291.87	33,338.60	35,555.01	35,709.32	37,065.12	18,581.60	11,069.36	4,277.40	12,954.00
Median	26,199.35	12,263.72	9,878.02	6,872.90	6,762.89	4,341.11	3,737.66	2,674.93	1,950.15	1,180.92
25th	17,987.77	8,910.09	7,942.39	6,049.51	5,162.11	3,755.11	3,344.87	2,108.91	1,003.40	896.71
75th	39,068.78	16,546.99	14,093.37	8,278.77	9,281.60	6,428.45	4,311.82	3,080.68	2,348.79	1,508.65

Table J-3. Iron loads (lbs/d) by flow percentile for Cherry Bottom Run (CHB0005/WM-3)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	246.34	29.11	27.86	22.75	79.38	16.85	14.95	15.12	16.43	13.37
Average	2,158.78	736.77	537.82	356.39	429.56	307.19	201.11	105.25	52.54	47.17
Maximum	14,816.56	3,651.25	1,871.87	2,166.46	2,306.08	2,573.48	1,194.30	680.50	280.10	825.71
Median	1,127.15	541.31	402.85	225.62	226.49	137.24	102.55	64.34	42.75	23.82
25th	793.42	325.04	256.30	174.53	163.20	105.05	76.97	56.80	25.99	19.04
75th	1,744.24	739.82	599.87	328.58	425.19	229.13	254.07	81.40	50.79	30.40

Table J-4. Aluminum loads (lbs/d) by flow percentile for Cherry Bottom Run (CHB0005/WM-3)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	139.03	8.85	8.46	6.41	33.62	5.06	4.57	4.89	5.11	4.33
Average	1,536.25	486.34	326.09	202.03	232.24	172.86	115.65	53.85	22.07	22.97
Maximum	10,446.41	2,360.78	1,036.03	1,327.00	1,479.44	1,604.80	808.99	411.57	156.60	513.43
Median	873.26	401.63	257.85	99.17	116.84	60.09	42.64	25.82	15.19	8.69
25th	561.57	172.15	117.79	73.48	74.91	39.75	31.86	19.36	10.28	6.41
75th	1,434.32	600.70	388.03	203.23	235.37	165.66	127.92	33.65	19.13	10.57

Herrington Creek (HER0028/WM-4) plots and tables

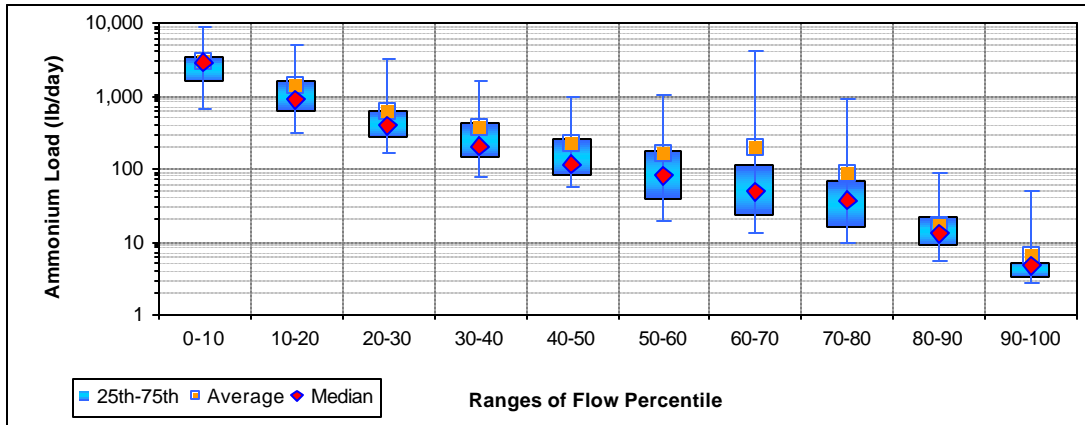


Figure J-81. Ammonium loads by flow percentile for Herrington Creek (HER0028/WM-4)

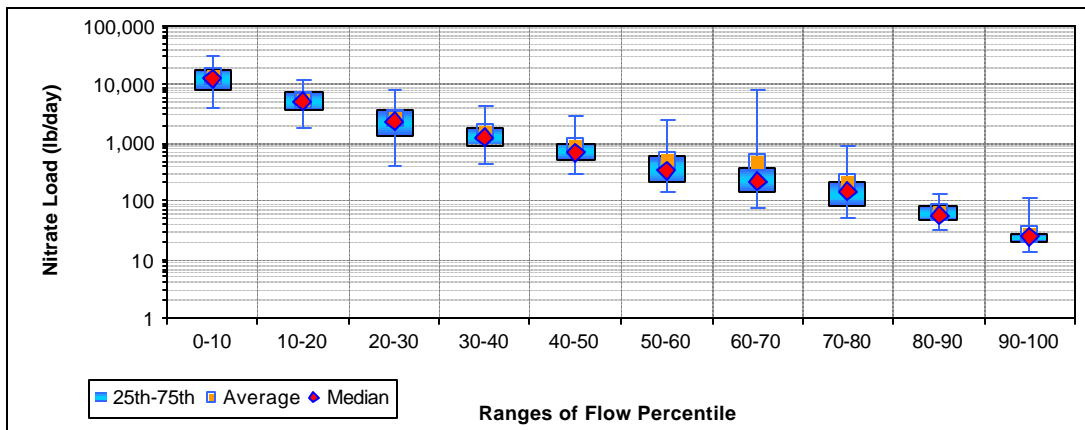


Figure J-82. Nitrate loads by flow percentile for Herrington Creek (HER0028/WM-4)

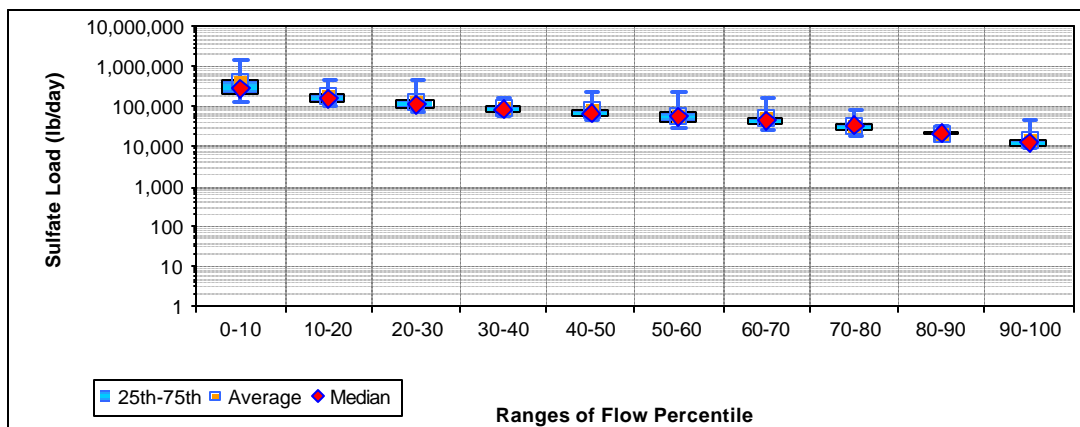


Figure J-83. Sulfate loads by flow percentile for Herrington Creek (HER0028/WM-4)

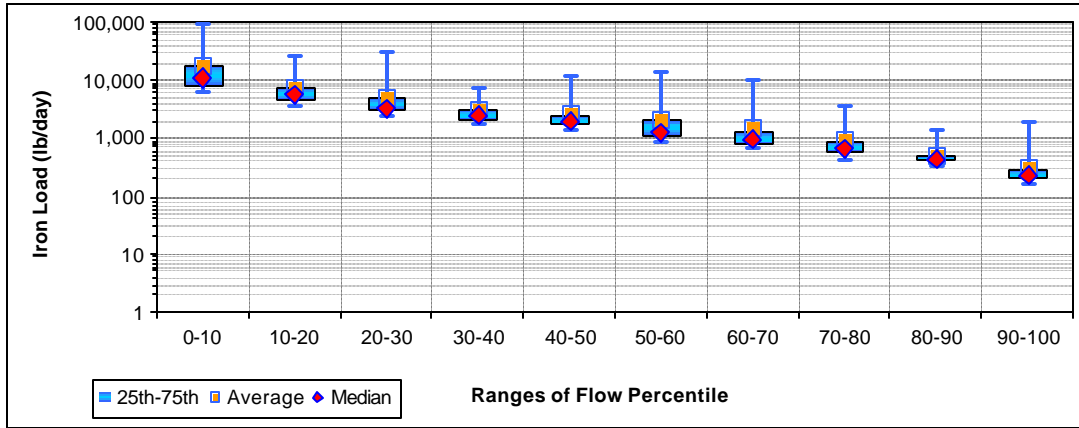


Figure J-84. Iron loads by flow percentile for Herrington Creek (HER0028/WM-4)

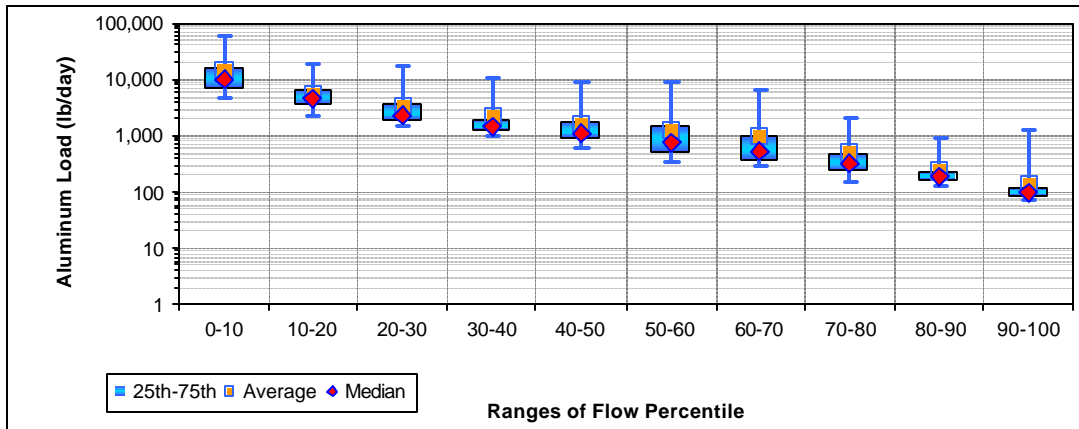


Figure J-85. Aluminum loads by flow percentile for Herrington Creek (HER0028/WM-4)

Table J-81. Ammonium loads (lb/d) by flow percentile for Herrington Creek (HER0028/WM-4)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	654.96	309.54	167.47	74.23	57.43	19.50	13.24	9.65	5.62	2.59
Average	3,011.14	1,382.21	615.32	376.49	219.28	168.11	195.57	84.64	17.20	6.52
Maximum	8,820.26	4,784.71	3,296.31	1,588.09	979.19	1,026.01	3,921.57	888.81	82.67	51.80
Median	2,792.05	884.39	388.84	198.22	110.60	80.16	48.67	35.30	13.27	4.64
25th	1,551.96	600.43	263.73	143.01	80.64	37.89	22.93	16.46	8.47	3.38
75th	3,424.63	1,505.90	606.09	419.97	247.33	176.26	111.13	68.42	21.02	5.19

Table J-82. Nitrate loads (lbs/d) by flow percentile for Herrington Creek (HER0028/WM-4)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	3,930.34	1,789.36	389.91	433.52	301.78	145.30	73.75	54.94	32.30	13.84
Average	13,674.53	5,440.31	2,679.44	1,462.06	881.07	536.16	501.74	205.32	66.51	28.24
Maximum	30,944.91	11,593.46	7,854.19	4,292.59	2,819.39	2,542.46	7,780.66	899.55	136.97	117.96
Median	12,602.66	4,962.85	2,314.01	1,223.47	706.15	329.42	216.28	144.01	57.59	23.82
25th	8,548.02	3,474.95	1,353.43	896.48	513.87	211.28	144.05	80.45	44.84	19.31
75th	17,966.59	7,095.15	3,605.42	1,704.72	960.52	582.68	358.72	208.24	83.10	28.56

Table J-83. Sulfate loads (lbs/d) by flow percentile for Herrington Creek (HER0028/WM-4)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	130,928.44	100,391.47	76,868.24	58,912.06	46,966.43	29,614.66	26,969.88	17,031.76	14,995.05	9,303.87
Average	415,741.52	185,523.32	129,934.28	91,661.52	80,114.76	62,049.61	50,510.44	34,116.05	21,982.98	13,795.02
Maximum	1,553,698.17	455,169.72	505,585.41	172,126.97	243,355.21	242,617.72	181,083.41	80,981.84	32,633.60	46,696.96
Median	295,889.47	154,539.30	110,570.59	87,233.13	68,997.62	53,843.72	46,014.55	32,079.76	21,447.08	12,694.16
25th	224,413.20	130,618.84	89,323.86	71,949.50	60,481.36	39,532.38	38,044.12	26,664.02	19,026.30	10,620.87
75th	432,345.28	220,502.99	139,338.45	102,218.21	84,228.99	74,380.01	50,909.27	35,542.64	24,263.85	14,941.42

Table J-84. Iron loads (lbs/d) by flow percentile for Herrington Creek (HER0028/WM-4)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	6,120.23	3,352.67	2,499.03	1,854.92	1,395.75	847.60	680.75	434.99	331.47	161.94
Average	18,438.23	7,058.71	4,820.41	2,949.53	2,639.26	2,060.57	1,506.30	952.11	497.84	295.24
Maximum	90,117.96	25,869.58	30,154.79	7,546.67	11,659.53	13,524.45	9,833.92	3,762.88	1,409.83	1,957.98
Median	10,709.52	5,563.78	3,323.65	2,465.48	1,924.25	1,321.42	958.28	662.33	444.52	235.36
25th	8,011.81	4,598.99	2,982.34	2,177.95	1,704.17	1,098.50	795.35	590.59	392.48	198.50
75th	17,487.54	6,965.64	5,009.19	3,086.22	2,482.37	2,142.62	1,295.78	828.41	507.98	292.35

Table J-85. Aluminum loads (lbs/d) by flow percentile for Herrington Creek (HER0028/WM-4)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	4,905.21	2,271.78	1,484.51	1,058.50	613.46	333.64	287.89	156.02	135.16	72.55
Average	14,714.58	5,638.20	3,307.09	2,088.39	1,651.85	1,312.15	927.42	509.70	230.23	139.41
Maximum	57,837.44	17,862.67	17,274.43	11,156.60	8,734.67	8,543.81	6,637.38	2,196.57	909.58	1,286.18
Median	9,950.15	4,393.73	2,309.95	1,494.67	1,089.84	776.00	517.65	315.03	189.38	100.39
25th	6,960.45	3,484.64	1,876.36	1,310.02	858.53	529.15	372.20	256.12	163.28	86.69
75th	15,450.04	6,384.77	3,661.12	1,896.75	1,781.08	1,493.32	982.17	470.21	224.13	117.39

Laurel Run (LAU0013/WM-15) plots and tables

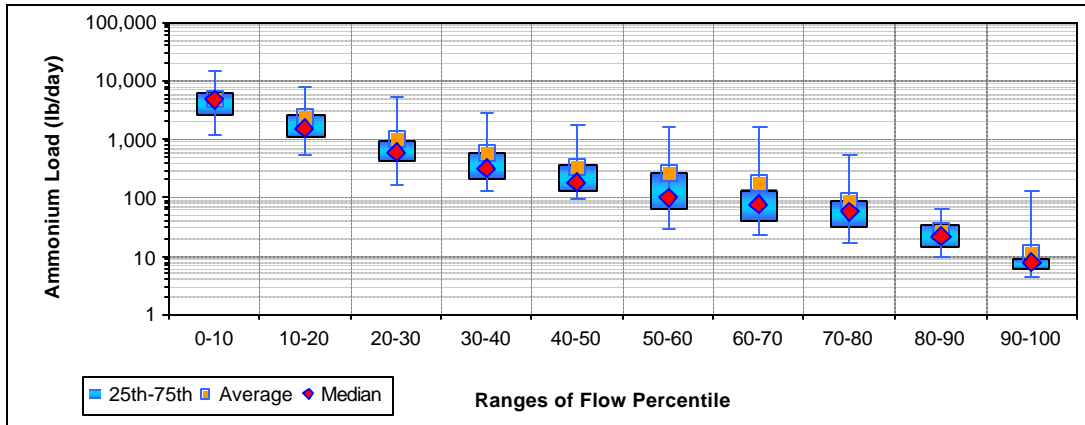


Figure J-86. Ammonium loads by flow percentile for Laurel Run (LAU0013/WM-15)

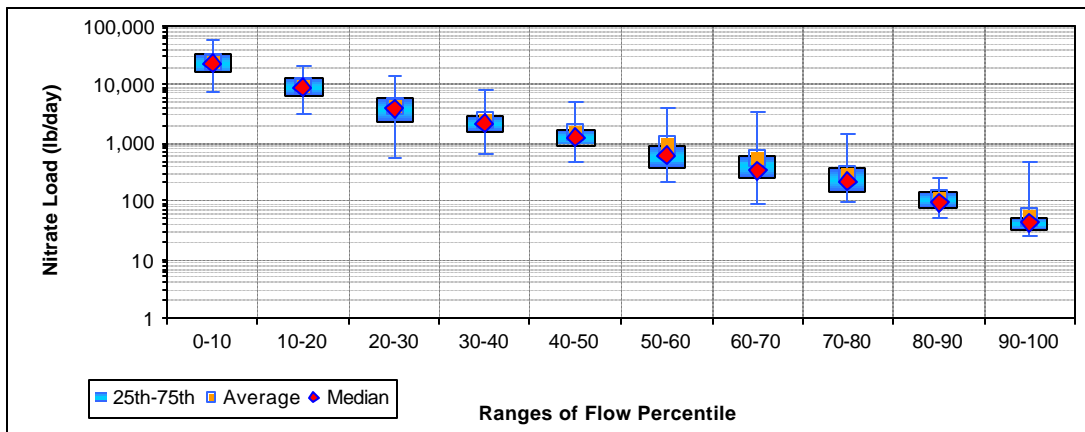


Figure J-87. Nitrate loads by flow percentile for Laurel Run (LAU0013/WM-15)

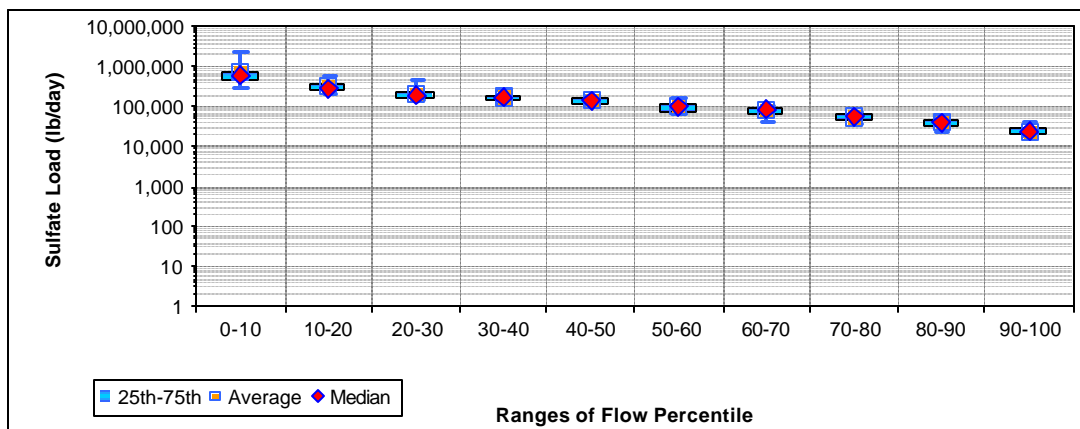


Figure J-88. Sulfate loads by flow percentile for Laurel Run (LAU0013/WM-15)

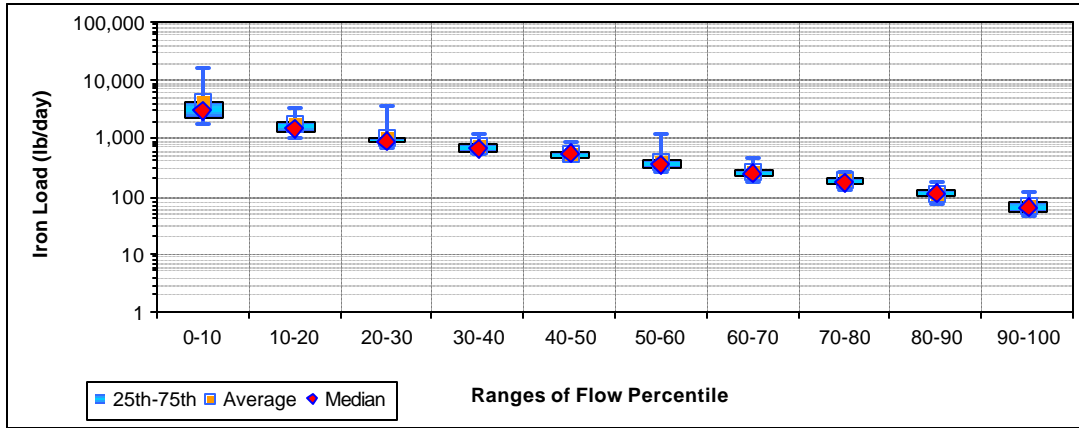


Figure J-89. Iron loads by flow percentile for Laurel Run (LAU0013/WM-15)

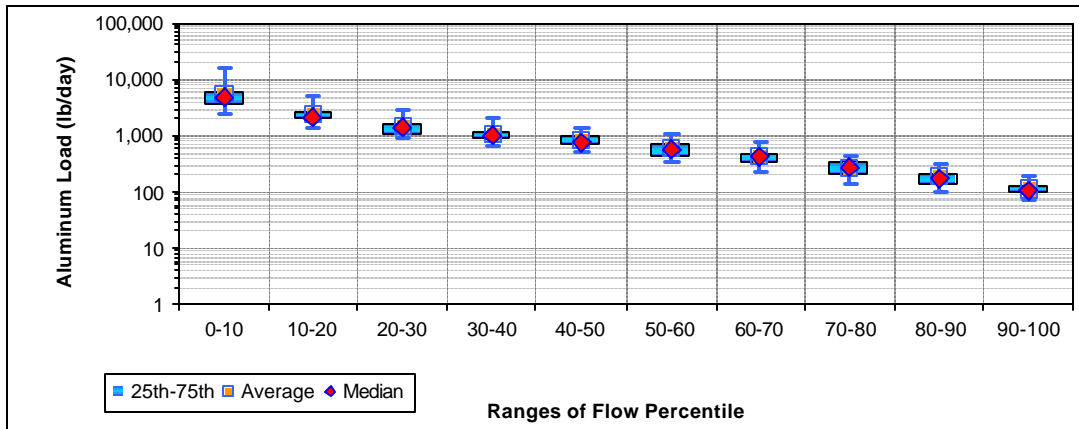


Figure J-90. Aluminum loads by flow percentile for Laurel Run (LAU0013/WM-15)

Table J-86. Ammonium loads (lb/d) by flow percentile for Laurel Run (LAU0013/WM-15)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	1,103.81	507.40	163.02	125.40	93.98	27.32	23.24	17.47	9.92	4.52
Average	5,137.40	2,365.16	964.71	580.95	341.57	254.89	173.38	89.46	25.41	11.59
Maximum	14,303.67	7,947.18	5,565.96	2,774.42	1,697.31	1,590.11	1,604.11	556.02	59.63	137.35
Median	4,803.62	1,497.88	613.85	323.08	184.08	104.39	77.28	56.64	20.64	7.70
25th	2,584.51	1,045.35	416.40	202.46	125.66	63.86	40.97	31.77	14.12	5.78
75th	6,062.45	2,647.92	891.72	617.58	360.37	248.94	130.62	89.41	36.11	8.95

Table J-87. Nitrate loads (lbs/d) by flow percentile for Laurel Run (LAU0013/WM-15)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	6,966.75	3,178.56	574.89	646.75	470.80	228.15	86.22	96.59	49.94	24.65
Average	24,270.78	9,704.88	4,411.75	2,504.96	1,521.00	902.70	574.03	303.43	113.34	53.27
Maximum	55,412.38	20,870.07	13,637.17	7,738.54	5,088.90	4,048.17	3,350.96	1,444.06	260.18	479.76
Median	23,029.40	9,004.65	3,922.09	2,124.03	1,193.33	613.40	339.26	224.11	97.01	42.44
25th	15,692.05	6,151.14	2,393.60	1,460.50	896.06	370.89	255.15	149.43	77.17	33.32
75th	32,150.80	12,567.86	5,784.35	2,880.44	1,606.15	866.21	617.51	355.51	140.17	50.71

Table J-88. Sulfate loads (lbs/d) by flow percentile for Laurel Run (LAU0013/WM-15)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	295,829.25	203,750.41	146,469.81	116,531.97	104,375.65	64,600.79	41,108.42	34,861.84	23,449.39	17,280.02
Average	726,664.24	335,600.56	223,100.21	170,644.45	137,263.22	101,476.60	79,866.41	56,195.22	40,199.73	25,025.61
Maximum	2,244,317.18	629,619.06	494,920.51	250,070.70	187,988.04	181,532.46	104,043.44	77,697.76	56,884.97	39,179.89
Median	591,802.64	304,924.25	196,277.44	173,197.37	134,474.68	98,022.72	84,286.91	58,126.54	39,942.19	24,215.89
25th	461,195.50	262,044.34	180,204.72	144,247.14	118,890.01	77,738.33	67,877.13	46,158.51	33,474.41	20,909.76
75th	770,003.38	377,071.38	239,319.53	188,890.86	153,121.89	116,326.01	88,456.38	68,059.16	43,815.74	28,834.43

Table J-89. Iron loads (lbs/d) by flow percentile for Laurel Run (LAU0013/WM-15)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	1,754.38	1,017.36	689.22	542.48	406.42	260.72	172.49	125.51	73.36	44.11
Average	4,165.84	1,657.34	1,016.59	708.72	542.02	385.65	265.49	180.32	116.06	66.78
Maximum	16,160.89	3,313.41	3,443.33	1,178.19	805.68	1,147.71	480.49	257.86	166.19	118.42
Median	3,013.92	1,502.30	892.33	680.33	522.96	343.08	247.25	173.87	113.62	64.04
25th	2,288.14	1,251.56	814.07	596.29	464.77	295.88	224.63	155.26	102.70	53.02
75th	4,235.54	1,907.20	1,003.89	771.80	586.73	414.41	291.97	200.47	126.21	76.28

Table J-90. Aluminum loads (lbs/d) by flow percentile for Laurel Run (LAU0013/WM-15)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	2,563.14	1,340.96	862.41	685.14	546.26	338.64	243.18	142.30	97.17	71.05
Average	5,692.96	2,514.50	1,484.69	1,095.02	840.23	593.38	432.23	274.88	182.24	114.39
Maximum	15,266.45	5,144.17	2,976.77	2,093.92	1,396.41	1,097.89	739.19	427.96	309.47	189.49
Median	4,734.44	2,214.95	1,373.65	1,045.17	769.17	552.02	426.75	266.11	178.93	107.93
25th	3,648.80	1,942.63	1,109.88	872.14	704.01	433.26	334.39	206.14	145.24	97.16
75th	6,111.11	2,763.40	1,585.41	1,207.67	949.08	733.97	486.22	338.80	204.94	129.73

Millers Run (MLR0001/WM-12) plots and tables

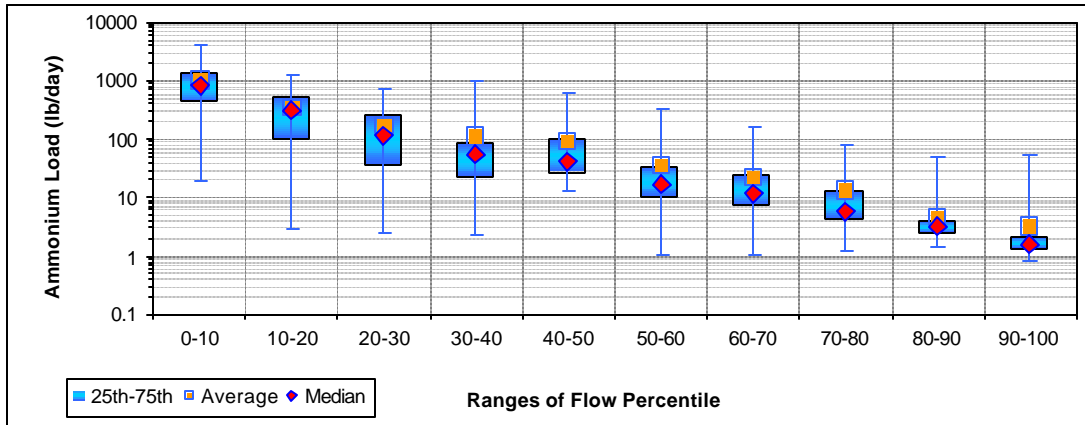


Figure J-91. Ammonium loads by flow percentile for Millers Run (MLR0001/WM-12)

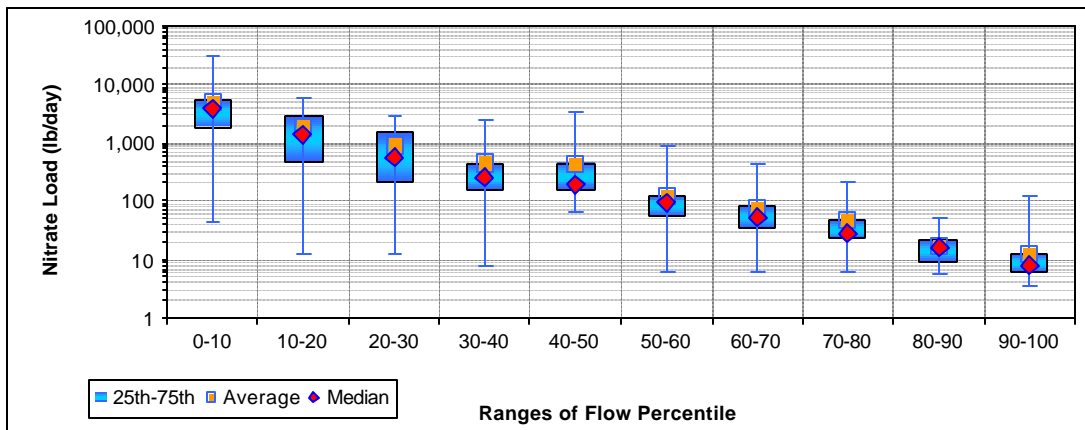


Figure J-92. Nitrate loads by flow percentile for Millers Run (MLR0001/WM-12)

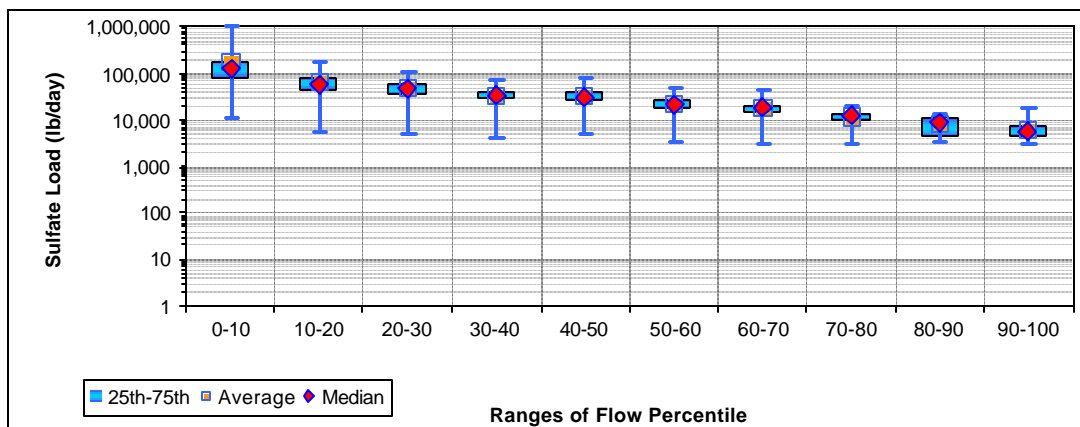


Figure J-93. Sulfate loads by flow percentile for Millers Run (MLR0001/WM-12)

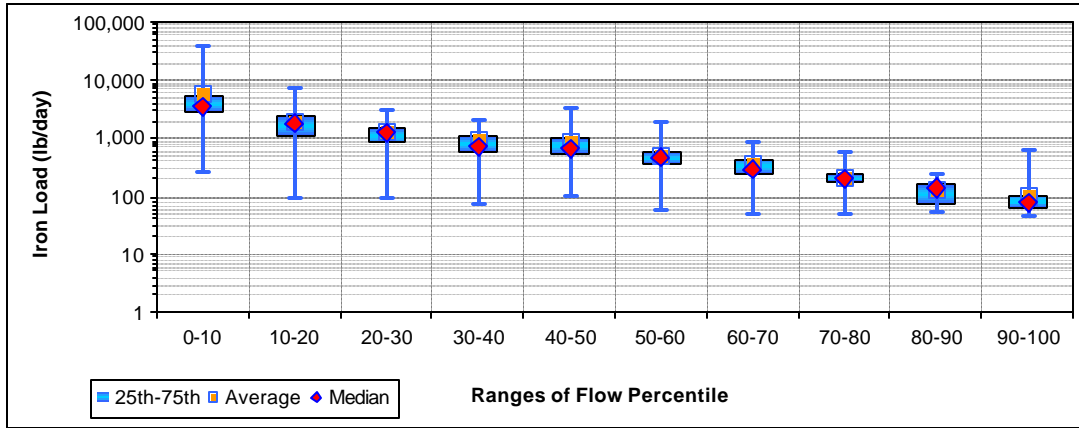


Figure J-94. Iron loads by flow percentile for Millers Run (MLR0001/WM-12)

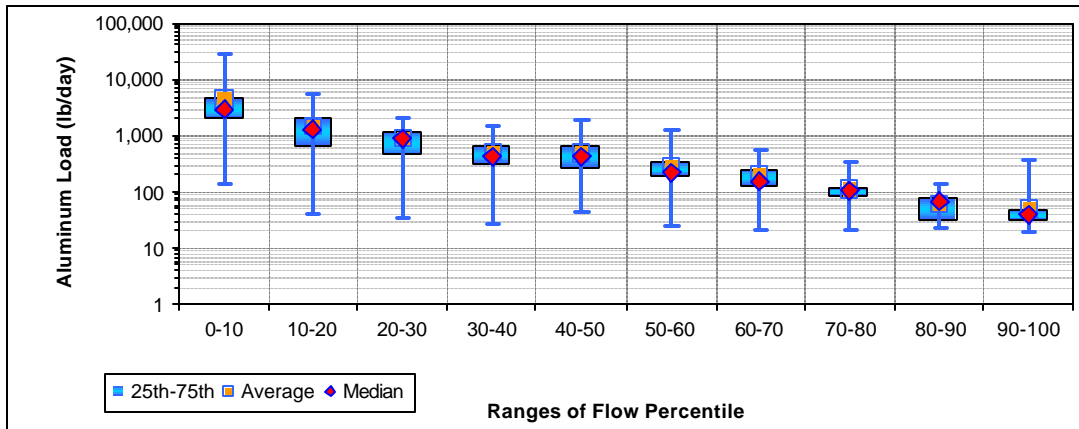


Figure J-95. Aluminum loads by flow percentile for Millers Run (MLR0001/WM-12)

Table J-91. Ammonium loads (lb/d) by flow percentile for Millers Run (MLR0001/WM-12)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	18.63	2.75	2.43	2.27	12.53	1.07	1.01	1.23	1.34	0.87
Average	996.94	361.43	171.81	110.88	94.53	36.32	22.35	13.11	4.77	3.35
Maximum	3,927.10	1,239.53	734.83	948.68	620.69	330.03	163.09	81.30	47.64	55.78
Median	834.34	302.32	112.53	53.96	41.65	16.44	11.90	5.74	3.15	1.56
25th	432.29	99.76	36.65	22.38	26.90	10.38	7.55	4.23	2.38	1.25
75th	1,399.17	551.27	257.99	85.48	98.90	33.15	24.17	12.75	4.13	2.09

Table J-92. Nitrate loads (lbs/d) by flow percentile for Millers Run (MLR0001/WM-12)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	42.42	12.58	11.73	8.09	63.95	6.14	5.88	5.85	5.50	3.61
Average	5,086.42	1,809.54	900.52	441.01	426.69	130.07	74.44	45.39	16.85	12.59
Maximum	29,480.57	5,624.68	2,810.03	2,471.63	3,257.03	869.59	436.53	222.32	49.35	129.19
Median	3,683.72	1,446.84	541.85	261.70	196.22	93.71	53.48	28.91	15.95	8.07
25th	1,926.09	486.29	201.94	159.57	158.00	55.51	34.33	22.51	9.06	6.32
75th	5,302.85	2,800.10	1,530.18	414.98	457.68	129.36	83.93	46.61	21.68	12.02

Table J-93. Sulfate loads (lbs/d) by flow percentile for Millers Run (MLR0001/WM-12)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	11,064.15	5,456.70	4,608.46	3,993.29	4,659.89	3,356.24	3,059.95	2,993.15	3,420.49	2,956.25
Average	167,967.11	62,889.97	49,870.98	35,239.54	33,444.93	22,131.76	17,407.31	11,466.09	8,001.05	6,035.23
Maximum	980,461.94	189,995.71	106,613.28	67,955.53	82,133.68	46,219.81	42,775.45	19,686.08	14,031.58	17,528.44
Median	132,211.49	56,961.30	47,202.56	33,858.24	31,502.49	21,935.27	17,801.11	12,357.65	8,626.97	5,668.68
25th	85,818.29	42,392.86	38,305.43	30,425.52	25,621.52	18,174.46	15,746.49	9,794.48	4,440.48	4,307.11
75th	179,353.56	81,445.47	56,335.90	39,116.82	40,415.12	26,510.17	20,665.96	14,368.84	10,381.98	7,166.87

Table J-94. Iron loads (lbs/d) by flow percentile for Millers Run (MLR0001/WM-12)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	265.94	98.35	87.84	71.25	104.73	57.60	51.19	50.54	53.95	43.18
Average	5,712.64	1,928.90	1,315.54	871.74	857.69	520.07	341.81	213.90	128.63	95.65
Maximum	39,624.02	7,834.12	3,115.03	2,045.97	3,261.22	1,993.93	854.81	568.33	241.95	614.04
Median	3,398.08	1,786.78	1,247.84	744.65	690.02	456.41	284.48	204.37	138.48	81.13
25th	2,709.02	1,075.67	824.73	592.91	531.43	353.12	251.72	178.40	74.35	62.97
75th	5,442.36	2,351.11	1,516.56	1,123.15	1,038.12	593.73	429.58	241.69	161.46	100.79

Table J-95. Aluminum loads (lbs/d) by flow percentile for Millers Run (MLR0001/WM-12)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	139.46	39.13	35.02	27.64	44.24	23.04	20.85	21.19	22.58	19.18
Average	4,485.83	1,451.79	902.27	546.84	504.20	297.83	198.64	112.50	62.31	49.06
Maximum	29,214.80	5,493.14	2,047.31	1,458.64	1,903.69	1,241.58	581.84	340.33	141.46	377.12
Median	2,960.48	1,298.21	874.85	427.53	417.51	219.88	153.83	104.44	69.13	40.75
25th	1,981.84	639.72	456.30	314.91	274.97	182.10	129.35	84.83	33.03	31.64
75th	4,536.85	1,956.26	1,161.62	652.21	644.81	352.38	245.91	123.48	80.61	48.12

Murley Run (MUL0001/WM-6) plots and tables

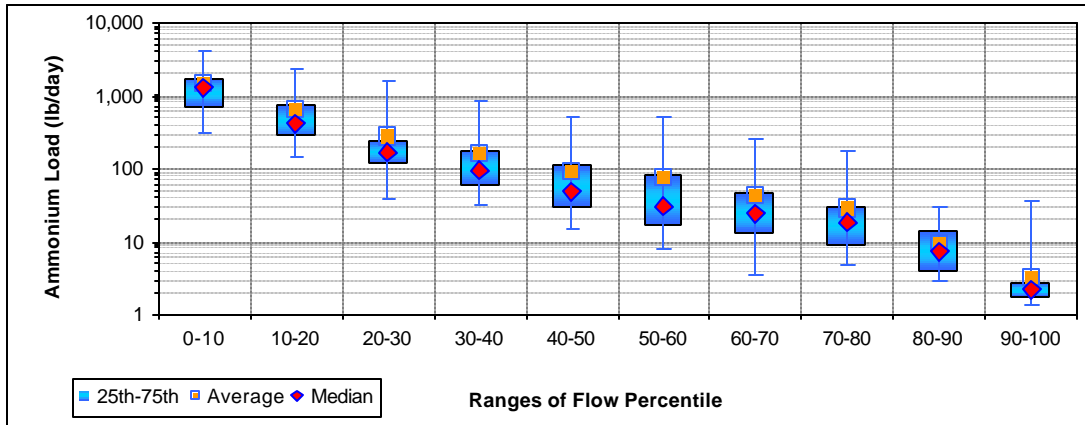


Figure J-96. Ammonium loads by flow percentile for Murley Run (MUL0001/WM-6)

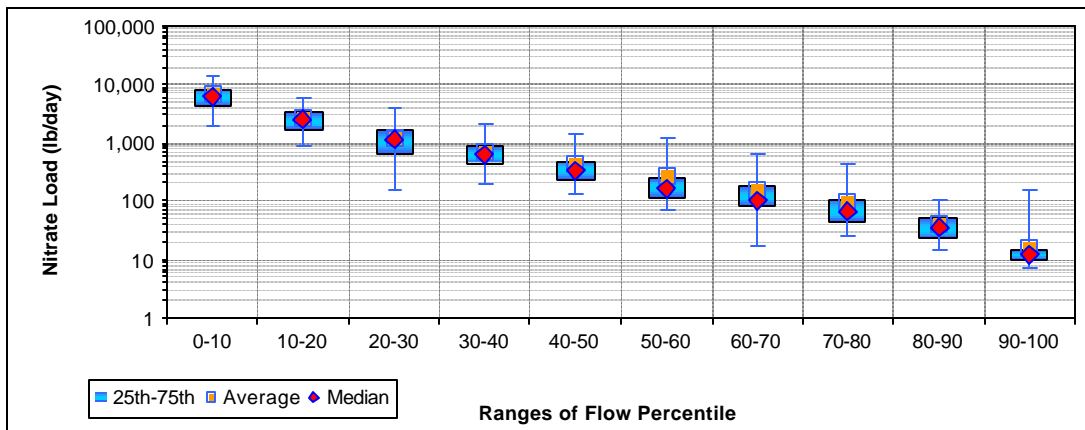


Figure J-97. Nitrate loads by flow percentile for Murley Run (MUL0001/WM-6)

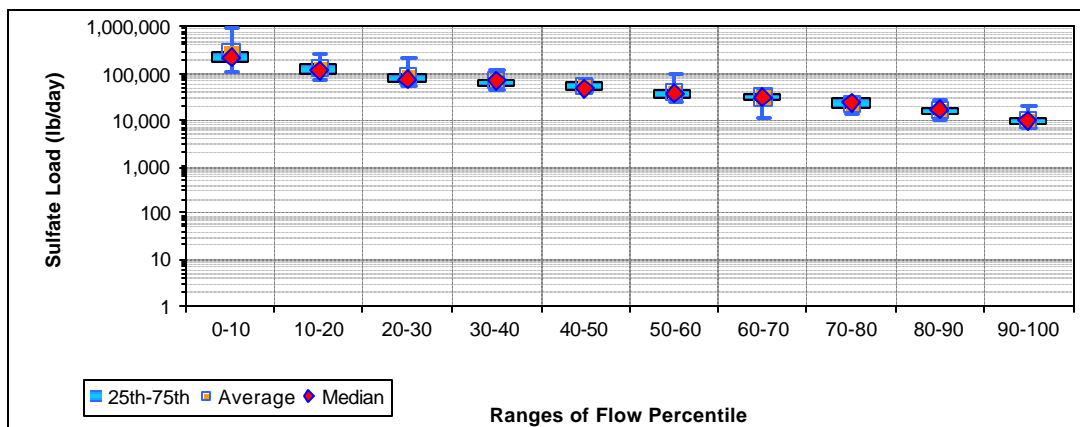


Figure J-98. Sulfate loads by flow percentile for Murley Run (MUL0001/WM-6)
 ** These plots include upstream loads from Bull Glade Run (BUG0013/WM-10), UT to Bull Glade Run (UBL0000/WM-11), and UT to Bull Glade Run (ZWE0001/WM-7).

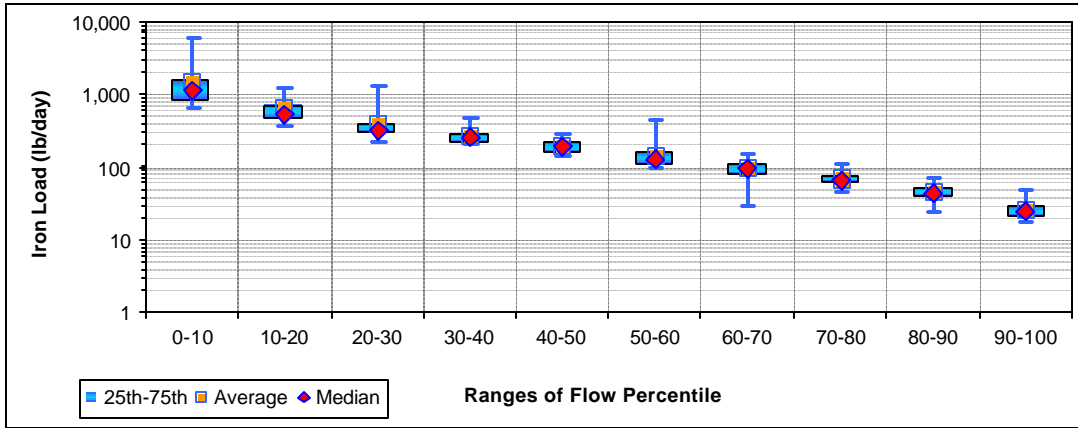


Figure J-99. Iron loads by flow percentile for Murley Run (MUL0001/WM-6)

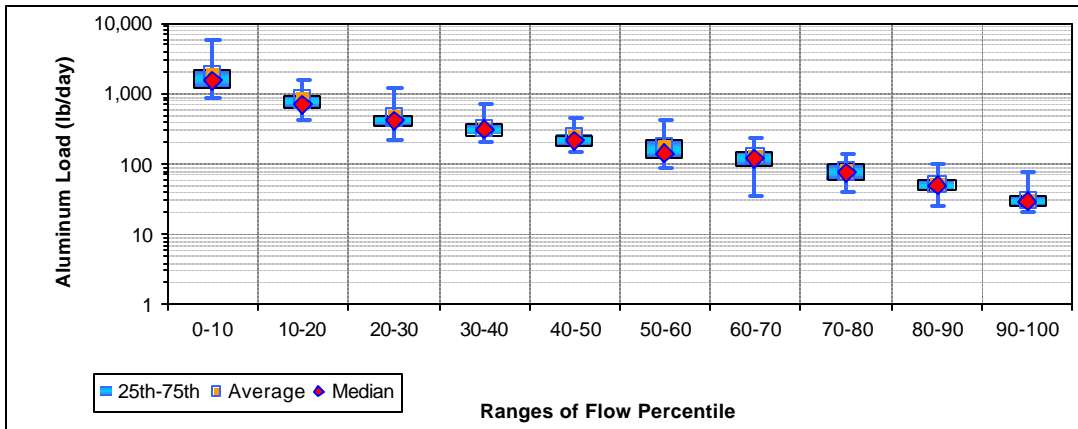


Figure J-100. Aluminum loads by flow percentile for Murley Run (MUL0001/WM-6)

** These plots include upstream loads from Bull Glade Run (BUG0013/WM-10), UT to Bull Glade Run (UBL0000/WM-11), and UT to Bull Glade Run (ZWE0001/WM-7).

Table J-96. Ammonium loads (lb/d) by flow percentile for Murley Run (MUL0001/WM-6)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	314.75	140.65	38.50	32.28	14.81	7.57	3.49	4.55	2.76	1.34
Average	1,409.42	662.28	271.27	164.89	93.53	76.24	42.76	27.99	9.79	3.35
Maximum	4,066.68	2,343.48	1,643.06	810.82	480.36	511.95	255.13	179.27	31.10	36.75
Median	1,280.38	410.40	168.04	92.47	47.31	30.62	24.09	17.91	7.46	2.26
25th	710.11	280.91	116.86	59.64	29.74	16.94	13.02	8.99	3.85	1.77
75th	1,672.12	749.62	239.92	172.47	109.77	81.93	45.14	29.75	13.52	2.69

Table J-97. Nitrate loads (lbs/d) by flow percentile for Murley Run (MUL0001/WM-6)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	1,976.47	886.60	157.31	189.19	133.17	69.90	17.09	26.31	15.03	7.28
Average	6,558.10	2,670.73	1,225.99	710.29	414.83	265.86	153.52	94.04	40.20	16.25
Maximum	13,216.02	5,828.44	3,857.16	2,201.20	1,417.64	1,250.04	630.57	444.78	104.38	151.70
Median	6,355.66	2,398.33	1,102.65	625.19	340.85	166.07	102.64	66.14	34.02	12.43
25th	4,276.72	1,660.50	657.11	435.63	230.91	115.87	83.88	44.41	22.33	9.78
75th	8,564.31	3,374.52	1,565.57	852.50	477.17	264.04	173.81	111.66	50.58	14.39

Table J-98. Sulfate loads (lbs/d) by flow percentile for Murley Run (MUL0001/WM-6)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	107,339.81	77,812.14	54,033.85	44,937.43	39,191.06	24,523.77	11,058.52	13,559.38	9,439.77	7,100.78
Average	283,755.00	131,565.40	88,144.33	67,015.78	52,407.39	40,337.24	31,086.66	22,528.17	16,502.19	9,907.07
Maximum	932,376.32	261,110.95	219,654.03	116,057.45	75,618.52	96,216.59	45,362.06	32,132.90	25,296.40	19,243.88
Median	219,451.65	119,958.82	76,210.14	67,303.89	48,884.48	37,964.69	31,793.70	22,689.86	16,820.49	9,387.61
25th	176,600.72	98,620.88	65,235.49	51,303.61	44,116.35	30,171.60	25,588.52	18,115.49	14,213.37	8,275.72
75th	296,682.22	147,376.07	96,862.49	74,538.37	61,978.13	46,167.26	36,765.84	27,144.29	18,905.07	11,065.28

Table J-99. Iron loads (lbs/d) by flow percentile for Murley Run (MUL0001/WM-6)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	657.57	372.06	216.33	205.28	146.55	95.24	29.97	46.83	24.50	17.22
Average	1,542.24	625.95	384.46	269.03	196.22	145.52	96.94	68.57	45.71	25.43
Maximum	6,010.95	1,255.29	1,316.19	480.89	293.11	455.33	151.20	107.83	68.42	49.57
Median	1,135.03	551.06	330.63	260.46	190.19	126.38	94.46	66.11	44.28	24.68
25th	876.58	470.97	299.55	228.76	162.08	109.45	83.79	60.01	40.04	20.85
75th	1,569.84	723.84	383.06	287.83	214.71	164.54	106.75	77.01	52.06	29.06

Table J-100. Aluminum loads (lbs/d) by flow percentile for Murley Run (MUL0001/WM-6)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	856.95	413.62	217.75	206.88	151.83	91.22	34.41	39.01	26.39	20.04
Average	1,921.76	820.83	471.43	332.55	238.71	177.35	123.77	80.52	52.10	30.86
Maximum	5,918.19	1,571.39	1,180.47	685.69	469.29	422.18	233.78	146.51	98.56	72.44
Median	1,497.45	715.23	424.21	302.69	209.28	146.29	118.43	73.99	50.28	28.83
25th	1,170.03	623.77	349.52	264.35	184.96	116.30	91.65	60.09	42.43	25.64
75th	2,166.78	937.17	481.34	365.24	263.37	214.29	149.09	100.74	59.85	33.90

** These tables include upstream loads from Bull Glade Run (BUG0013/WM-10), UT to Bull Glade Run (UBL0000/WM-11), and UT to Bull Glade Run (ZWE0001/WM-7).

N. Branch Laurel Run (NXB0003/BM915) plots and tables

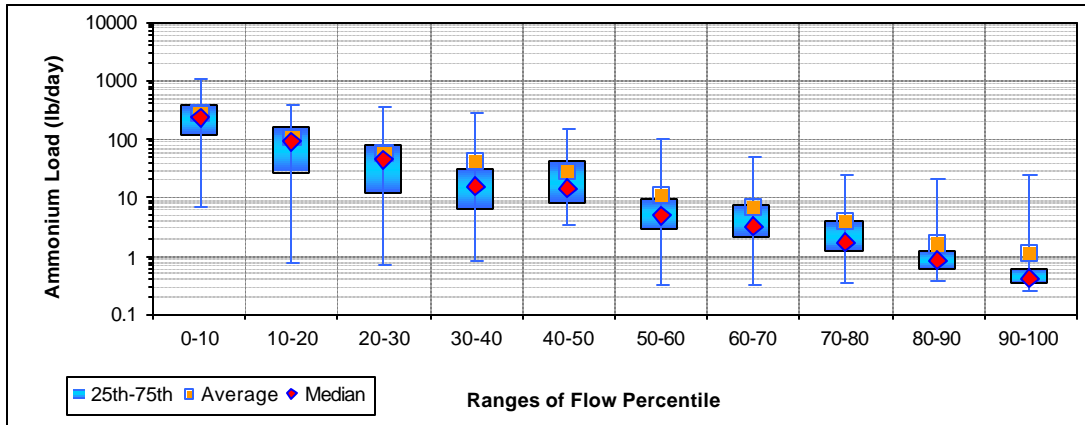


Figure J-101. Ammonium loads by flow percentile for N. Branch Laurel Run (NXB0003/BM915)

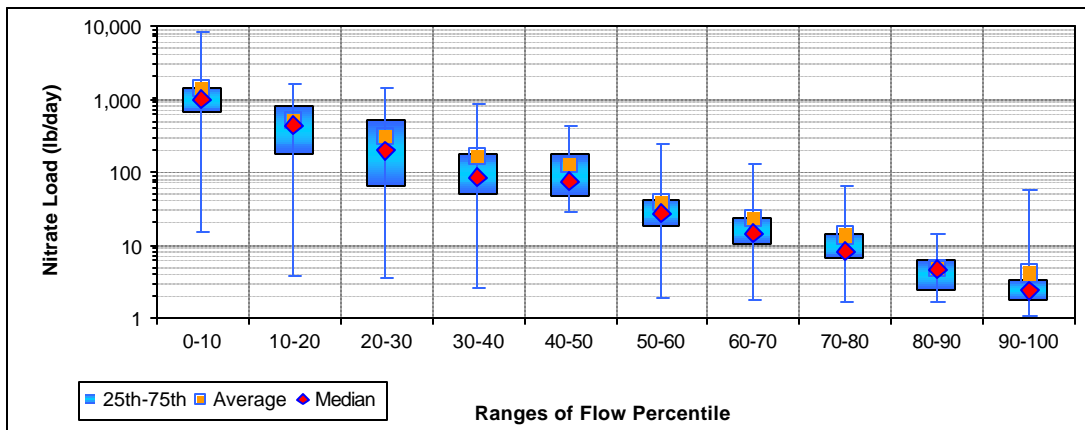


Figure J-102. Nitrate loads by flow percentile for N. Branch Laurel Run (NXB0003/BM915)

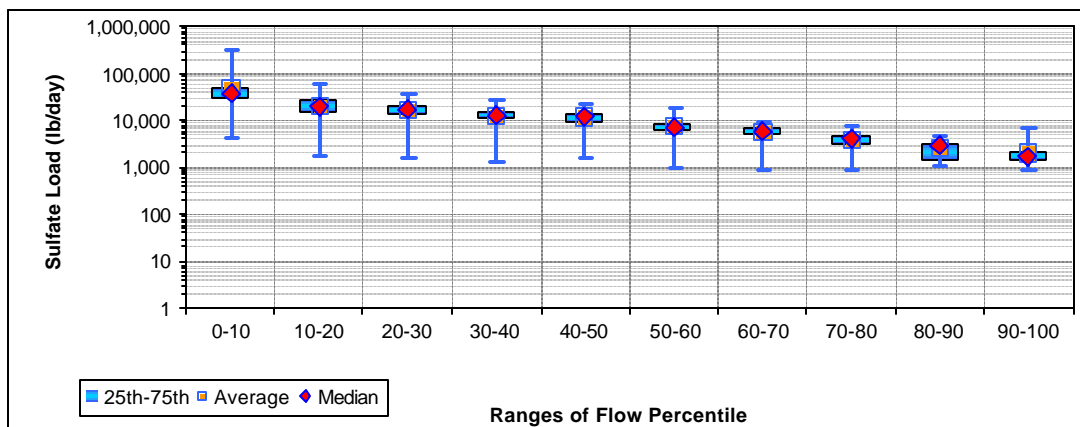


Figure J-103. Sulfate loads by flow percentile for N. Branch Laurel Run (NXB0003/BM915)

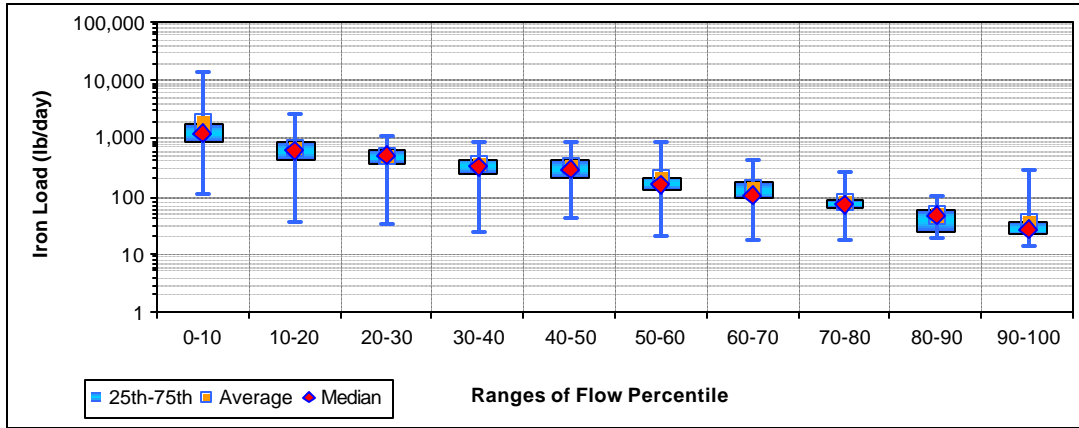


Figure J-104. Iron loads by flow percentile for N. Branch Laurel Run (NXB0003/BM915)

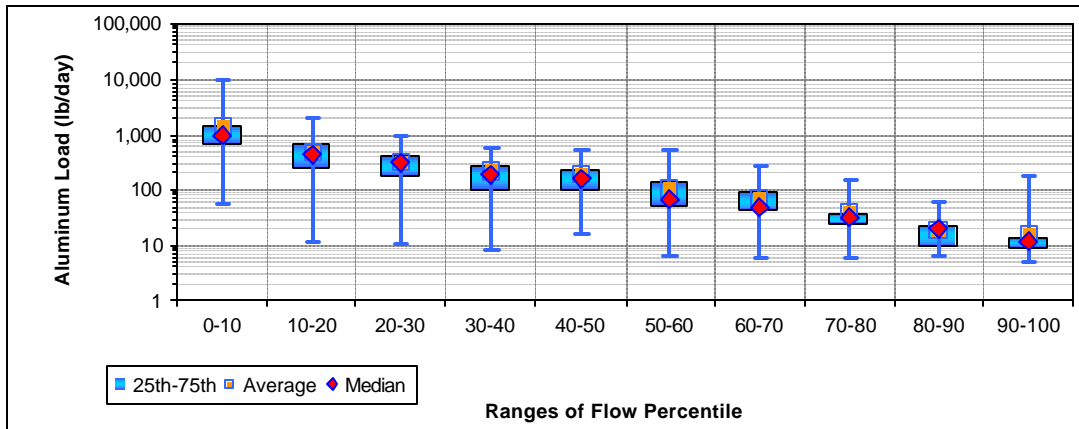


Figure J-105. Aluminum loads by flow percentile for N. Branch Laurel Run (NXB0003/BM915)

Table J-101. Ammonium loads (lb/d) by flow percentile for N. Branch Laurel Run (NXB0003/BM915)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	7.07	0.81	0.70	0.83	3.61	0.32	0.31	0.33	0.38	0.25
Average	278.79	108.41	61.75	40.95	30.36	11.08	7.08	4.00	1.56	1.16
Maximum	1,098.81	384.22	350.38	286.10	146.74	99.46	49.11	24.48	20.78	24.58
Median	228.40	90.98	44.17	15.84	14.25	4.82	3.16	1.75	0.87	0.43
25th	123.12	27.80	11.72	6.50	8.15	2.86	2.06	1.20	0.59	0.34
75th	386.71	160.80	77.60	30.92	40.87	9.46	7.44	4.03	1.24	0.58

Table J-102. Nitrate loads (lbs/d) by flow percentile for N. Branch Laurel Run (NXB0003/BM915)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	15.36	3.78	3.43	2.62	27.85	1.87	1.79	1.68	1.66	1.08
Average	1,422.30	534.90	303.97	166.46	128.43	38.42	22.43	13.41	4.94	4.04
Maximum	8,356.17	1,588.31	1,451.44	867.57	432.81	251.31	126.37	64.47	14.56	56.51
Median	972.91	441.27	195.19	83.39	73.66	26.46	14.62	8.19	4.57	2.39
25th	649.19	175.43	61.94	50.81	47.77	18.21	10.01	6.62	2.44	1.79
75th	1,449.92	833.18	527.07	174.02	179.70	42.30	24.60	14.13	6.13	3.34

Table J-103. Sulfate loads (lbs/d) by flow percentile for N. Branch Laurel Run (NXB0003/BM915)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	4,121.45	1,767.89	1,519.64	1,273.77	1,574.69	1,043.52	954.18	917.11	1,058.03	882.43
Average	50,972.04	21,134.63	17,470.54	13,405.61	12,160.09	7,614.55	5,874.01	3,776.80	2,585.19	1,950.90
Maximum	312,975.66	60,727.80	38,195.74	27,503.96	22,287.48	18,045.20	9,380.68	7,442.56	4,643.31	6,987.55
Median	36,873.75	20,412.14	17,136.64	12,792.93	11,963.27	7,287.73	5,878.93	4,037.52	2,859.25	1,738.87
25th	28,343.97	15,981.81	14,607.03	11,231.75	9,208.12	6,311.28	5,224.15	3,273.96	1,421.47	1,416.60
75th	51,456.58	25,559.60	19,779.72	15,105.26	14,784.43	8,574.33	6,980.73	4,457.92	3,301.08	2,268.42

Table J-104. Iron loads (lbs/d) by flow percentile for N. Branch Laurel Run (NXB0003/BM915)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	114.84	34.79	32.43	24.97	41.39	19.61	17.48	16.93	18.27	14.14
Average	1,862.03	691.47	501.08	358.76	331.31	201.74	137.11	79.40	46.30	35.28
Maximum	13,733.73	2,615.14	1,075.86	888.41	850.05	880.67	403.23	256.54	106.67	285.98
Median	1,150.05	613.81	486.48	333.89	290.02	164.74	105.79	73.79	48.91	27.41
25th	882.45	448.71	361.15	242.26	215.11	129.62	92.13	63.40	25.59	21.83
75th	1,647.50	835.20	624.53	440.26	394.10	219.91	169.79	83.47	58.94	35.92

Table J-105. Aluminum loads (lbs/d) by flow percentile for N. Branch Laurel Run (NXB0003/BM915)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	58.31	11.65	10.88	8.08	16.28	6.56	5.96	5.91	6.34	5.17
Average	1,439.20	502.06	317.08	212.31	183.24	104.55	71.95	37.57	19.10	15.72
Maximum	10,066.99	1,860.32	907.78	575.79	535.09	545.53	272.59	149.65	60.05	173.87
Median	955.76	440.66	321.06	182.35	164.23	63.67	48.18	31.21	19.83	11.38
25th	679.18	258.65	180.38	106.82	102.05	54.09	40.80	25.29	9.26	8.83
75th	1,415.93	648.00	401.81	264.15	237.85	137.99	90.78	36.89	23.32	14.04

Snowy Creek (SNO0000/WM-2) plots and tables

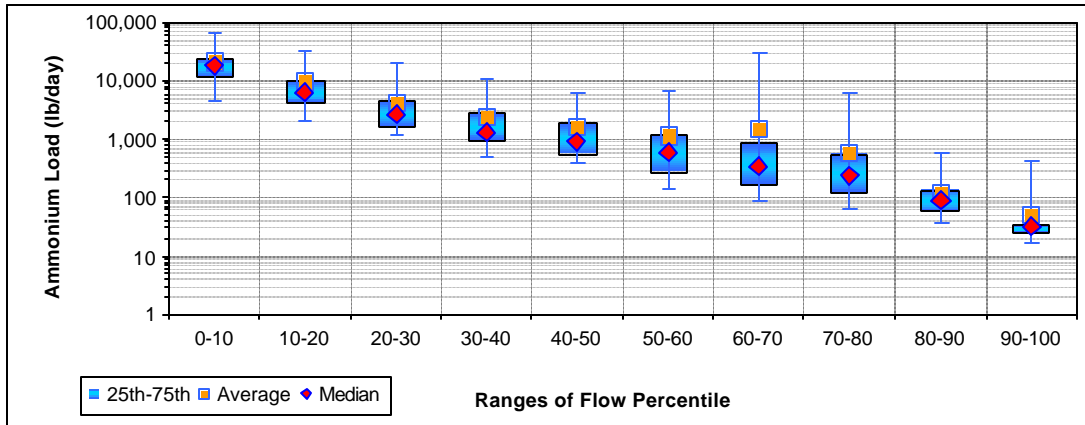


Figure J-106. Ammonium loads by flow percentile for Snowy Creek (SNO0000/WM-2)

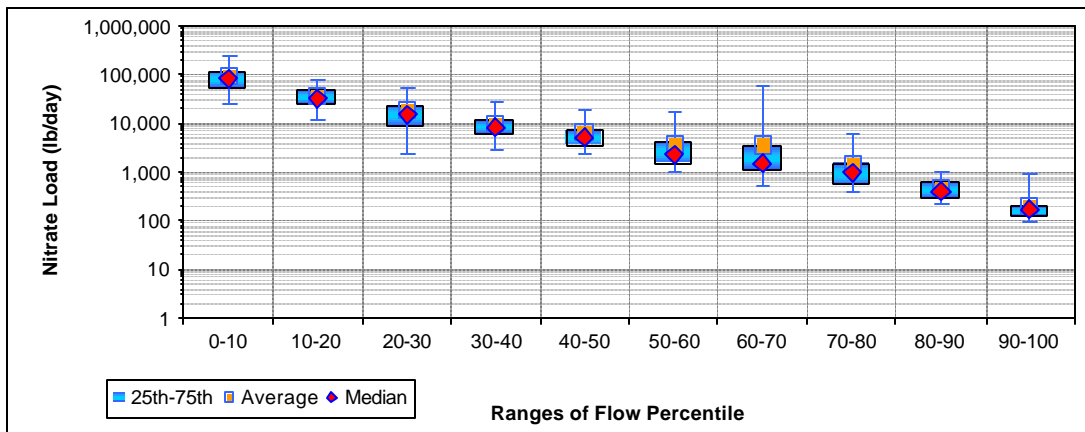


Figure J-107. Nitrate loads by flow percentile for Snowy Creek (SNO0000/WM-2)

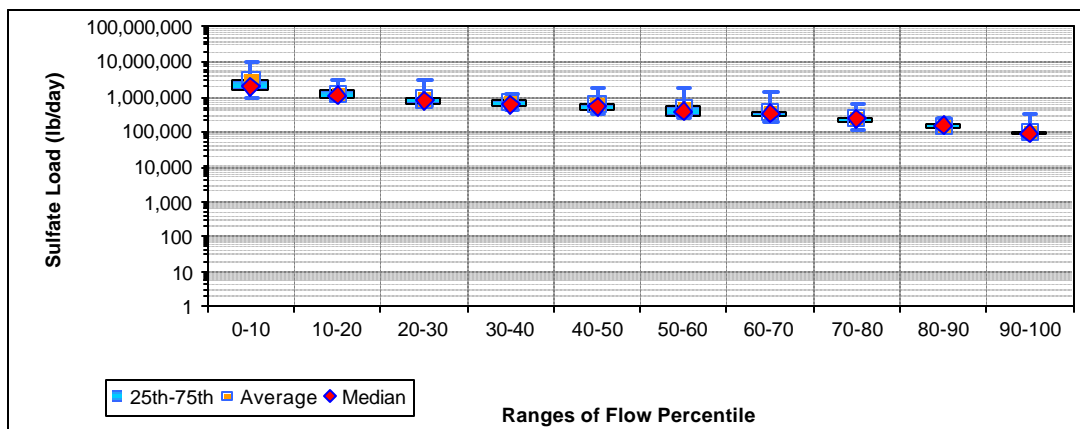


Figure J-108. Sulfate loads by flow percentile for Snowy Creek (SNO0000/WM-2)

** These plots include upstream loads from Laurel Run (LAU0013/WM-15).

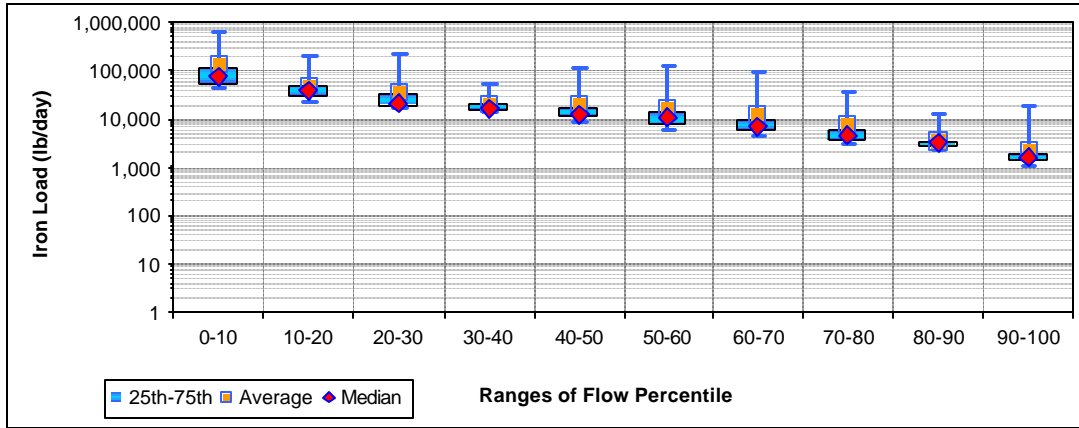


Figure J-109. Iron loads by flow percentile for Snowy Creek (SNO0000/WM-2)

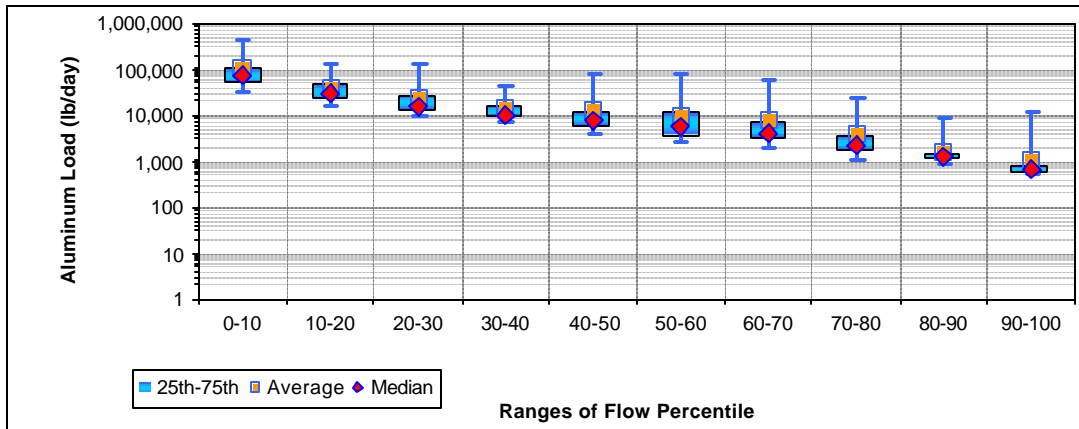


Figure J-110. Aluminum loads by flow percentile for Snowy Creek (SNO0000/WM-2)

** These plots include upstream loads from Laurel Run (LAU0013/WM-15).

Table J-106. Ammonium loads (lb/d) by flow percentile for Snowy Creek (SNO0000/WM-2)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	4,278.06	2,046.48	1,107.54	496.36	380.59	148.11	90.92	66.01	38.25	17.45
Average	20,429.26	9,376.78	4,133.04	2,419.09	1,590.53	1,166.58	1,461.83	591.33	121.12	49.64
Maximum	64,526.38	31,146.97	21,362.31	10,673.62	6,402.80	6,527.68	30,244.91	6,280.30	613.02	412.35
Median	18,356.61	6,202.81	2,623.25	1,285.19	902.82	594.30	345.90	235.02	90.99	31.55
25th	11,473.74	4,221.62	1,653.41	944.33	557.35	282.33	161.71	117.82	57.97	24.06
75th	23,736.39	9,925.41	4,289.04	2,816.51	1,861.33	1,261.28	848.71	539.90	137.24	35.32

Table J-107. Nitrate loads (lbs/d) by flow percentile for Snowy Creek (SNO0000/WM-2)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	26,055.84	11,907.17	2,401.91	2,836.17	2,436.03	964.07	508.95	377.33	220.70	93.73
Average	92,888.45	37,302.04	18,398.24	9,891.80	6,442.47	3,730.26	3,724.36	1,417.42	454.97	205.86
Maximum	228,056.95	77,278.74	54,131.70	28,514.65	18,885.51	16,252.04	59,904.37	6,023.46	965.71	934.06
Median	83,042.77	33,898.16	15,136.87	8,174.53	5,076.75	2,349.56	1,523.92	1,007.42	376.81	165.06
25th	57,165.76	25,972.48	9,231.12	5,918.37	3,663.49	1,577.72	1,080.73	549.88	312.27	131.34
75th	118,363.26	47,975.70	23,690.42	11,414.36	7,136.65	4,221.39	3,195.09	1,474.44	578.45	198.48

Table J-108. Sulfate loads (lbs/d) by flow percentile for Snowy Creek (SNO0000/WM-2)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	953,444.20	739,955.91	525,395.82	411,964.38	350,699.07	223,710.51	188,212.01	119,365.78	105,953.26	64,862.44
Average	2,939,987.83	1,284,611.86	898,416.69	642,772.80	571,233.60	457,678.39	364,667.22	241,000.31	153,412.12	97,524.42
Maximum	10,871,804.42	2,969,342.72	3,181,631.83	1,217,248.09	1,800,121.85	1,804,255.36	1,323,147.68	602,799.75	235,863.58	348,062.18
Median	2,081,832.79	1,069,942.55	773,615.14	614,288.46	506,492.08	381,048.69	320,111.22	227,706.21	150,972.30	88,105.62
25th	1,571,034.99	904,908.96	621,609.60	514,407.40	423,871.11	298,771.91	273,097.17	183,784.43	134,100.33	77,480.01
75th	2,989,749.41	1,568,170.34	962,885.65	728,465.69	570,151.28	506,258.24	354,182.95	246,249.80	171,364.35	104,937.83

Table J-109. Iron loads (lbs/d) by flow percentile for Snowy Creek (SNO0000/WM-2)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	40,146.77	22,832.43	16,092.12	13,151.67	9,252.00	6,052.24	4,634.42	2,873.83	2,232.64	1,074.26
Average	134,083.19	49,354.83	34,186.80	20,716.48	20,348.99	16,034.46	12,443.36	7,465.82	3,581.30	2,178.31
Maximum	667,850.02	192,394.04	213,175.76	55,183.00	110,294.00	123,774.77	92,946.37	35,033.22	12,950.26	18,826.28
Median	76,520.72	37,721.21	21,477.95	16,753.89	13,065.87	10,386.75	6,841.58	4,469.88	3,052.04	1,646.20
25th	54,832.59	30,056.26	19,998.27	14,991.15	11,721.56	7,712.67	5,702.20	3,913.31	2,575.55	1,344.73
75th	114,549.20	49,483.33	33,099.75	20,526.26	16,890.18	14,116.30	9,413.59	5,996.08	3,464.71	1,946.55

Table J-110. Aluminum loads (lbs/d) by flow percentile for Snowy Creek (SNO0000/WM-2)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	32,352.85	15,258.41	9,595.49	7,016.52	4,079.73	2,488.04	1,933.81	1,042.56	912.73	490.69
Average	105,233.43	38,959.49	23,473.94	13,806.87	12,856.38	10,290.65	7,738.94	4,072.07	1,700.90	1,069.07
Maximum	425,314.45	130,753.09	122,745.94	44,011.59	80,449.87	78,344.24	61,985.04	22,209.09	8,450.30	12,438.38
Median	71,444.05	29,127.94	15,090.21	10,262.43	7,487.78	6,079.65	3,965.55	2,108.90	1,296.78	685.19
25th	51,737.39	22,892.49	12,731.55	9,615.41	5,848.04	3,789.98	2,996.07	1,730.07	1,117.04	587.24
75th	106,935.88	45,570.31	27,821.82	15,058.98	12,209.76	11,563.64	7,024.02	3,334.00	1,569.87	829.68

** These tables include upstream loads from Laurel Run (LAU0013/WM-15).

UT to Bull Glade Run (UBL0000/WM-11) plots and tables

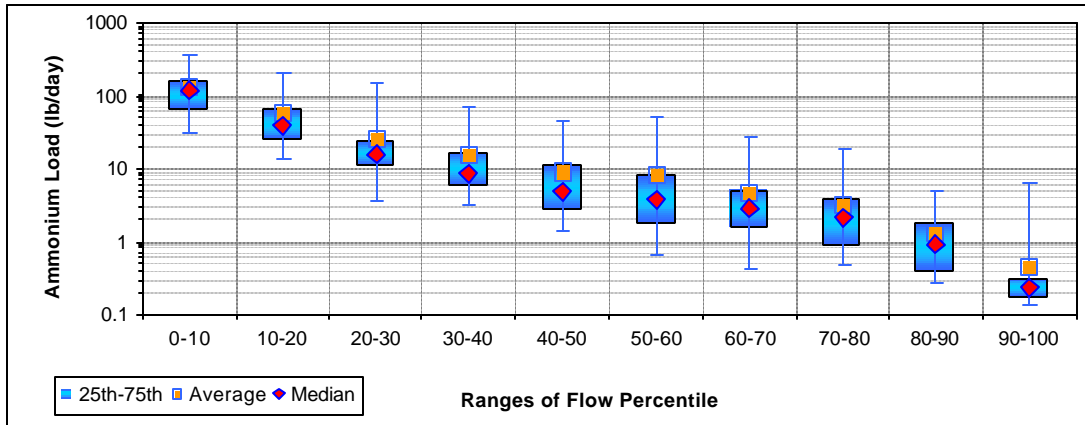


Figure J-111. Ammonium loads by flow percentile for UT to Bull Glade Run (UBL0000/WM-11)

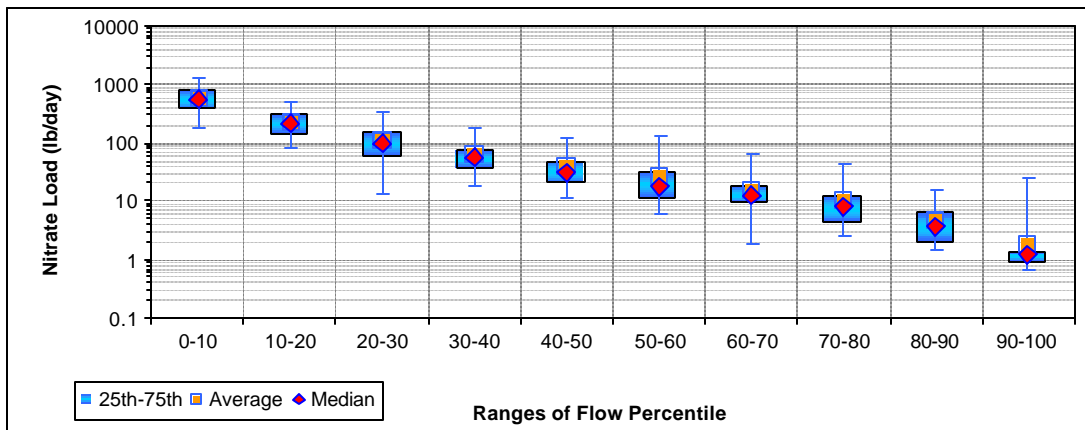


Figure J-112. Nitrate loads by flow percentile for UT to Bull Glade Run (UBL0000/WM-11)

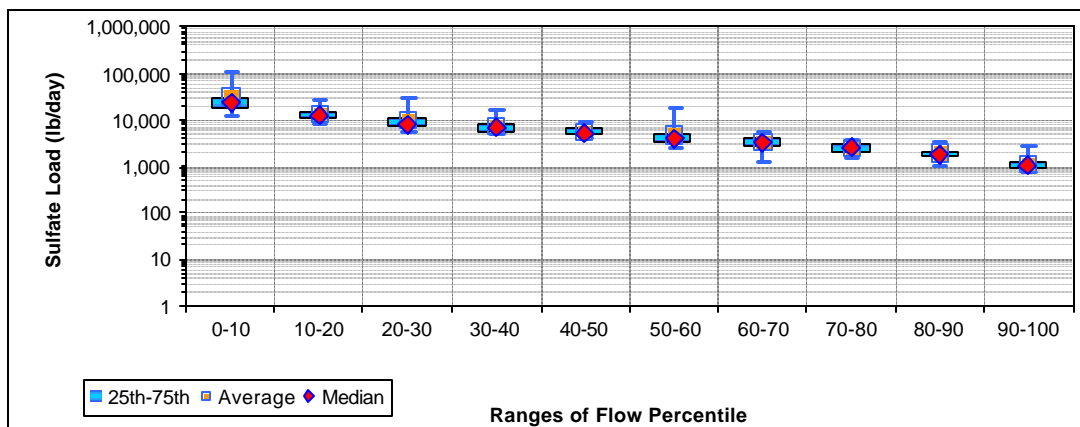


Figure J-113. Sulfate loads by flow percentile for UT to Bull Glade Run (UBL0000/WM-11)

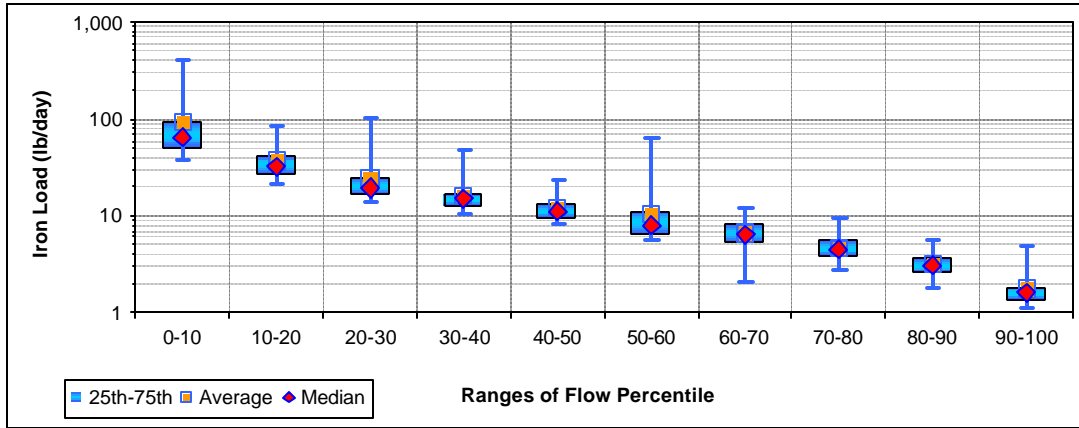


Figure J-114. Iron loads by flow percentile for UT to Bull Glade Run (UBL0000/WM-11)

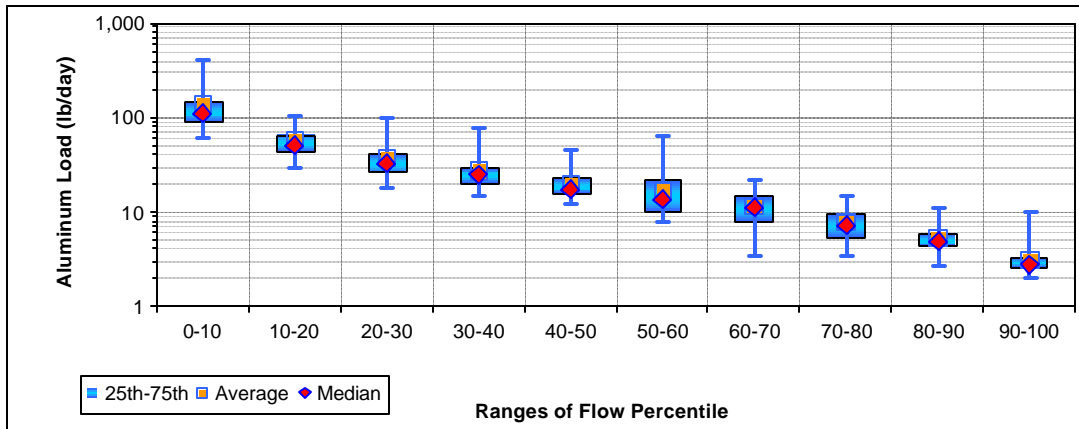


Figure J-115. Aluminum loads by flow percentile for UT to Bull Glade Run (UBL0000/WM-11)

Table J-111. Ammonium loads (lb/d) by flow percentile for UT to Bull Glade Run (UBL0000/WM-11)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	30.52	13.49	3.53	3.14	1.36	0.67	0.40	0.47	0.27	0.14
Average	127.09	58.90	24.83	15.24	9.03	8.12	4.40	3.19	1.29	0.43
Maximum	355.71	208.74	146.32	69.10	43.84	53.43	26.55	18.64	5.06	6.38
Median	112.21	38.64	15.76	8.66	4.65	3.86	2.85	2.11	0.94	0.23
25th	64.29	25.28	11.05	5.97	2.67	1.83	1.60	0.92	0.39	0.17
75th	150.84	66.83	23.90	16.51	11.00	7.92	5.03	3.74	1.79	0.31

Table J-112. Nitrate loads (lbs/d) by flow percentile for UT to Bull Glade Run (UBL0000/WM-11)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	181.55	78.95	13.90	17.66	11.51	6.17	1.78	2.42	1.45	0.69
Average	578.06	232.78	110.68	64.26	39.03	27.37	15.76	10.19	4.76	1.90
Maximum	1,232.71	510.34	330.58	184.28	125.20	126.88	63.73	44.85	16.01	25.79
Median	540.50	208.01	97.72	56.11	31.69	17.67	12.22	8.27	3.74	1.19
25th	375.22	145.57	60.05	37.59	20.90	12.07	9.15	4.24	1.93	0.92
75th	770.46	298.89	146.91	74.52	47.26	31.55	18.01	12.77	6.73	1.37

Table J-113. Sulfate loads (lbs/d) by flow percentile for UT to Bull Glade Run (UBL0000/WM-11)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	11,680.72	8,296.65	5,642.63	4,590.77	4,061.14	2,556.31	1,253.09	1,478.54	1,091.14	822.93
Average	31,206.09	13,788.32	9,633.72	7,142.50	5,597.16	4,666.09	3,465.63	2,544.75	1,890.01	1,122.75
Maximum	111,076.10	26,841.78	28,814.93	16,546.38	9,211.73	17,654.43	5,572.29	3,792.91	3,198.93	2,835.13
Median	23,761.27	12,372.54	8,014.50	6,977.03	5,110.73	3,933.17	3,474.72	2,487.91	1,847.97	1,042.40
25th	18,911.26	10,410.90	7,147.66	5,588.67	4,641.11	3,219.44	2,728.66	1,977.21	1,588.54	924.34
75th	31,981.45	15,440.25	10,293.84	8,021.61	6,514.37	5,240.96	4,147.32	2,974.62	2,107.14	1,200.33

Table J-114. Iron loads (lbs/d) by flow percentile for UT to Bull Glade Run (UBL0000/WM-11)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	37.15	20.75	13.72	10.64	8.05	5.55	2.07	2.80	1.77	1.13
Average	95.74	36.13	24.04	16.15	11.98	10.65	6.69	4.78	3.17	1.72
Maximum	409.69	81.62	103.26	48.15	22.80	64.06	12.24	9.44	5.47	4.89
Median	64.33	32.23	19.38	14.69	10.95	8.01	6.26	4.48	3.09	1.62
25th	50.12	27.15	17.03	12.75	9.46	6.74	5.28	3.80	2.57	1.38
75th	94.24	42.05	23.59	17.03	13.10	10.92	8.19	5.50	3.58	1.82

Table J-115. Aluminum loads (lbs/d) by flow percentile for UT to Bull Glade Run (UBL0000/WM-11)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	60.49	29.70	18.56	14.89	12.48	7.94	3.44	3.44	2.63	2.00
Average	135.34	57.93	36.97	26.78	20.25	16.84	11.78	7.75	5.22	3.08
Maximum	420.68	105.48	97.82	77.74	46.80	61.39	21.57	14.86	10.80	9.80
Median	109.50	50.77	32.47	24.50	17.31	13.52	11.28	7.30	4.78	2.79
25th	88.11	44.37	25.61	20.25	15.31	10.03	7.93	5.40	4.27	2.52
75th	145.79	66.68	39.61	30.24	22.68	21.33	14.73	9.55	5.83	3.24

UT to Bull Glade Run (ZWE0001/WM-7) plots and tables

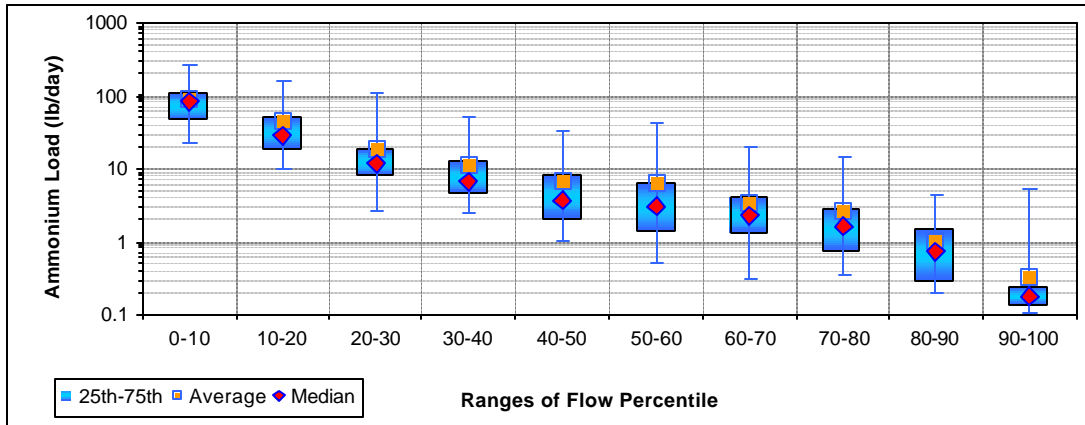


Figure J-116. Ammonium loads by flow percentile for UT to Bull Glade Run (ZWE0001/WM-7)

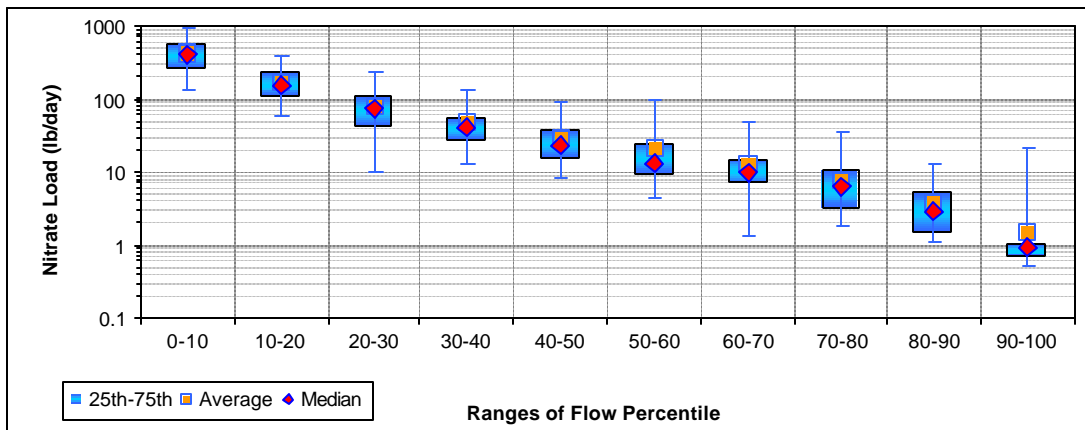


Figure J-117. Nitrate loads by flow percentile for UT to Bull Glade Run (ZWE0001/WM-7)

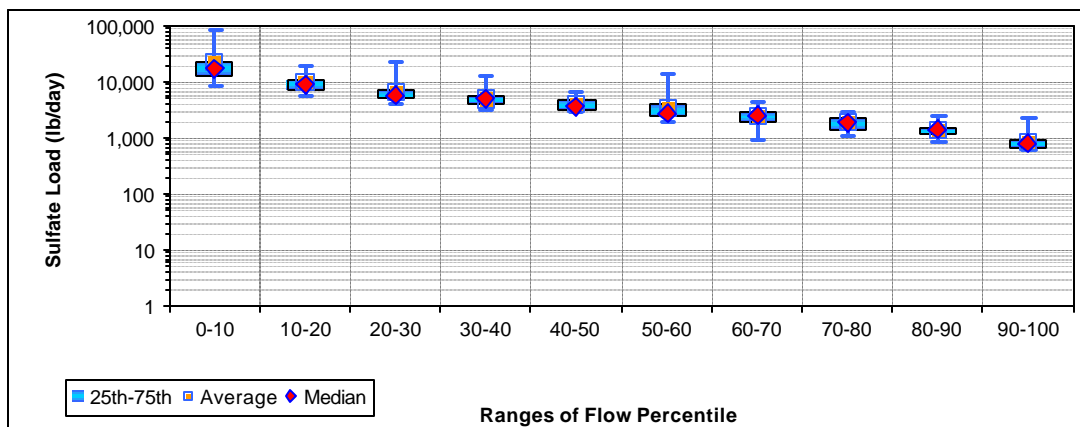


Figure J-118. Sulfate loads by flow percentile for UT to Bull Glade Run (ZWE0001/WM-7)

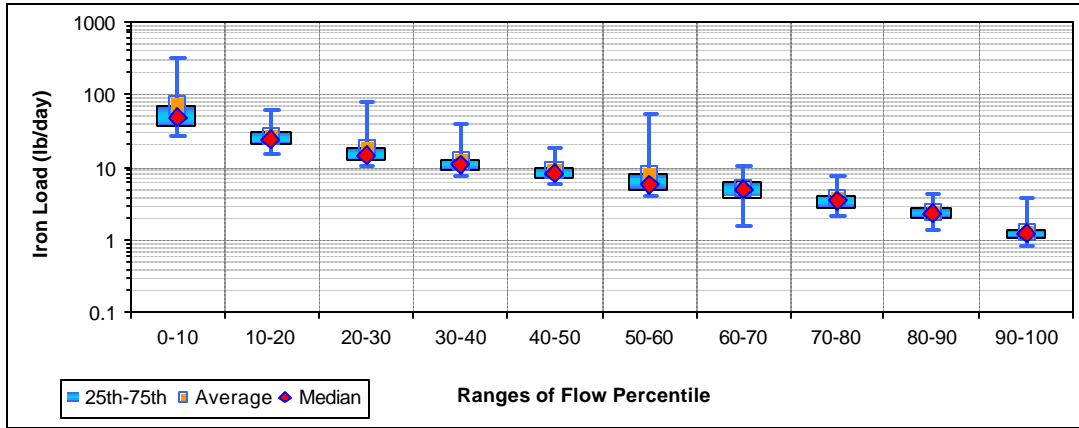


Figure J-119. Iron loads by flow percentile for UT to Bull Glade Run (ZWE0001/WM-7)

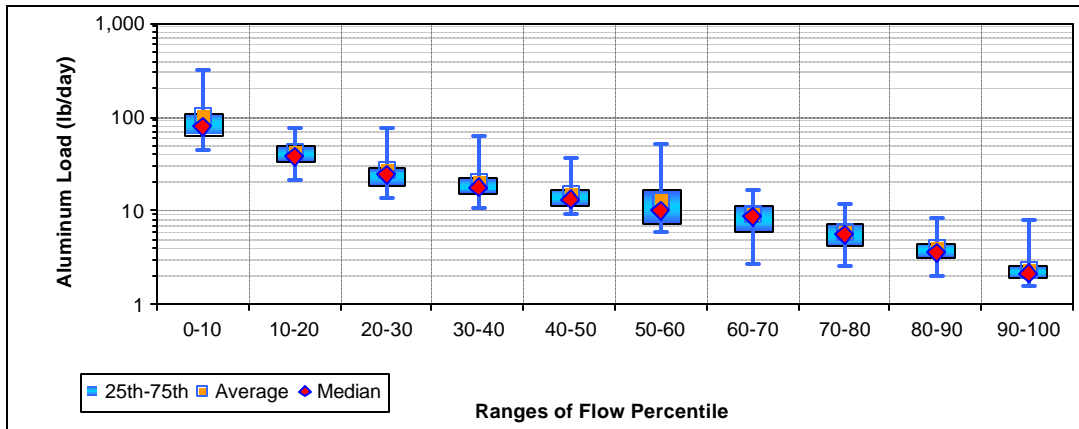


Figure J-120. Aluminum loads by flow percentile for UT to Bull Glade Run (ZWE0001/WM-7)

Table J-116. Ammonium loads (lb/d) by flow percentile for UT to Bull Glade Run (ZWE0001/WM-7)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	22.78	10.04	2.60	2.36	1.02	0.50	0.32	0.36	0.20	0.10
Average	93.63	43.19	18.42	11.34	6.78	6.23	3.40	2.49	1.03	0.34
Maximum	260.22	153.10	107.32	50.11	32.42	40.80	20.27	14.22	4.18	5.31
Median	81.34	28.55	11.95	6.75	3.55	3.00	2.23	1.66	0.74	0.17
25th	47.44	18.76	8.13	4.39	1.99	1.38	1.27	0.72	0.29	0.13
75th	111.28	48.47	18.17	12.39	8.17	6.35	3.98	2.86	1.45	0.24

Table J-117. Nitrate loads (lbs/d) by flow percentile for UT to Bull Glade Run (ZWE0001/WM-7)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	135.37	57.72	10.25	13.20	8.55	4.58	1.37	1.85	1.08	0.52
Average	426.25	171.23	82.48	47.93	29.36	21.01	12.21	7.93	3.77	1.50
Maximum	922.61	372.60	242.45	133.71	91.56	96.85	48.60	34.20	13.17	21.42
Median	394.88	152.94	73.97	42.36	24.00	13.54	9.85	6.37	2.92	0.91
25th	275.91	107.24	44.87	28.25	15.63	9.19	7.14	3.15	1.49	0.69
75th	562.72	221.90	109.34	55.46	36.16	25.39	14.61	10.36	5.31	1.04

Table J-118. Sulfate loads (lbs/d) by flow percentile for UT to Bull Glade Run (ZWE0001/WM-7)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	8,333.90	6,042.83	4,106.60	3,340.41	2,956.07	1,906.02	950.32	1,094.92	831.17	625.26
Average	23,164.32	10,107.05	7,151.60	5,271.09	4,136.36	3,533.35	2,617.17	1,927.59	1,436.52	851.02
Maximum	84,619.79	19,545.51	22,349.32	13,153.90	7,094.49	14,614.19	4,313.14	2,945.59	2,480.65	2,273.79
Median	17,574.49	9,075.87	5,931.22	5,149.65	3,738.56	2,915.82	2,580.87	1,884.08	1,400.13	798.00
25th	13,856.19	7,605.79	5,233.73	4,117.86	3,402.83	2,371.51	2,011.04	1,475.47	1,214.21	696.76
75th	23,594.86	11,365.17	7,569.73	5,978.55	4,771.78	3,998.91	3,122.20	2,263.03	1,612.69	907.91

Table J-119. Iron loads (lbs/d) by flow percentile for UT to Bull Glade Run (ZWE0001/WM-7)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	27.41	15.16	10.13	7.79	5.86	4.15	1.58	2.07	1.36	0.85
Average	71.59	26.61	18.02	12.01	8.93	8.20	5.11	3.66	2.42	1.31
Maximum	313.75	61.58	80.47	38.77	17.76	53.28	10.00	7.77	4.27	3.93
Median	48.27	23.86	14.26	10.77	8.01	5.95	4.76	3.40	2.37	1.23
25th	36.77	20.02	12.56	9.40	6.93	4.99	3.91	2.82	1.92	1.05
75th	69.61	30.94	17.79	12.60	9.70	8.41	6.10	4.21	2.74	1.36

Table J-120. Aluminum loads (lbs/d) by flow percentile for UT to Bull Glade Run (ZWE0001/WM-7)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	44.19	21.69	13.73	10.85	9.09	5.96	2.62	2.55	2.01	1.53
Average	100.50	42.58	27.56	19.90	15.11	12.91	9.01	5.93	4.00	2.34
Maximum	318.88	76.65	75.84	62.22	36.61	50.95	17.06	11.69	8.47	7.96
Median	80.42	37.34	23.91	17.95	12.81	10.14	8.61	5.51	3.66	2.13
25th	64.58	32.70	18.68	15.15	11.21	7.34	5.95	4.10	3.22	1.90
75th	107.68	48.80	28.96	22.09	16.70	16.10	11.49	7.19	4.51	2.48

UT to Glade Run (UGB0002/BM913) plots and tables

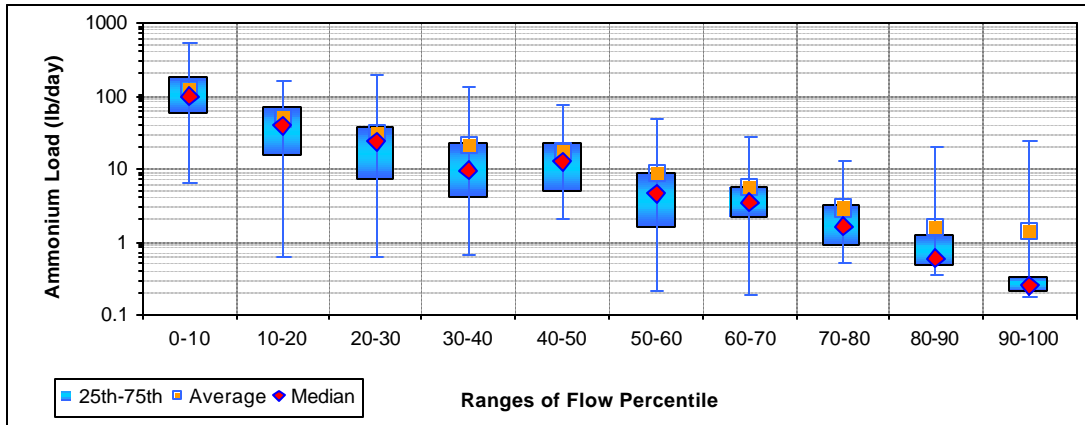


Figure J-121. Ammonium loads by flow percentile for UT to Glade Run (UGB0002/BM913)

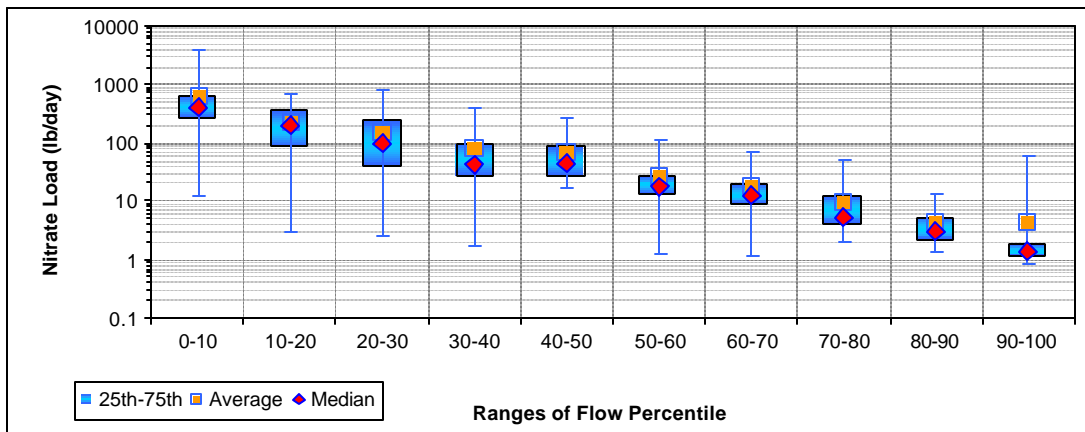


Figure J-122. Nitrate loads by flow percentile for UT to Glade Run (UGB0002/BM913)

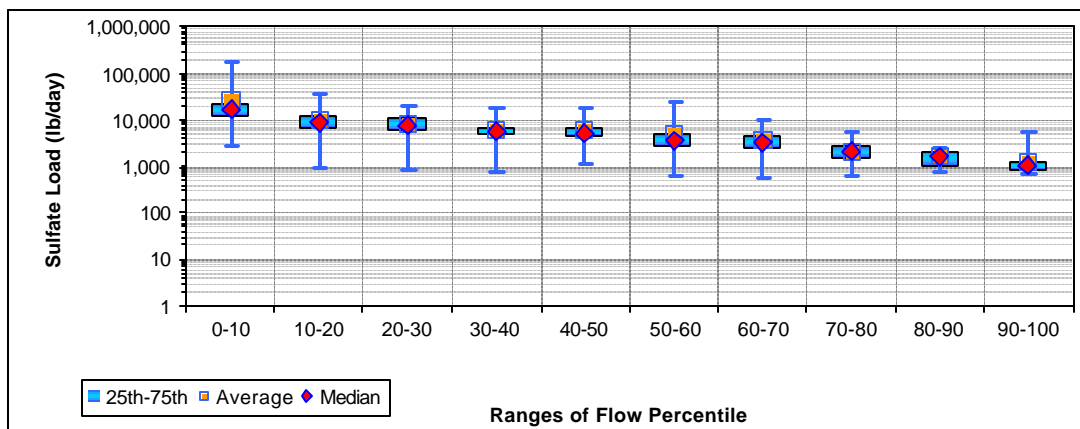


Figure J-123. Sulfate loads by flow percentile for UT to Glade Run (UGB0002/BM913)

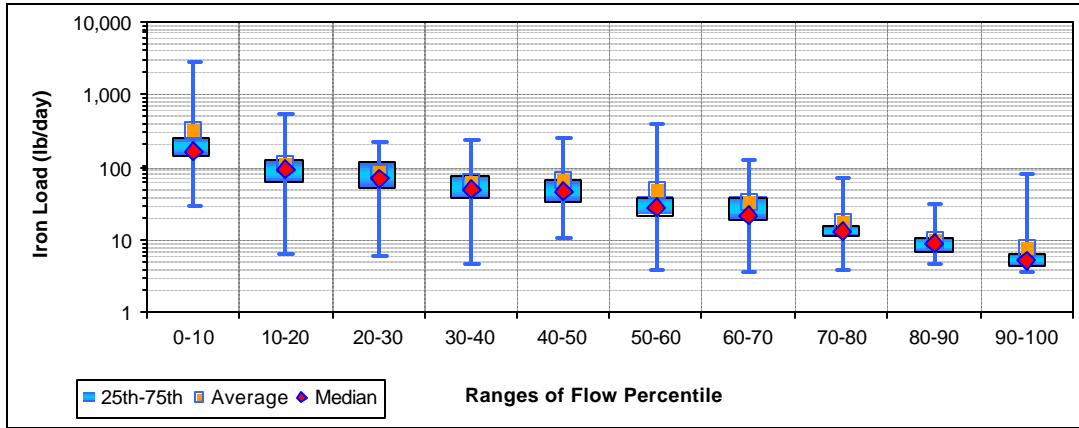


Figure J-124. Iron loads by flow percentile for UT to Glade Run (UGB0002/BM913)

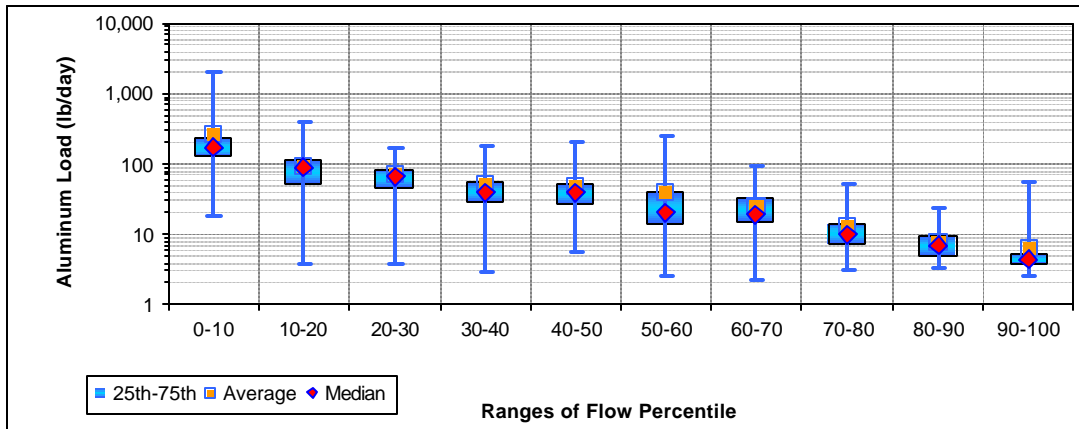


Figure J-125. Aluminum loads by flow percentile for UT to Glade Run (UGB0002/BM913)

Table J-121. Ammonium loads (lb/d) by flow percentile for UT to Glade Run (UGB0002/BM913)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	6.49	0.61	0.63	0.65	2.05	0.20	0.19	0.51	0.34	0.18
Average	124.83	47.90	31.73	20.46	17.42	8.24	5.77	2.90	1.52	1.38
Maximum	544.01	160.93	187.09	129.41	71.89	45.20	26.33	12.49	19.56	22.91
Median	94.96	38.44	23.69	9.24	12.41	4.42	3.33	1.64	0.59	0.26
25th	59.92	14.94	7.31	4.01	4.81	1.59	2.17	0.85	0.46	0.21
75th	177.37	68.45	37.32	21.72	22.52	8.33	5.61	3.20	1.20	0.32

Table J-122. Nitrate loads (lbs/d) by flow percentile for UT to Glade Run (UGB0002/BM913)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	12.37	2.93	2.47	1.67	16.66	1.16	1.11	1.96	1.38	0.83
Average	632.56	233.60	152.52	82.34	68.80	26.85	17.85	9.77	4.38	4.36
Maximum	4,059.90	670.70	759.28	382.03	260.92	113.89	69.63	52.42	13.57	59.61
Median	415.88	198.19	100.15	43.07	44.74	17.85	12.38	5.54	2.92	1.38
25th	272.62	84.05	38.35	27.40	27.21	13.25	8.75	4.14	2.13	1.13
75th	606.69	346.01	239.76	100.90	84.30	27.33	19.47	12.32	5.47	1.80

Table J-123. Sulfate loads (lbs/d) by flow percentile for UT to Glade Run (UGB0002/BM913)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	2,703.36	947.27	891.38	722.76	1,095.75	635.66	585.40	622.26	826.51	673.08
Average	25,317.12	9,547.18	8,330.39	6,454.91	6,285.51	4,674.22	3,721.91	2,217.98	1,580.90	1,213.25
Maximum	184,419.11	35,358.94	19,871.67	17,718.97	18,047.76	24,688.48	9,373.52	5,876.90	2,526.73	5,813.46
Median	15,928.13	8,733.16	7,169.61	5,443.18	5,288.95	3,542.82	3,308.70	2,090.31	1,602.24	1,032.60
25th	12,639.86	6,690.35	6,106.36	4,895.27	4,166.69	2,867.22	2,580.81	1,540.52	1,045.17	869.15
75th	21,294.67	11,277.34	10,413.81	6,850.81	6,648.18	4,642.04	4,503.83	2,803.72	2,059.71	1,264.12

Table J-124. Iron loads (lbs/d) by flow percentile for UT to Glade Run (UGB0002/BM913)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	28.80	6.19	5.77	4.70	10.39	3.92	3.51	4.05	4.72	3.54
Average	325.23	109.19	84.62	62.31	63.91	49.73	32.16	17.31	10.07	7.79
Maximum	2,764.04	535.57	226.19	242.26	261.40	404.09	121.55	74.99	31.45	84.21
Median	164.91	91.12	70.88	47.64	45.74	27.01	21.56	13.27	9.02	5.26
25th	140.96	62.74	52.64	36.01	32.63	21.41	18.54	10.89	7.11	4.46
75th	252.26	121.39	112.50	75.43	64.85	38.99	38.91	16.01	10.74	6.38

Table J-125. Aluminum loads (lbs/d) by flow percentile for UT to Glade Run (UGB0002/BM913)

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Minimum	18.53	3.95	3.67	2.83	5.57	2.51	2.32	2.98	3.23	2.60
Average	277.64	94.15	69.79	51.66	49.39	38.95	26.47	13.53	7.88	6.09
Maximum	2,059.86	382.60	175.05	184.93	197.93	264.26	94.05	51.27	22.45	54.50
Median	171.71	86.56	66.09	39.27	39.68	20.52	19.55	10.27	6.86	4.37
25th	129.75	52.60	45.11	29.44	27.14	14.65	15.50	7.56	4.97	3.66
75th	232.97	109.29	86.18	56.72	52.49	38.00	32.20	14.07	9.29	5.31