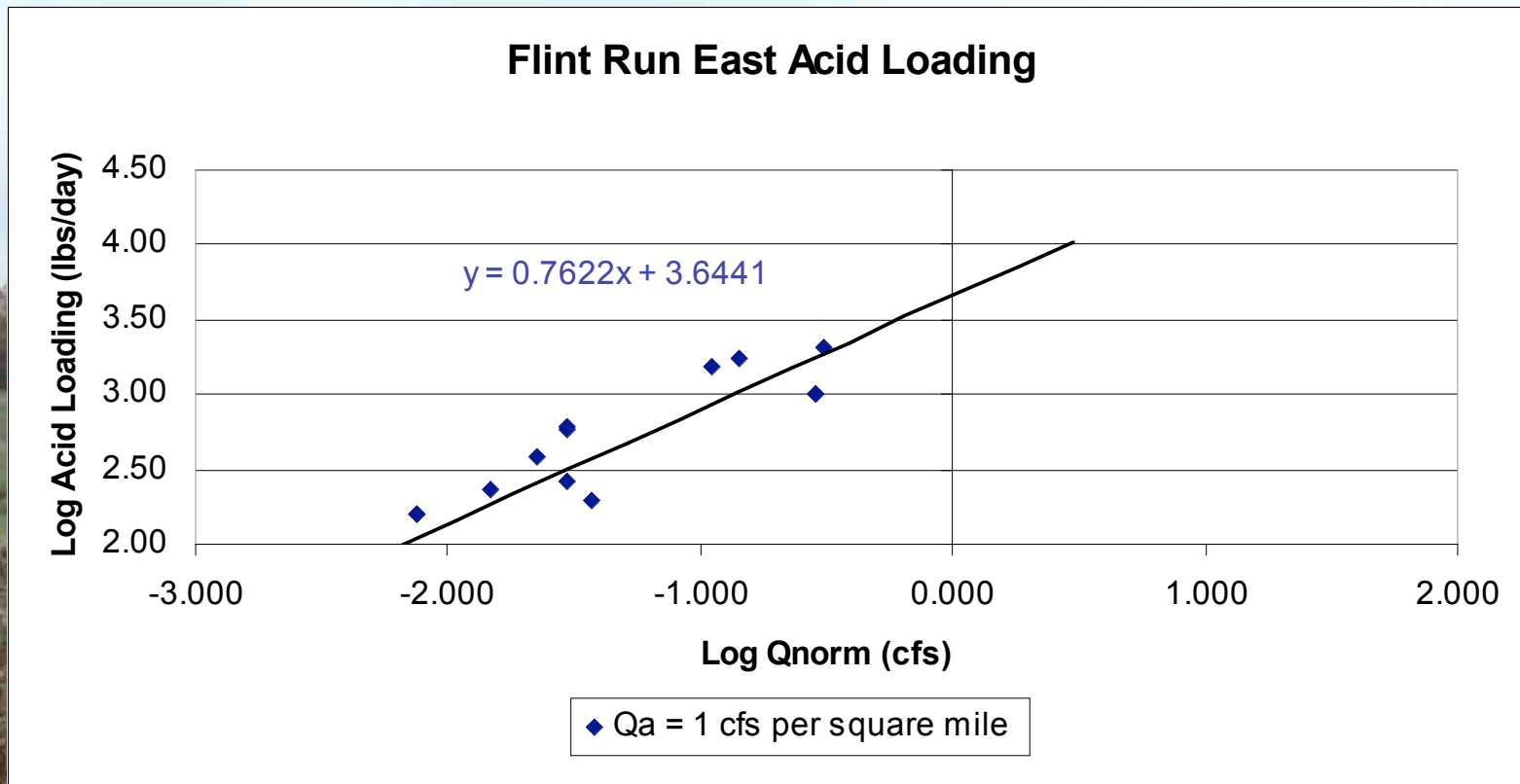


Data Interpretation and Reporting

A landscape photograph showing a field of tall, dry grasses in the foreground. In the middle ground, there is a line of trees with some autumn-colored foliage. The sky is overcast and grey. The text "Data Interpretation and Reporting" is overlaid in the upper half of the image.

Analysis of techniques for estimating, interpreting, and reporting acid loads or load reductions for small drainages

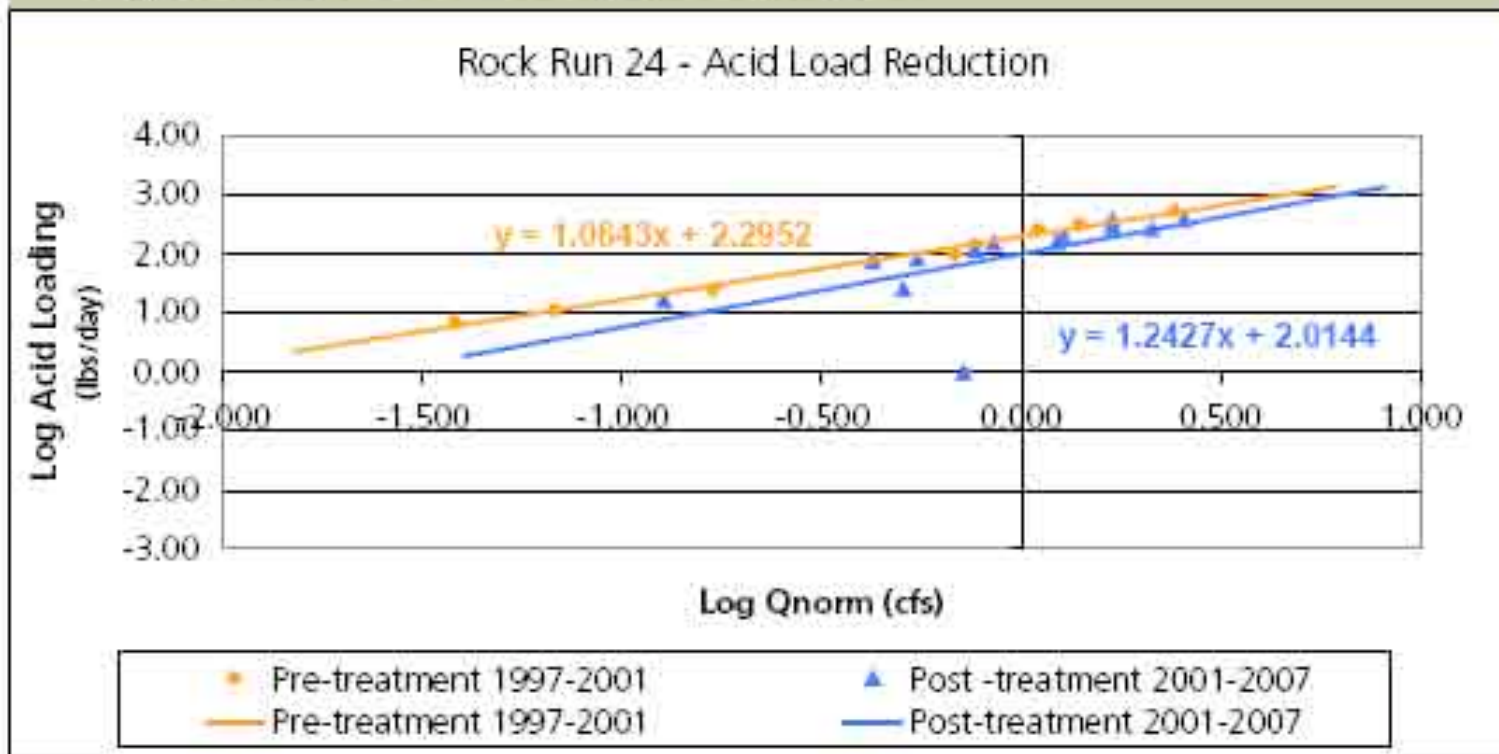


Drainage area = 1.34 square miles; approximate mean annual flow as one to one ratio with drainage area

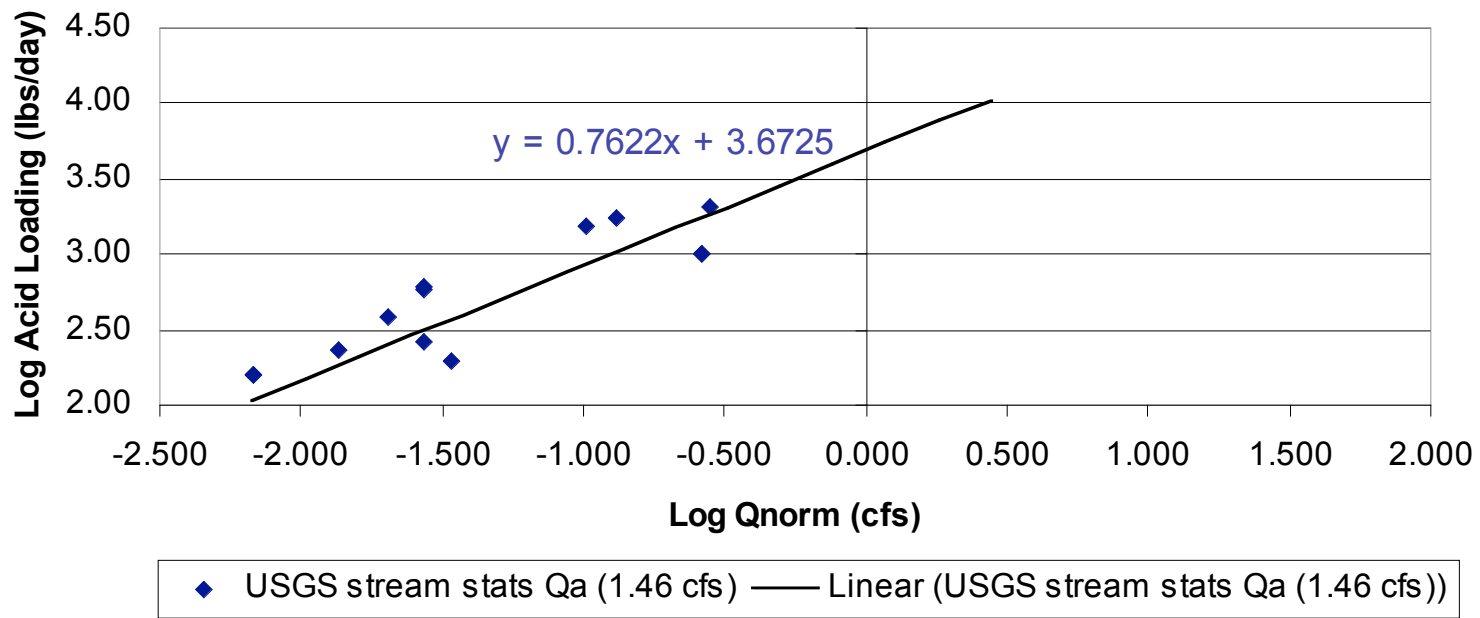
$$Q_A = 1.34 \text{ cfs}$$

Mean Annual Acidity Load

Figure 3. Acid Load Reduction

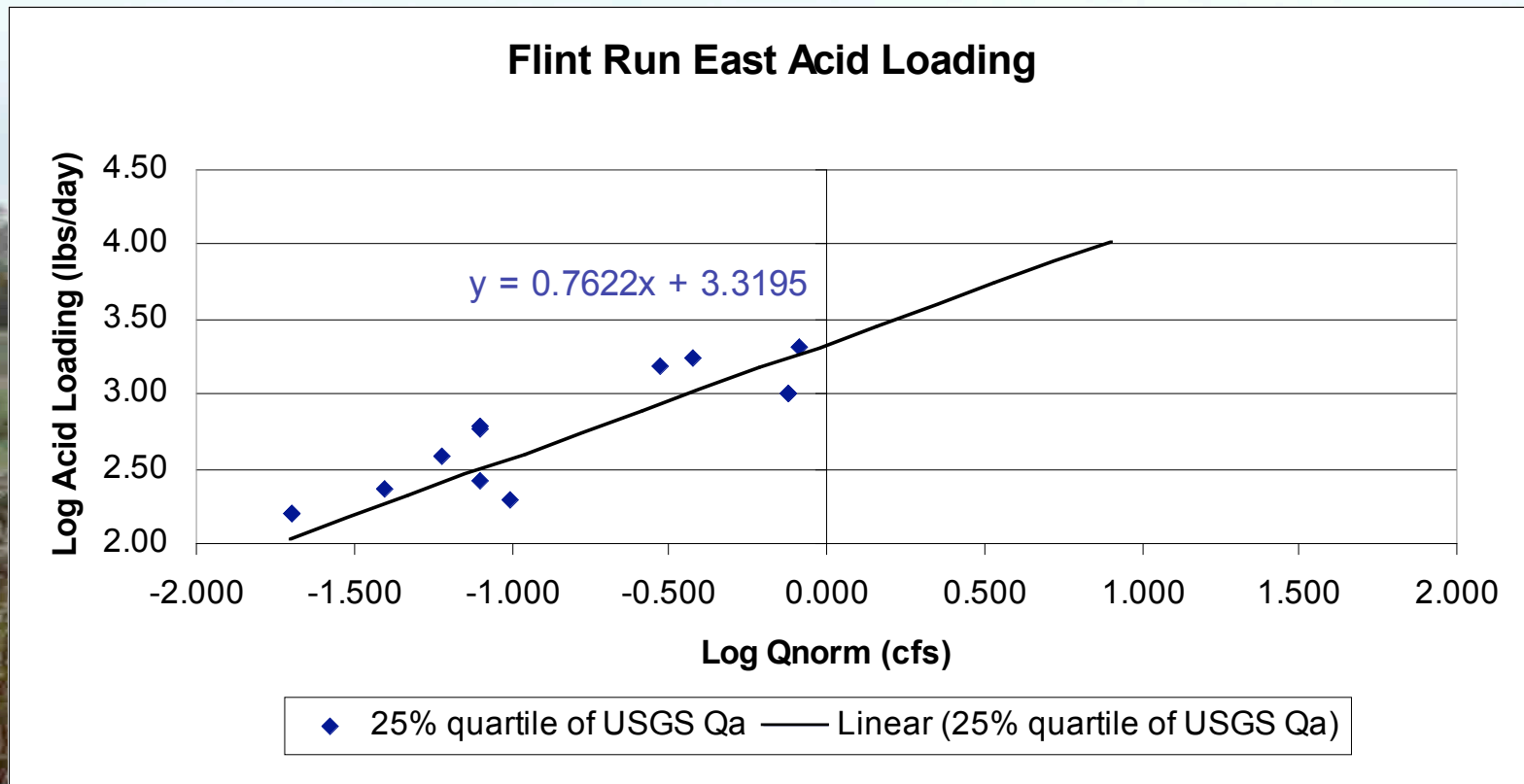


Flint Run East (FR126) Acid Loading



Calculate mean annual flow (Q_A) using USGS equations via online streamstats program. <http://water.usgs.gov/osw/streamstats/>

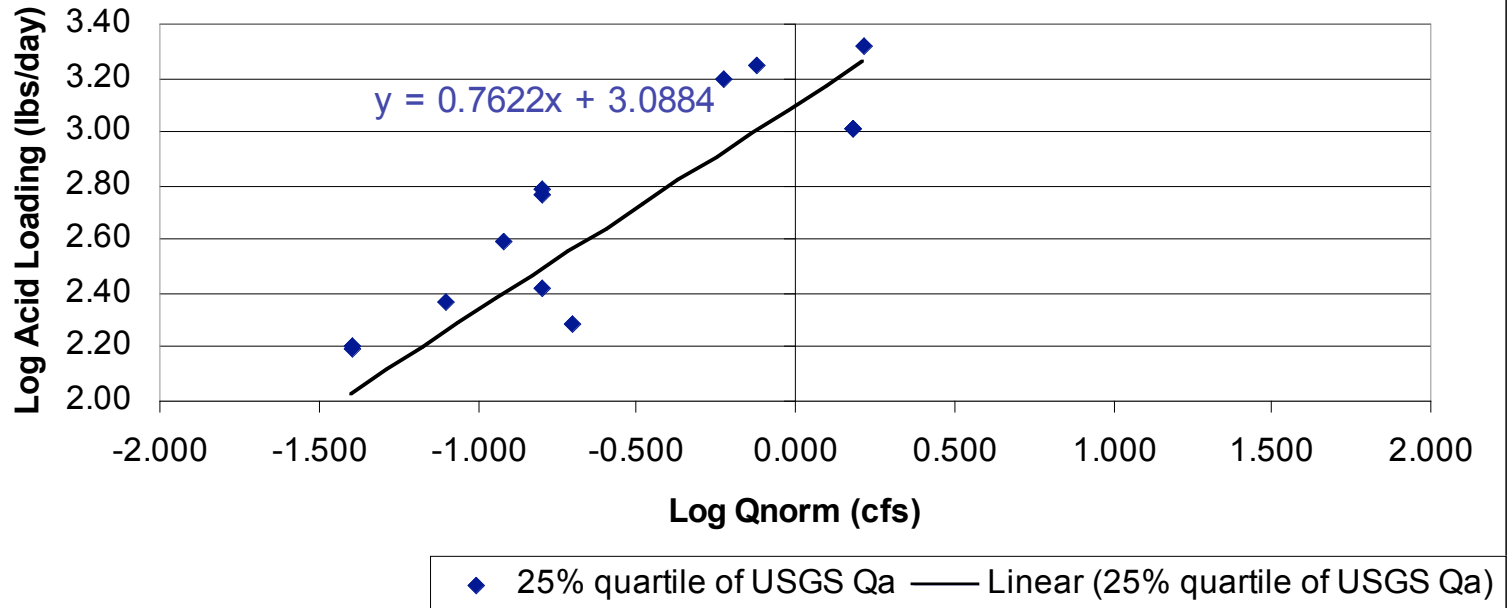
$Q_A = 1.46$ cfs



Using streamstats program and mean monthly flows, use the 25% quartile as surrogate for Q_A

$$QA = 0.5025 \text{ cfs}$$

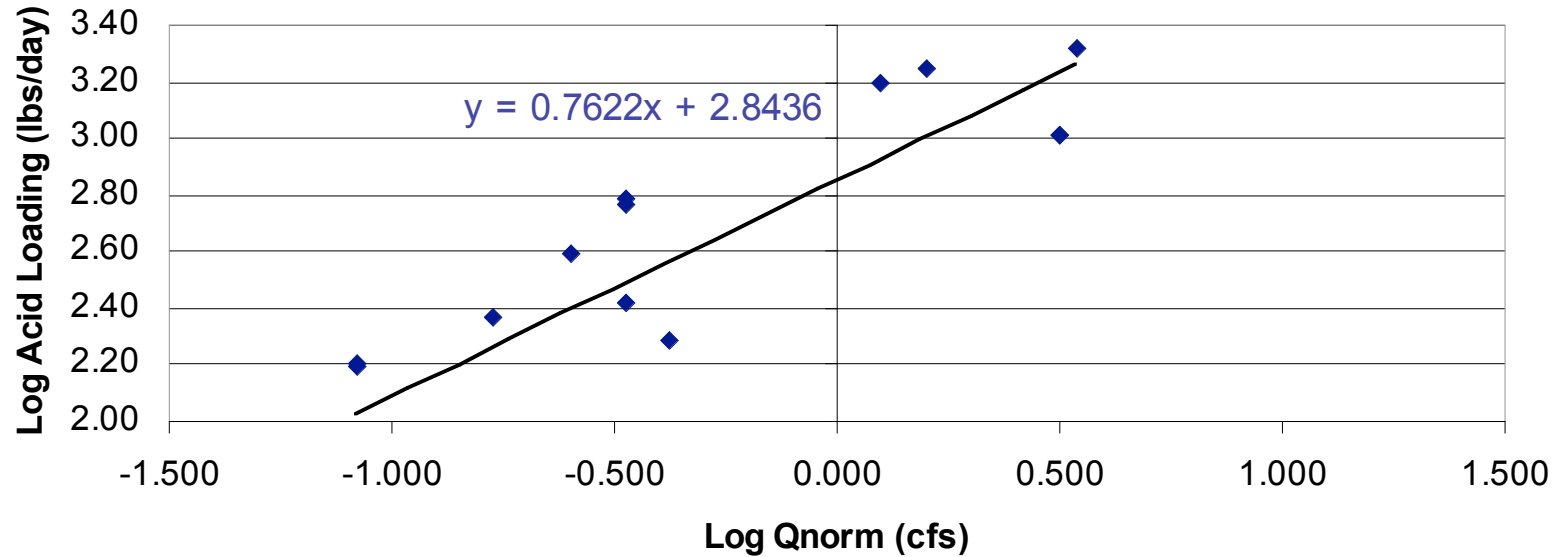
Flint Run East Acid Loading



Uses the minimum monthly mean flow for the site (streamstats) as a surrogate for Q_A - [October]

$$Q_A = 0.25 \text{ cfs}$$

Flint Run East Acid Loading



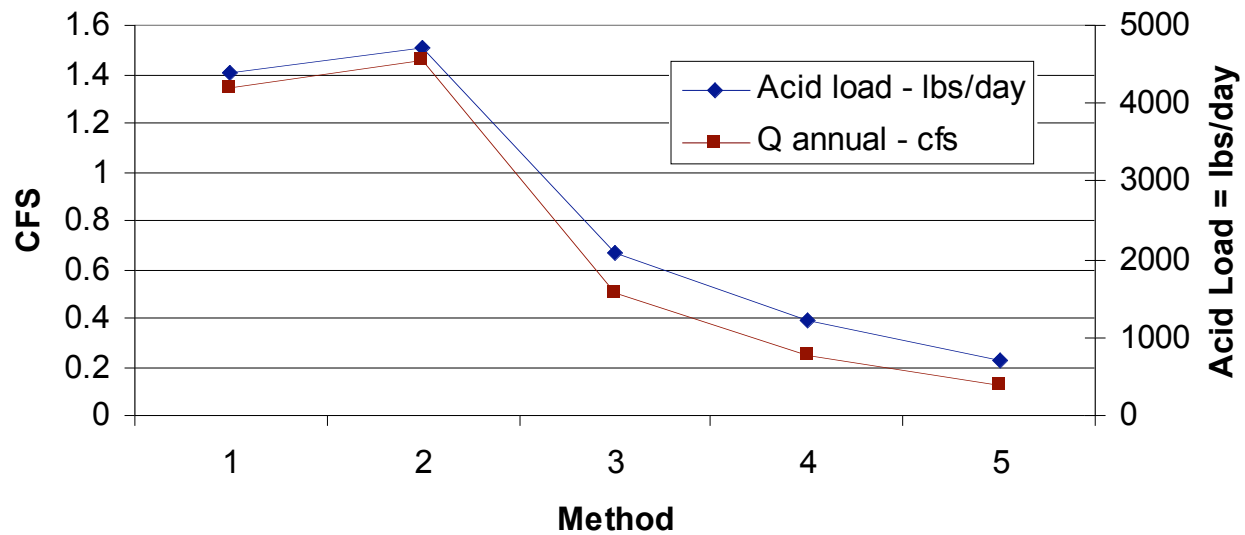
◆ Average Measured Flow — Linear (Average Measured Flow)

Use the average measured flow as a surrogate for the mean annual flow

$$Q_A = 0.1193$$

No.	Method for Estimating Mean Annual Flow	Q annual - cfs	Acid load - lbs/day
1	Equation of 1cfs per square mile in SE Ohio	1.34	4407
2	Streamstats derived mean annual flow (equation)	1.46	4704
3	25% quartile of mean monthly flow for site	0.5025	2087
4	Minimum mean monthly flows for site	0.25	1226
5	Average of measured flows at site	0.1193	698

Comparison of Different Mean Annual Flows and the Effect on Estimating Acid Loads



Challenges for Estimating Mean Annual Flows for Estimating Load Reductions

- Really small drainages areas (<0.12 square miles) where flow is unpredictable and steady state flow is hard to measure
- Sites that have underground mine drainage – changes flow regime
- Sites that have hardened surfaces that increase faster runoff (i.e. reclaimed surface mine sites)
- Others....

Discussion...

- What load (or load reduction) technique is the most appropriate for reporting purposes?
- Is there other techniques? – are they more or less data intensive?
- Should there be consistency for reporting purposes or should each site be evaluated independently?