

Fairfax County 2018 MS4 Program Plan and Annual Report

Appendix R17

Summary of The Biological Monitoring Results and Analyses and an Interpretation of that Data with Respect to Long-Term Patterns/Trends

VSMP Permit Number VA0088587
9-28-2018

During the 2018 permit cycle, the five selected sites within Fairfax County were monitored twice for benthic macroinvertebrates and habitat. Although the benthic macroinvertebrate assemblage scored consistently higher on the Virginia Stream Condition Index (VSCI) in the fall monitoring period compared to the spring, scores ranged from Slightly Impaired (1) to Severely Impaired (3). While the spring samples were dominated by Chironomidae and oligochaetes, the fall samples continue to be dominated by tolerant Trichoptera (Philopotamidae and Hydropsychidae) with a distinct lack of Chironomidae and oligochaetes. Fairfax County uses a multi-habitat benthic survey and subsamples to approximately 200 individuals, which are identified to the lowest practicable level (usually genus). In order to calculate the VSCI the sample is rarified to 110 individuals and aggregated to family (and some higher-level taxa) for analysis. The fall samples held an average of four more taxa than the spring samples.

Fairfax County utilizes stream habitat assessments modified from EPA’s rapid bioassessment protocol. Environmental factors that can influence scores are differing water levels and vegetative growth depending on the season the assessment was done.

Since only two benthic and habitat assessments have been conducted for each season, no long-term analysis of trends can be completed at this time.

Site ID	Season	Virginia SCI (out of 100)	Rating	Habitat Scores (out of 200)
01645704 – Difficult Run	Fall	48.9	Impaired (1)	124
	Spring	23	Impaired (2)	100
01645762 – South Fork Little Difficult Run	Fall	56.2	Impaired (1)	111
	Spring	39.5	Impaired (2)	112
01646305 – Dead Run	Fall	36.6	Impaired (2)	132
	Spring	16.6	Impaired (3)	123
01654500 – Long Branch	Fall	29.7	Impaired (2)	104
	Spring	17.1	Impaired (3)	103
01656903 – Flatlick Branch	Fall	48	Impaired (1)	94
	Spring*	22.9	Impaired (2)	130

* Site moved upstream due to stream restoration construction

During the both the fall and spring sampling period the Flatlick Branch site (01656903) was under stream restoration construction. The site was shifted upstream out of the active channel construction (in the spring) and into a section of the stream where a restoration was recently completed. Once the restoration is complete the site will be moved back to its original location. This move had an impact on both the VSCI and habitat scores. The VSCI scores dropped, likely due to the new stream channel alignment, imported bed material at the site and lack of sufficient time for benthic macroinvertebrates to re-colonize the area. The habitat score jumped as a result of the increase to the scores for riparian area, bank stability and bank vegetative protection. All three parameters increased by at least 10 points as a direct result of the restoration and the divergence from various stages of construction the previous fall. Conversely, the channel alteration metric dropped significantly, as this is a newly created (manmade) channel.