

Abram's Creek

(TMDL Study prepared in conjunction with Opequon Creek study)

Location: Winchester, Frederick County
Pollutant / Water Quality Measure: Bacteria (fecal coliform)
Level of impairment: From 1992-1997, 17% of samples exceeded the instantaneous standard (10 out of 58 samples)
Sources: Urban NPS (failing septic systems, straight pipes, pets), Agricultural NPS (livestock), wildlife, wastewater treatment plants
TMDL pollutant load reductions: 96% reduction of wastes from septic systems and straight pipes, 96% reduction of wastes in urban runoff (pet wastes), 30% reduction of direct deposits from cattle into streams

Abram's Creek

(TMDL Study prepared in conjunction with Opequon Creek study)

Location: Winchester, Frederick County
Pollutant / Water Quality Measure: Benthic organisms
Level of impairment: Moderately impaired
Benthic Stressor: Sediment
Sources: Stream channel erosion, erosion from construction sites, runoff from urban impervious surfaces, wastewater treatment plants, agriculture (cropland and livestock in stream), forest land
TMDL pollutant load reductions: 54.8% reduction of sediment from channel erosion, 25% reduction from urban runoff (construction and impervious surfaces) and the Winchester stormwater system, 10% reduction from agricultural sources

Holman's Creek

Location: Shenandoah County
Pollutant / Water Quality Measure: Bacteria (fecal coliform)
Level of impairment: From 1991-2001, 37% of samples exceeded the instantaneous standard (29 out of 79 samples)
Sources: Agricultural NPS (livestock, land-applied animal wastes), urban NPS (failing septic systems, straight pipes), wildlife
TMDL pollutant load reductions: 100% reduction of direct deposits from cattle into streams, 100% reduction of wastes from septic systems and straight pipes, 90 % reduction of wildlife wastes*

Holman's Creek

Location: Shenandoah County
Pollutant / Water Quality Measure: Benthic organisms
Level of impairment: Moderately impaired
Benthic Stressor: Sediment, toxic materials (possible)
Sources of Sediment: Agriculture (cropland and pasture), erosion from construction sites and other barren areas, runoff from urban impervious and pervious surfaces, wastewater treatment plants, forest land
TMDL pollutant load reductions: 30% reduction of sediment from cropland, 29% reduction from pastureland, 70% reduction from barren land (quarry, construction sites) and 30% reduction from urban (pervious and impervious) land

Opequon Creek (Upper and Lower)

(TMDL Study prepared in conjunction with Abrams Creek study)

Location: Frederick County
Pollutant / Water Quality Measure: Bacteria (fecal coliform)
Level of impairment: Upper Opequon: from 1992-1997, 19% of samples exceeded the instantaneous standard (11 out of 58 samples)
Lower Opequon: from 1992-1997, 12% of samples exceeded the instantaneous standard (7 out of 59 samples)
Sources: Agricultural NPS (livestock, land-applied animal waste), some urban NPS (failing septic systems, straight pipes, pets), wildlife
TMDL pollutant load reductions: Upper Opequon: 100% reduction of direct deposits from cattle into streams, 100% reduction of wastes from loafing lots, 90% reduction of wastes spread or deposited on cropland and pastureland, 90% reduction of urban runoff (pet wastes), 90% reduction of wastes from septic systems and straight pipes, 95 % reduction of wildlife wastes*
Lower Opequon: 100% reduction of wastes from cattle loafing lots, 95% reduction of wastes spread or deposited on cropland and pastureland, 80% reduction of urban runoff (pet wastes)/, 80% reduction of wastes from septic systems and straight pipes

Opequon Creek (Lower)

(TMDL Study prepared in conjunction with Abrams Creek study)

Location: Frederick County
Pollutant / Water Quality Measure: Benthic organisms
Level of impairment: Moderately impaired
Benthic Stressor: Sediment
Sources: Stream channel erosion, agriculture (cropland and livestock in stream), erosion from construction sites, runoff from urban impervious surfaces, wastewater treatment plants, forest land
TMDL pollutant load reductions: 35.1% reduction of sediment from channel erosion, 15% reduction of sediment from each of the following: urban runoff (construction and impervious surfaces), Winchester stormwater system and agricultural sources

Tom's Brook

Location: Shenandoah County
Pollutant / Water Quality Measure: Benthic organisms
Level of impairment: Moderately impaired
Benthic Stressors: Sediment (most probable), Ammonia (possible), Organic material (possible), Nutrients (possible, but unlikely)
Sources of Sediment: Agriculture (cropland and livestock in stream), forest land, stream channel erosion, erosion from construction sites, runoff from urban impervious surfaces
Sources of Ammonia: Tom's Brook – Maurertown Wastewater Treatment Plant process upsets
Sources of Organic material: Tom's Brook – Maurertown Wastewater Treatment Plant process upsets
Sources of Nutrients: Surface runoff, Tom's Brook – Maurertown Wastewater Treatment Plant
TMDL pollutant load reductions: 14.3% reduction of sediment loads from each of the following: agricultural, urban, and forest sources and stream channel erosion

Shenandoah River / South and North Forks of Shenandoah River

Location: Front Royal, Warren, Clarke
Pollutant / Water Quality Measure: PCBs in fish tissue
Source: Past releases from former Avtex site in Front Royal
TMDL conclusion: Allow natural processes to flush out PCBs in sediments (natural attenuation)

Smith Creek

Location: Shenandoah County
Pollutant / Water Quality Measure: Bacteria (fecal coliform)
Level of impairment: From 1990-2003, in Smith Creek and several tributaries, 35% of samples exceeded the instantaneous standard (79 out of 226 samples)
Sources: Agricultural NPS (livestock, land-applied animal wastes), urban NPS (failing septic systems, straight pipes, pets), municipal waste water treatment plants, wildlife
TMDL pollutant load reductions: 100% reduction of wastes from straight pipes, 95% of wastes from urban sources (failed septic systems, pervious and impervious surfaces, Harrisonburg stormwater system), 95% reduction of direct deposits from cattle into streams, 92% of wastes from cropland (applied wastes) and pasture land

Smith Creek

Location: Shenandoah County
Pollutant / Water Quality Measure: Benthic organisms
Level of impairment: Impairment level not noted in TMDL study
Benthic Stressor: Sediment (primary), organic matter (possible), nutrients (possible)
Sources of Sediment: Agriculture (cropland and pasture), erosion from construction sites, runoff from urban impervious and pervious surfaces, wastewater treatment plants, forest land
TMDL pollutant load reductions: 22% reductions from each of the following sources: pasture, cropland, construction sites, urban impervious and pervious surfaces, Harrisonburg stormwater system.

* Note: Regarding TMDLs showing reductions needed in wildlife wastes, the TMDL implementation plan will recommend that reductions in other sources be addressed initially. If water quality improves so that the stream meets the bacterial standard, then the wildlife element will not be pursued. If despite all efforts, the stream does not meet the bacterial standard, the TMDL will be revised or the stream will be designated as not suitable for human contact.