

WVDEP STREAM SURVEY

STREAM_NAME	Fill Hollow
ANcode	WVMC-31.7
SAMPLE_DATE	24-Jul-96
POR_LAT_DEG	39
POR_LAT_MIN	20
POR_LAT_SEC	55.53
POR_LON_DEG	79
POR_LON_MIN	40
POR_LON_SEC	59.31
USEPA-RBP HABITAT	SCORE
EPIFAUNALSUBSTRATE_FISHCOVER	14
EMBEDDEDNESS_POOLSUBSTRATE	18
VELOCITYDEPTH_POOLVARIABILITY	18
CHANNELALTERATION	15
SEDIMENTDEPOSITION	18
RIFFLEFREQ_CHANNELSINUOSITY	18
CHANNELFLOWSTATUS	20
TOTALBANKSTABILITY	16
TOTALBANKVEGETATIVEPROTECTION	12
TOTALWIDTHUNDISTURBEDVEGZONE	2
TOTAL_RBP_SCORE	151
RBP_NARRATIVE_SCORE	Sub-Optimal
FIELD WATER QUALITY	VALUE
Temperature (C)	18.8
pH (SU)	6.8
DO (mg/L)	8.3
Specific Conductance (umhos/cm)	59
BENTHIC MACROINVERTEBRATE TAXA	COUNT
Oligochaeta	25
Baetidae	3
Isonychiidae	1
Heptageniidae	3
Leptophlebiidae	16
Gomphidae	1
Capniidae/Leuctridae	13
Peltoperlidae	5
Perlidae	1
Chloroperlidae	5
Psephenidae	2
Philopotamidae	2
Hydropsychidae	2
Chironomidae	5
WVSCI & COMPONENT METRICS	SCORE
PCT_2_DOMINANT_TAXA_FAMILY	48.81
PCT_CHIRONOMIDAE	5.95
PCT_EPT_FAMILY	60.71
HBI_FAMILY	4.85
NUM_EPT_TAXA_FAMILY	10
NUM_TOTAL_TAXA_FAMILY	14
WVSCI	75.94
Narrative Score	Unimpaired-Good

WVDEP STREAM SURVEY

STREAM_NAME	Fill Hollow
ANCODE	WVMC-31.7
MILE_POINT	0.5
SAMPLE_DATE	01-Oct-07
POR_LAT_DEG	39
POR_LAT_MIN	20
POR_LAT_SEC	22.9
POR_LON_DEG	79
POR_LON_MIN	41
POR_LON_SEC	28.4
USEPA-RBP HABITAT	SCORE
EPIFAUNALSUBSTRATE_FISHCOVER	18
EMBEDDEDNESS_POOLSUBSTRATE	18
VELOCITYDEPTH_POOLVARIABILITY	10
CHANNELALTERATION	19
SEDIMENTDEPOSITION	16
RIFFLEFREQ_CHANNELSINUOSITY	20
CHANNELFLOWSTATUS	15
TOTALBANKSTABILITY	17
TOTALBANKVEGETATIVEPROTECTION	19
TOTALWIDTHUNDISTURBEDVEGZONE	19
TOTAL_RBP_SCORE	171
RBP_NARRATIVE_SCORE	Optimal
FIELD WATER QUALITY	VALUE
Temperature (C)	13.99
pH (SU)	7.3
DO (mg/L)	9.1
Specific Conductance (umhos/cm)	79
BENTHIC MACROINVERTEBRATE TAXA	COUNT
Gammaridae	12
Baetidae	5
Heptageniidae	25
Leptophlebiidae	21
Ephemeraidae	6
Pteronarcyidae	4
Peltoperlidae	4
Chloroperlidae	5
Elmidae	23
Psephenidae	9
Corydalidae	3
Rhyacophilidae	4
Philopotamidae	13
Polycentropodidae	1
Hydropsychidae	72
Tipulidae	4
Dixidae	2
Chironomidae	4
WVSCI & COMPONENT METRICS	SCORE
PCT_2_DOMINANT_TAXA_FAMILY	44.7
PCT_CHIRONOMIDAE	1.84
PCT_EPT_FAMILY	73.73
HBI_FAMILY	3.89
NUM_EPT_TAXA_FAMILY	11
NUM_TOTAL_TAXA_FAMILY	18
WVSCI	86.61
Narrative Score	Unimpaired-Very Good

STREAM SURVEY REPORT

Stream name	WATKINS RUN			Basin	CHEAT RIVER				
Monitoring group	FRIENDS OF LAUREL MOUNTAIN			Level	1				
County	PRESTON	Latitude	39	20	12	Longitude	79	43	30
Survey date	05/22/2003		Surveyed by: LOCAL 4-H GRROUP						
Database code	WVCHWAR-05222003		Directions						
								RR miles	

Water chemistry

Temperature (C/F)	17	
pH	7	
Conductivity		
Dissolved Oxygen		
Nitrate/Nitrite		
Alkalinity		
Turbidity		
Bacteria (Fecal/E-coli)		
Other (describe the test and record results below)		

Physical conditions

Run width feet		Run depth feet	
Riffle width feet		Riffle depth feet	
Discharge (cfs)			
Water level	NORMAL		
Water clarity	CLEAR		
Water color	NONE		
Water odor	NONE		
Sediment odor			
Streambed color	BROWN		
Surface foam	NONE		
Algae color	LIGHT GREEN		
Algae abundance	SCATTERED		
Algae texture	EVEN COAT		
Channel shade	EXCELLENT		

Streambed composition	Estimate	X	Count	
% Silt/clay				
% Sand	5			
% Fine gravel	10			
% Coarse gravel	20			
% Cobble	65			
% Boulder				
% Bedrock				
% Woody debris				
Index				

Habitat conditions

Sediment deposition	O	
Embeddedness	S	
	Left	Right
Bank stability	O	O
Riparian buffer width	O	O
Total	30 (94)	

Land use: Estimate the impacts and location using: (1) slight, (2) moderate, (3) high; (W) watershed, (M) within ¼ mile, (S) streamside,

UNPAVED RD	1	M							
LOGGING	1	W							

Benthic macroinvertebrates

	Abundance	Taxa
Mayflies (Ephemeroptera)	C	4
Stoneflies (Plecoptera)	C	3
Case-building caddisflies (Trichoptera)	C	2
Net-spinning caddisflies (Trichoptera)	R	1
Common netspinner (Hydropsychidae)	C	1
Dragonflies (Anisoptera)		
Damselflies (Zygoptera)		
Riffle beetle (Elmidae)	C	1
Water penny (Psephenidae)	R	1
Other beetles (Coleoptera)		
Hellgrammite/Fishfly (Corydalidae)	R	1
Alderfly (Sialidae)		
Non-biting midge (Chironomidae)	R	1
Black fly (Simuliidae)		
Crane fly (Tipulidae)	R	1
Watersnipe fly (Athericidae)		
Other true flies (Diptera)	R	1
Crayfish (Decapoda)	R	1
Scud/Sideswimmer (Amphipoda)	A	1
Aquatic sowbug (Isopoda)		
Clams (Veneroida)		
Mussel (Unionidae)		
Operculate snails (Prosobranchia)		
Non-operculate snails (Pulmonata)		
Aquatic worms (Oligochaeta)		
Leeches (Hirudinea)		
Flatworms (Turbellaria)		

Note: Include the free-living caddisfly in the net-spinning category

Totals		19
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List/describe other aquatic animals collected or observed

BROOK TROUT, MINNOWS AND SALAMANDERS

Habitat and physical condition comments

Habitat codes			Biological codes		
O	8	4	A	> 50	6
S	6	3	C	(5-50)	3
M	4	2	R	(<5)	1
P	2	1			

Metrics

	Value	Points
Total Taxa	19	10
EPT Taxa	11	10
Biotic Index	4.07	7
Stream Score	27 (90)	
Integrity	OPTIMAL	

O (Optimal); S (Suboptimal); M (Marginal); P (Poor); A (Abundant); C (Common); R (Rare)

Additional comments:

OVERALL SCORE (92)

INTEGRITY (OPTIMAL)

Stream	WATKINS RUN	Level	2	Date(s)	08/13/2003
Monitor(s)	FRIENDS OF LAUREL MOUNTAIN				
Directions	FROM RT. 50, TRAVEL FILL-HOLLOW RD FOR ABOUT 1 ½ MILES; SITE IS UPSTREAM OF RD CROSSING	Start time			

Latitude	39	20	6	Longitude	79	43	16	RR Miles		Station	
								Watershed		CHEAT RIVER	
								Database code		WVCHWAR-08132003	

Temp. (°F or °C)	Result	Units	Alkalinity Nitrate/Nitrite Phosphates Total Dissolved Solids Turbidity	Result	Units	Fecal coliform Iron Aluminum Other (describe below) Other (describe below)	Result	Units
pH	17			120	PPM			
Conductivity	7							
Dissolved O ₂								
Acidity	9.2	PPM						

Describe other conditions analyzed:

Water clarity	CLEAR	Algae color	LIGHT GREEN
Water color	NONE	Algae abundance	SCATTERED
Water odor	NONE	Algae texture	EVEN COAT
Streambed color	BROWN	Surface foam	NONE
Comments			

Riffle width		Run width		Pool width					
Riffle depth		Run depth		Pool depth		Feet	Meters		
Indicate units									
Estimate	X	Count		Entire reach			Riffles only	X	
Silt/clay		Sand		Fine gravel		Coarse gravel		Cobble	
		Boulder		Bedrock		Woody debris			
	3	12	20	65					
Index					% Riffles	% Runs	% Pools		
Use codes or percentages for quick estimates					(A) Abundant	(C) Common	(R) Rare		

Attachment sites		Channel flow status		Embeddedness	16	
Velocity/depth		Channel alterations		Bank stability	8	10
Riffle frequency		Sediment deposition	18	Bank veg. protection	10	10
Total Score	90	Channel shade	EXCELLENT	Riparian buffer width	8	10
Habitat index	90					
Overall Integrity Rating	OPTIMAL					
Comments						

Richness		Composition		Tolerance	
Total Taxa	20	% EPT Abundance	43.3	Biotic Index	3.90
EPT Taxa	10	% Dominance	33.3	% Tolerant	1.7
# of Stonefly Taxa		% Netspinners	6.7	% Chironomidae	1.1
Other		Other		Other	
				Stream Score	80.3
Other aquatic organisms observed or collected, or additional comments:		<u>BROOK TROUT,</u>		Integrity rating	<u>OPTIMAL</u>
DARTERS, SCULPINS AND SALAMANDERS					

Discharge (cfs) _____
Current weather conditions:

	X		
Low	Normal	High	No flow

Land use impacts: Indicate the types of land uses that affect your stream reach and their approximate location using the code: **(S)** streamside, **(M)** within ¼ mile, and **(W)** within the watershed. Also estimate the level of impact with the numeric codes **(1)** slight, **(2)** moderate, or **(3)** for high impacts.

	Impact	Location
Single family residences		
Sub-urban developments		
Urban areas		
Industrial areas		
Parking lots, malls etc.		
Bridges		
Paved roads	1	M
Unpaved roads		
Active construction	1	W
Parks, trails etc		
Other recreation		
Landfills		

	Impact	Location
Trash dumps		
Intensive feedlots		
Pastureland		
Cropland		
Oil & gas wells		
Logging	1	W
Mountaintop mining		
Abandoned mining		
Deep mining		
Quarries		
Other (describe)		

Pipes?	☐	Yes	☒	No
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Describe discharge:

Benthic macroinvertebrates: Record the name, total number/relative abundance and the number of taxa (families). In the VAD the invertebrates are recorded in three columns based upon their tolerance.

T	Macroinvertebrates collected	Total	Taxa
L	AMELETIDAE	4	
L	EPHEMERELLIDAE	7	
L	HEPTAGENIIDAE	12	
L	PERLIDEA	8	
L	PERLODIDAE	1	
L	PTERONARCYIDAE	2	
L	LIMNEPHILIDAE	8	
L	GLOSSOSOMATIDAE	21	
L	RHYACOPHILIDAE	3	
M	HYDROPSYCHIDAE	12	
L	PSEPHENIDAE	4	
M	ELMIDAE	22	
M	GOMPHIDAE	2	
M	SIMULIDAE	1	
M	TIPULIDAE	3	
H	CHIRONOMIDAE	2	
H	TABANIDAE	1	
M	CAMBARIDAE	7	
M	GAMMARIDAE	60	
H	OLIGCHAETA	1	
Totals		181	20

[illegible]

Level-1 abundance
rating scale

A (> 50)	C (5 – 50)	R (< 5)
= 6	= 3	= 1

Discuss present and future treats or provide any additional comments:

(L) Low			(M) Moderate				(H) High		
1	2	3	4	5	6	7	8	9	10

WV Save Our Streams' Survey Summary

Stream WATKINS RUN Level 2 Date(s) 04/14/2004
 Monitor(s) FRIENDS OF LAUREL MOUNTAIN
 Directions FROM RT. 50, TRAVEL FILL-HOLLOW RD FOR ABOUT 1 1/2 MILES; SITE IS Start time _____
UPSTREAM OF RD CROSSING

Latitude

39	20	4
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 Longitude

79	43	15
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 RR Miles _____ Station ONE
 Watershed CHEAT RIVER
 Database code WVCHWAR-04142004

Water chemistry

	Result	Units		Result	Units		Result	Units
Temp. (°F or °C)	16		Alkalinity			Fecal coliform		
pH	7		Nitrate/Nitrite			Iron		
Conductivity			Phosphates			Aluminum		
Dissolved O ₂			Total Dissolved Solids			Other (describe below)		
Acidity			Turbidity			Other (describe below)		

Describe other conditions analyzed: _____

Physical conditions

Water clarity CLEAR Algae color LIGHT GREEN
 Water color NONE Algae abundance SCATTERED
 Water odor NONE Algae texture EVEN COAT
 Streambed color BROWN Surface foam NONE
 Comments _____

Riffle width		Run width		Pool width			
Riffle depth		Run depth		Pool depth		Feet	Meters
						Indicate units	
Estimate	X	Count		Entire reach		Riffles only	X
Silt/clay	Sand	Fine gravel	Coarse gravel	Cobble	Boulder	Bedrock	Woody debris
	5	10	20	65			
Index					% Riffles	% Runs	% Pools
Use codes or percentages for quick estimates			(A) Abundant	(C) Common	(R) Rare		

Habitat conditions

Attachment sites		Channel flow status		Embeddedness	16									
Velocity/depth		Channel alterations		Bank stability	8	8								
Riffle frequency		Sediment deposition	18	Bank veg. protection	10	10								
Total Score	90	Channel shade	EXCELLENT	Riparian buffer width	10	10								
Habitat index	90	Integrity rating codes												
Overall Integrity Rating	OPTIMAL		<table><tr><td>O</td><td>S</td><td>M</td><td>P</td></tr><tr><td>Optimal</td><td>Suboptimal</td><td>Marginal</td><td>Poor</td></tr></table>				O	S	M	P	Optimal	Suboptimal	Marginal	Poor
O	S	M	P											
Optimal	Suboptimal	Marginal	Poor											
Comments														

Biological conditions

Richness		Composition		Tolerance	
Total Taxa	19	% EPT Abundance	40.7	Biotic Index	4.01
EPT Taxa	10	% Dominance	40.3	% Tolerant	3.2
# of Stonefly Taxa		% Netspinners	9.3	% Chironomidae	2.8
Other		Other		Other	
Other aquatic organisms observed or collected, or additional comments:				Stream Score	77.9
MINNOW AND SALAMANDERS				Integrity rating	SUBOPTIMAL

	X		
Low	Normal	High	No flow

Land use impacts: Indicate the types of land uses that affect your stream reach and their approximate location using the code: **(S)** streamside, **(M)** within ¼ mile, and **(W)** within the watershed. Also estimate the level of impact with the numeric codes **(1)** slight, **(2)** moderate, or **(3)** for high impacts.

- Single family residences
- Sub-urban developments
- Urban areas
- Industrial areas
- Parking lots, malls etc.
- Bridges
- Paved roads
- Unpaved roads
- Active construction
- Parks, trails etc
- Other recreation
- Landfills

Impact	Location
1	M

Trash dumps
 Intensive feedlots
 Pastureland
 Cropland
 Oil & gas wells
 Logging
 Mountaintop mining
 Abandoned mining
 Deep mining
 Quarries
 Other (describe)

[illegible]

Pipes?	☐	Yes	☒	No
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Describe discharge:

Benthic macroinvertebrates: Record the name, total number/relative abundance and the number of taxa (families). In the VAD the invertebrates are recorded in three columns based upon their tolerance.

T	Macroinvertebrates collected	Total	Taxa
L	AMELETIDAE	1	
L	EPHEMERELLIDAE	7	
L	HEPTAGENIIDAE	9	
L	PERLIDEA	12	
L	PELTOPERLIDAE	2	
L	PTERONARCYIDAE	6	
L	GLOSSOSOMATIDAE	30	
M	HYDROPSYCHIDAE	23	
L	RHYACOPHILIDAE	9	
L	CORYDALIDAE	1	
L	PSEPHENIDAE	6	
M	ELMIDAE	20	
M	GOMPHIDAE	3	
M	TIPULIDAE	5	
H	CHIRONOMIDAE	7	
M	CAMBARIDAE	4	
M	GAMMARIDAE	100	
H	OLIGCHAETA	1	
Totals		248	19

[illegible]

Level-1 abundance
rating scale

A (> 50)	C (5 – 50)	R (< 5)
= 6	= 3	= 1

Overall integrity	OPTIMAL
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Tolerance scale

(L) Low			(M) Moderate				(H) High		
1	2	3	4	5	6	7	8	9	10