

**LITTLE BUSH KILL
PIKE COUNTY**

**STREAM REDESIGNATION EVALUATION REPORT
WATER QUALITY STANDARDS REVIEW**

**SEGMENT: BASIN
DRAINAGE LIST: C
STREAM CODE: 05056**

**WATER QUALITY MONITORING AND ASSESSMENT SECTION (DSB)
DIVISION OF WATER QUALITY ASSESSMENT AND STANDARDS
BUREAU OF WATER SUPPLY AND WASTEWATER MANAGEMENT
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**MAY 1998
REVISED JULY 1998**

GENERAL WATERSHED DESCRIPTION

Little Bush Kill is a tributary of the Bush Kill in the Delaware River watershed. The candidate basin is located in Delaware, Dingman, Lehman, and Porter Townships, Pike County. It has a drainage area of 33.3 square miles and contains 37.9 stream miles. The Q_{7-10} at the mouth is estimated to be 2.06 cubic feet/second. Little Bush Kill is currently designated High Quality - Cold Water Fishes (HQ-CWF). In response to a petition from Bushkill Falls, this basin was evaluated for a possible redesignation to Exceptional Value (EV). This evaluation is based on a field survey conducted in August 1997.

This watershed has a relatively low population density. There are portions of several housing developments on the periphery of the basin and two resort/tourist attractions are also present. Almost half of this watershed is located in the Delaware State Forest. This includes the Stillwater State Natural Area. The National Wetlands Inventory maps indicate the presence of extensive areas of forested and shrub-scrub swamp as well as smaller areas of emergent marsh. Probably close to 50% of this basin consists of wetlands. The upper 2/3 of this basin is located on top of the Pocono Plateau and most of it is very flat. Riffle/run habitat is hard to find above Minks Pond. Throughout most of this section Little Bush Kill slowly meanders through swamps and marshes. Below Lehman Lake the gradient increases and the habitat for benthic macroinvertebrates is greatly improved. Bushkill Falls is located where the stream drops off the plateau.

WATER QUALITY AND USES

Surface Water

Little Bush Kill has been sampled for water quality by the Department every month since 1988 as part of the Department's Water Quality Network (WQN). This WQN station corresponds to Station 4LB on Figure 1. A frequency distribution analysis of the data to determine a 99th percentile over the period 1993-1997 shows that water quality is better than established criteria at this station 99% of the time for the five measured parameters (Iron, Manganese, Nitrite + Nitrate, Sulfate, and Total Dissolved Solids). In addition, grab samples were collected at six stations during the August 1997 survey (Table 2). The grab samples indicate that alkalinity is less than 20 mg/l at all stations. This is probably a natural condition caused by the numerous swamps and bogs in this basin.

There are two NPDES permitted discharges in this basin. Tamiment Resort (#0037290) has a permitted flow of 0.25 mgd at an estimated Q_{7-10} of 0.048 cfs. It is located on an unnamed tributary (stream code: 05057) upstream of Station 5UNT. Pocmont Hotel (#0041424) has a permitted flow of 0.049 mgd and is located on a different unnamed tributary which enters the Little Bush Kill approximately 0.3 miles below Bushkill Falls. There are no permitted surface water withdrawals for public water supply in this basin.

Aquatic Biota

Overall habitat scores for aquatic biota were mostly in the Optimal range (Table 3). Flow conditions were greatly reduced by lack of rainfall at all stations. Station 5UNT showed increased sediment deposition and greater embeddedness than stations on the main stem. This is probably due to runoff from the impervious surfaces in the Tamiment Resort located upstream. Station 6LB had a narrow riparian zone. Benthic macroinvertebrate samples were collected at six stations during the August 1997 survey. The results of these sampling efforts are presented in Table 4. Benthic macroinvertebrates were collected using sampling techniques adapted from the EPA's Rapid Bioassessment Protocols. Taxonomic diversity was good with a mean of 33.8 total taxa per station. A large number of taxa intolerant of pollution were

present except at Station 2LB, which had a glide/pool regime instead of riffle/run, and Station 3LB, which showed evidence of degraded water quality. The later station is located just downstream of two large impoundments which are probably the cause of this degradation.

A total of 11 species of fish were collected at two stations (Table 5). A naturally reproducing brown trout population is present in the lower part of Little Bush Kill. The section on top of the plateau was never surveyed for fishes. Streams within the candidate basin support all designated uses.

NATIONAL, STATE, REGIONAL OR LOCAL SIGNIFICANCE

Portions of the Little Bush Kill flow through the Delaware Water Gap National Recreation Area and Stillwater State Forest Natural Area (Figure 2). Since the stream is currently designated HQ-CWF, the sections in the Natural Recreation Area and the Natural Area meet the EV regulatory criteria for national and state significance in Section 93.4b (b) (1) (ii).

ECOLOGICAL OR RECREATIONAL SIGNIFICANCE

Selected benthic macroinvertebrate community metrics were compared to reference stations in the same ecoregion with comparable drainage areas (Table 7). Stations 1LB, 2LB, and 5UNT were compared to R1 and Stations 3LB, 4LB, and 6LB were compared to R2. The reference stream (Sawkill Creek) and the candidate stream are both located in the Low Poconos subecoregion (62b). Sawkill Creek is currently designated Exceptional Value (EV) in Chapter 93. All sampling was done over a three-day period to minimize the effects of seasonal variation. This comparison was done using the following metrics which were selected as being indicative of community health: taxa richness; modified EPT index (total number of intolerant Ephemeroptera, Plecoptera, and Trichoptera taxa); modified Hilsenhoff Biotic Index; percent dominant taxon; and percent modified mayflies.

Based on these five metrics, Stations 1LB, 4LB, and 6LB had biological condition scores greater than 92% of the reference stations. This indicates waters with outstanding ecological attributes. Station 2LB, with a score of 47% was greatly affected by the instream habitat for benthic macroinvertebrates. Riffle habitat was extremely limited. The stream had a very low gradient and a muddy bottom in this section. Station 3LB was located approximately 0.4 mile below Lehman Lake and 100 meters below a large beaver pond. The score of 73% is probably a result of higher water temperatures and nutrient enrichment due to these impoundments. Station 5UNT had a score of 87% of the reference station score. This score was probably affected by the increased embeddedness and sediment deposition in this tributary.

This watershed contains Bushkill Falls, which is a major regional scenic attraction. People have been visiting this attraction for over one hundred years and in the past five years the falls has hosted an average of 200,000 people per year. The lower 1.5 miles of Little Bush Kill is located in the Delaware Water Gap National Recreation Area. This area is open to the public for fishing, hiking, boating, and picnicking.

The location of Station 4LB was picked to coincide with Station 181 of the Department's Surface Water Quality Monitoring Network. This station has functioned as a Reference station and in addition to water chemistry, benthic macroinvertebrate data has been collected once a year since 1988. Reference stations are selected to represent waters that are minimally affected by human activities.

PUBLIC RESPONSE AND PARTICIPATION SUMMARY

The Department provided public notice of this redesignation evaluation to and requested any technical data from the general public through publication in the Pennsylvania Bulletin on December 25, 1999 (29 Pa.B 6524). A similar notice was also published in The Pocono Record on December 27, 1999. In addition, Delaware, Dingman, Lehman, and Porter Townships were all notified of the evaluation in a letter dated December 23, 1999. A notification was also sent to Pike County Community Planning and Human Development at the same time. In response to this notification, the Pike County Conservation District sent data on water chemistry, instream habitat, and the aquatic community for one station at the mouth of Little Bush Kill. This data included grab water samples that do not allow a direct comparison to water quality criteria. It also included biological samples that were collected with kick screens. This method is not comparable to the data collected by the Department and is not amenable to the calculation of metrics. Still the data received from Pike County indicate the same outstanding benthic macroinvertebrate community found by the Department near the mouth.

The Department sent copies of the draft stream evaluation report to Delaware, Dingman, Lehman, and Porter Townships, Pike County Community Planning Commission, and Bushkill Falls on May 18, 2000 requesting any comments by June 23, 2000. No additional comments were received during that period.

RECOMMENDATION

Based on applicable regulatory criteria, the Department recommends the following designations:

Little Bush Kill basin (Source to and including UNT 05067)

- Change current HQ-CWF designation to EV
- Based on biological condition scores greater than 92% of the reference station and presence of Stillwater State Natural Area
- Affects 17.8 stream miles

Little Bush Kill basin (UNT 05067 to but not including UNT 05059)

- Retain current HQ-CWF designation

Little Bush Kill basin (UNT 05059 to Mouth – excluding UNT 05057)

- Change current HQ-CWF designation to EV (including UNT 05059)
- Based on biological condition scores greater than 92% of the reference station and presence of Delaware Water Gap National Recreation Area
- Affects 9.1 stream miles

UNT 05057 basin

- Retain current HQ-CWF designation

This recommendation provides the EV designation requested by the petitioner for the upper and lower portions of the basin. The middle section retains the current HQ-CWF designation.

FIGURE 1
STATION LOCATIONS
LITTLE BUSH KILL
PIKE COUNTY

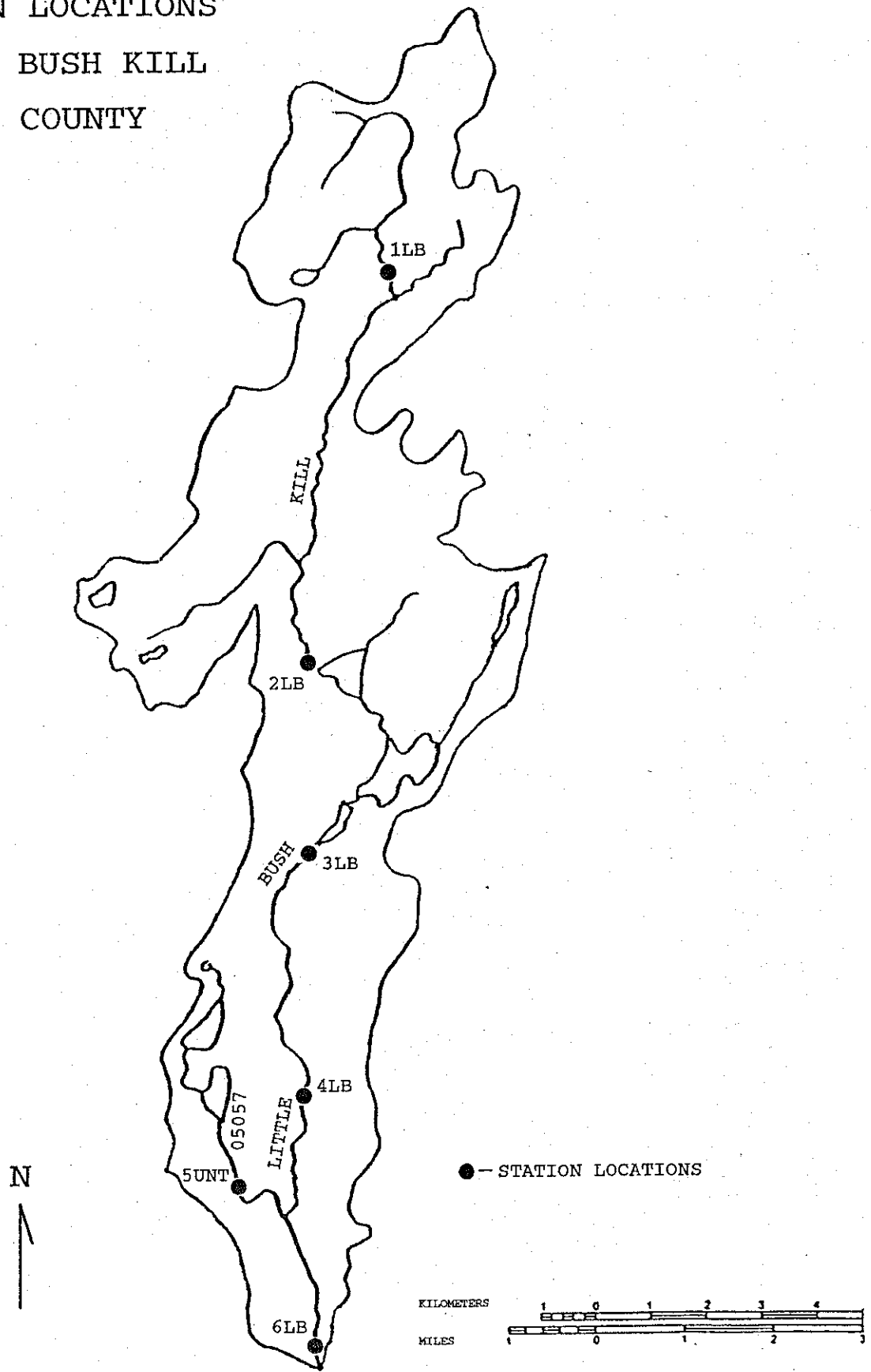


FIGURE 2
LAND OWNERSHIP
LITTLE BUSH KILL
PIKE COUNTY

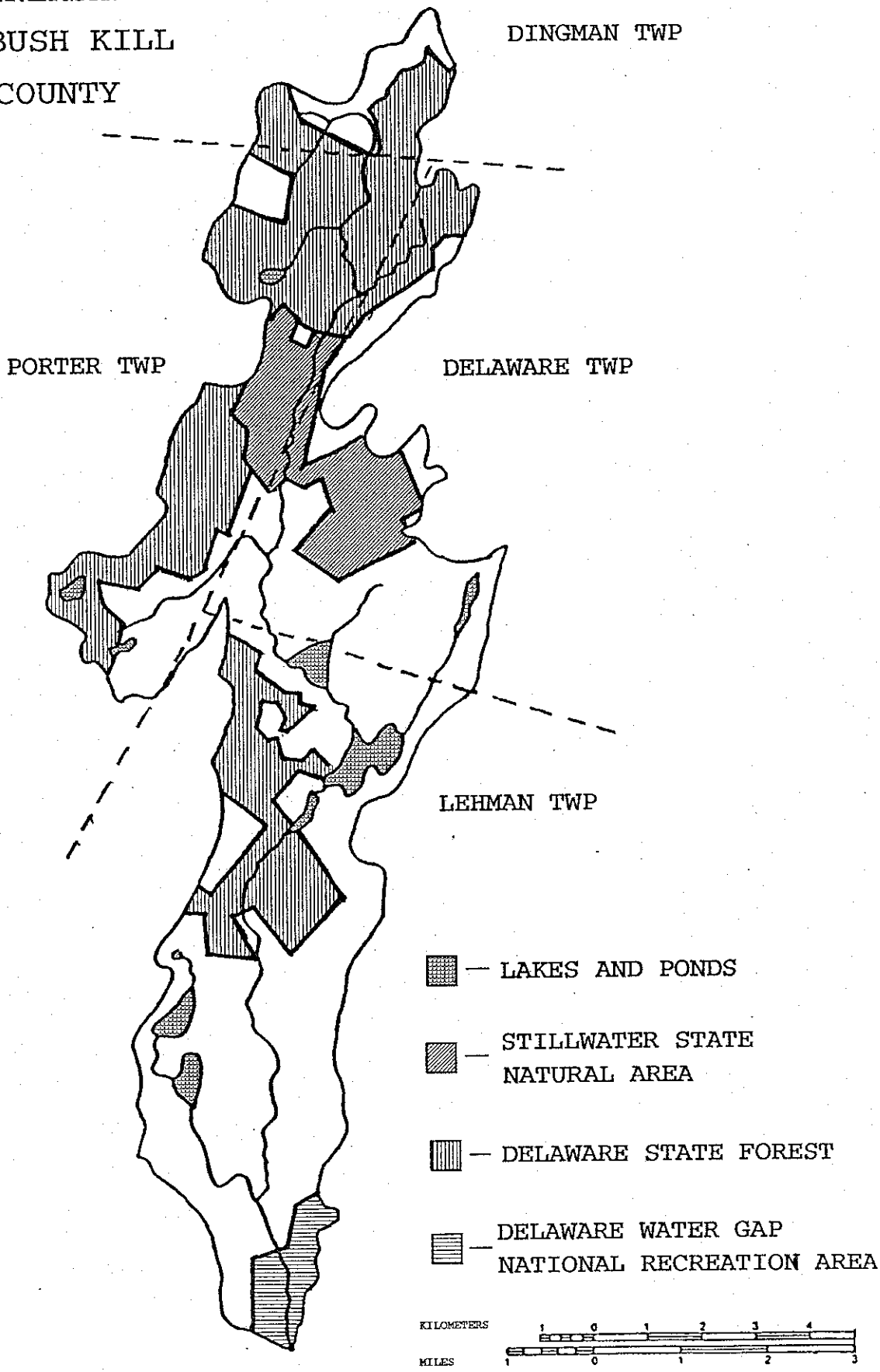


TABLE 1
STATION LOCATIONS
LITTLE BUSH KILL
PIKE COUNTY

<u>STATION</u>	<u>LOCATION</u>
1LB	Little Bush Kill approximately 0.8 miles upstream of SR2004 Porter Township Lat: 41 16 04 Long: 74 59 31 RMI: 15.6
2LB	Little Bush Kill approximately 0.1 miles upstream of Minks Pond Lehman Township Lat: 41 12 10 Long: 75 00 22 RMI: 10.2
3LB	Little Bush Kill approximately 0.5 miles downstream of Lehman Lake dam Lehman Township Lat: 41 10 25 Long: 75 00 36 RMI: 6.8
4LB	Little Bush Kill approximately 50 meters upstream of SR 2003 bridge Lehman Township Lat: 41 07 57 Long: 75 00 33 RMI: 3.3
5UNT	Unnamed tributary Little Bush Kill (05057) approximately 20 meters upstream of T300 crossing Lehman Township Lat: 41 07 08 Long: 75 01 18 RMI: 0.8
6LB	Little Bush Kill approximately 30 meters upstream of road T305 crossing Lehman Township Lat: 41 05 53 Long: 75 00 16 RMI: 0.6
R1	Sawkill Creek (Stream code: 05241) approximately 0.12 miles downstream of the confluence of Pinchot Brook Milford Township Lat: 41 21 04 Long: 74 50 45 RMI: 4.4
R2	Sawkill Creek approximately 300 meters downstream of SR 2001 bridge Dingman Township Lat: 41 19 23 Long: 74 48 56 RMI: 1.3

TABLE 2
WATER CHEMISTRY¹
LITTLE BUSH KILL, PIKE COUNTY
AUGUST 5-8, 1997

STATION	1LB	2LB	3LB	4LB	5UNT	6LB
Field Parameters						
Temp (°C)	17.8	19.1	21.5	18.1	15.5	15.2
pH	5.7	7.6	7.0	7.0	6.5	6.5
Cond (µmhos)	36	40	36	44	60	59
Diss. O ₂	10.9	11.1	5.8	11.5	10.8	10.3
Laboratory Parameters						
pH	6.2	6.2	6.1	6.3	6.3	6.3
Alkalinity	7.6	10.2	7.4	7.8	11.4	11.4
Acidity	3.4	4.8	2.8	0.6	1.6	3.4
Hardness	<10	<10	<10	15	47	15
T Diss. Sol.	36	68	46	36	170	40
Susp. Sol.	6	<2	20	<2	<2	<2
NH ₃ -N	<0.02	0.02	0.05	<0.02	<0.02	<0.02
NO ₂ -N	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NO ₃ -N	0.15	0.04	0.1	0.16	7.02	0.2
Total P	0.03	0.03	0.06	0.02	0.02	<0.02
Ca	2.29	3.18	2.83	3.08	9.92	4.02
Mg	1.08	1.33	1.1	1.41	3.69	1.49
Cl	3.0	3.0	3.0	3.0	20.0	5.0
SO ₄	<10	<10	<10	<10	33	<10
As*	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
As Diss*	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Cd*	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Cd Diss*	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
hex Cr*	<10	<10	<10	<10	<10	<10
Cr*	<50	<50	<50	<50	<50	<50
Cu*	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Cu Diss*	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Fe*	169	315	1040	51	171	87
Pb*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Pb Diss*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Mn*	26	89	1220	24	70	53
Ni*	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Ni Diss*	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Zn*	< 5.0	< 5.0	9.1	< 5.0	17.5	5.6
Zn Diss*	< 5.0	< 5.0	< 5.0	< 5.0	14.7	< 5.0
Al*	74.2	60.7	90.2	31.5	66.8	40.9
fecal coliforms	###	20	###	###	20	10

¹ - Except for pH & conductance and indicated otherwise, all values are total concentrations in mg/l
* - Total concentrations in µg/l

**TABLE 3
HABITAT ASSESSMENT SUMMARY
LITTLE BUSH KILL
PIKE COUNTY**

HABITAT PARAMETER	CANDIDATE STATIONS ¹						REFERENCE ¹	
	1LB	2LB ²	3LB	4LB	5UNT	6LB	R1	R2
1. instream cover	16	16	17	18	17	17	16	18
2. epifaunal substrate	18	12	16	17	17	17	17	17
3. embeddedness	16	18	16	17	12	14	16	16
4. velocity/depth	13	17	18	16	13	14	17	15
5. channel alterations	18	19	16	18	17	16	18	14
6. sediment deposition	16	18	18	18	9	16	16	13
7. riffle frequency	18	14	14	16	16	18	17	17
8. channel flow status	8	8	8	8	10	10	9	9
9. bank condition	18	18	16	18	14	13	14	8
10. bank vegetation protection	18	19	17	19	16	14	16	10
11. grazing/disruptive pressures	19	20	18	19	17	16	18	14
12. riparian vegetation zone width	19	20	19	19	16	9	18	12
Total Score	206	199	193	203	174	174	192	163
Rating ³	OPT	OPT	OPT	OPT	SUB	SUB	OPT	SUB

¹ Refer to Figure 1. and Table 1. for station locations.

² This station was evaluated under a glide/pool regime: 3.=pool substrate characterizat
4.=pool variability; 7.=channel sinuosity

³ OPT=Optimum; SUB=Suboptimum

TABLE 4
Benthic Macroinvertebrate Results
Little Bush Kill, Pike County
August 5, 1997

TAXA	STATION							
	1LB	2LB	3LB	4LB	5UNT	6LB	R1	R2
Ephemeroptera (mayflies)								
Baetidae; <i>Acentrella</i>								R
<i>Baetis</i>	P	P	C	A	R	P	P	A
<i>Acerpenna</i>			R					
Caenidae; <i>Caenis</i>						P		
Ephemerellidae; <i>Attenella</i>	P							
<i>Drunella</i>						R	P	A
<i>Ephemerella</i>							P	P
<i>Eurylophella</i>	A					P		
<i>Serratella</i>				P		P	P	
Ephemeridae; <i>Ephemerella</i>							P	
Heptageniidae; <i>Epeorus</i>				C		A	P	A
<i>Heptagenia</i>							R	
<i>Leucrocuta</i>				R			P	P
<i>Stenonema</i>	C	A	C	P			P	
Leptophlebiidae			R					
<i>Habrophlebiodes</i>		C						
<i>Paraleptophlebia</i>				P		C	P	R
Oligoneuriidae; <i>Isonychia</i>		P	C	P		R	C	R
Plecoptera (stoneflies)								
Chloroperlidae; <i>Sweltsa</i>				R	R	R	R	P
Leuctridae; <i>Leuctra</i>	A	C	C	A	A	A	C	C
Peltoperlidae; <i>Peltoperla/Tallaperla</i>	C			C	A	P		R
Perlidae; <i>Acroneuria</i>	A	C	C	A	A	A	C	P
<i>Agnatina</i>								C
<i>Paragnetina</i>		P	P	A		P	R	R
<i>Perlesta</i>				R		C	R	C
Perlodidae; <i>Isoperla</i>				P	R		R	
Pteronarcyidae; <i>Pteronarcys</i>	P			P	C	P	R	
Tricoptera (caddisflies)								
Brachycentridae; <i>Adicrophleps</i>					C	P		
<i>Brachycentrus</i>				C		C		
<i>Micrasema</i>	A	P	P	P				R
Glossosomatidae; <i>Glossosoma</i>				P		C	P	C
Hydropsychidae; <i>Cheumatopsyche</i>		A		C			A	
<i>Diplectrona</i>	C				C			
<i>Hydropsyche</i>	VA	VA	VA	A	P	A	C	VA
Hydroptilidae; <i>Hydroptila</i>	C		R					
<i>Palaeagapetus</i>	P							
Lepidostomatidae; <i>Lepidostoma</i>	P			P		P		P

TAXA	STATION							
	1LB	2LB	3LB	4LB	5UNT	6LB	R1	R2
<i>Oulimnius</i>					A	P	P	
<i>Promoresia</i>	A	C		A	A	P	A	P
<i>Stenelmis</i>	C	P	C	P		P		R
Hydrophilidae					R			
Psephenidae; <i>Psephenus</i>	P			C	R	C	C	C
<i>Ectopria</i>			R		A		R	
Non-Insect Taxa								
Turbellaria (flat-worms)								
<i>Dugesia</i>						R		
Nematoda (round-worms)			R					
Oligochaeta	P	P	P		P	C	P	R
Hirundinea (leeches)						R		
Amphipoda (scuds)								
Crangonyctidae; <i>Stygonectes</i>					R			
Talitridae; <i>Hyalella</i>		C						
Decapoda (crayfish)								
Cambaridae		R	R			R		
<i>Cambarus</i>					R			
Gastropoda (univalves, snails)								
Ancylidae; <i>Ferrissia</i>				R		R		
Pelecypoda (bivalve clams)								
Sphaeriidae		C	P					
Number taxa in total sample	33	27	30	38	33	42	42	36

VA = very abundant, > 99 organisms

A = abundant, 25-99 organisms

C = common, 10-24 organisms

P = present, 3-9 organisms

R = rare, < 3 organisms

**TABLE 5
FISHES
LITTLE BUSH KILL
PIKE COUNTY**

SPECIES	STATION ¹	
	6LB ²	MOUTH ³
American eel, <i>Anguilla rostrata</i>	X	X
Brown trout, <i>Salmo trutta</i>	X	X
Brook trout, <i>Salvelinus fontinalis</i>		X
Rainbow trout, <i>Oncorhynchus mykiss</i>		X
Chain pickerel, <i>Esox niger</i>		X
Cutlips minnow, <i>Exoglossum maxillingua</i>	X	X
Blacknose dace, <i>Rhinichthys atratulus</i>	X	X
Longnose dace, <i>Rhinichthys cataractae</i>	X	X
Margined madtom, <i>Noturus insignis</i>		X
Bluegill, <i>Lepomis macrochirus</i>		X
Tessellated darter, <i>Etheostoma olmstedii</i>	X	X

1 - See Figure 1 and Table 1 for station locations

2 - Data from DEP survey (8/7/97)

3 - Data from PA Fish and Boat Commission survey (6/25/90)

TABLE 6
Semi-quantitative Benthic Macroinvertebrate Data
Little Bush Kill, Pike County
August 5, 1997

TAXA	STATION							
	1LB	2LB	3LB	4LB	5UNT	6LB	R1	R2
Ephemeroptera (mayflies)								
Baetidae; <i>Baetis</i>	1	1	2	5		2	1	6
<i>Acerpenna</i>			1					
Caenidae; <i>Caenis</i>						2		
Ephemerellidae; <i>Attenella</i>	1							
<i>Drunella</i>							1	13
<i>Ephemerella</i>								2
<i>Eurylophella</i>	5							
<i>Serratella</i>				1		1	2	
Ephemeridae; <i>Ephemera</i>							2	
Heptageniidae; <i>Epeorus</i>				3		14	1	3
<i>Heptagenia</i>							1	
<i>Leucrocuta</i>				1				1
<i>Stenonema</i>	2	6	2	1			2	
Leptophlebiidae; <i>Habrophlebiodes</i>		3						
<i>Paraleptophlebia</i>						4		
Oligoneuriidae; <i>Isonychia</i>		2	2			1	5	1
Plecoptera (stoneflies)								
Chloroperlidae; <i>Sweltsa</i>				1				
Leuctridae; <i>Leuctra</i>	14	4	4	5	17	8	4	4
Peltoperlidae; <i>Peltoperla/Tallaperla</i>	3			2	10			
Perlidae; <i>Acroneuria</i>	4		5	16	9	3	8	3
<i>Agnatina</i>								4
<i>Paragnetina</i>		1	3	9		1		1
<i>Perlesta</i>						1	1	4
Perlodidae; <i>Isoperla</i>				1	1		1	
Pteronarcyidae; <i>Pteronarcys</i>				1	4	1	1	
Tricoptera (caddisflies)								
Brachycentridae; <i>Adicrophleps</i>					6	1		
<i>Brachycentrus</i>						3		
<i>Micrasema</i>	12	1	3					
Glossosomatidae; <i>Glossosoma</i>				1		2	3	4
Hydropsychidae; <i>Cheumatopsyche</i>		10		3			13	
<i>Diplectrona</i>	2				7			
<i>Hydropsyche</i>	18	38	31	17	3	18	13	29
Hydroptilidae; <i>Hydroptila</i>	2							
Lepidostomatidae; <i>Lepidostoma</i>	1			1				3
Leptoceridae sp.	2							
<i>Ceraclea</i>			1					
<i>Oecetis</i>			2					

TAXA	STATION							
	1LB	2LB	3LB	4LB	5UNT	6LB	R1	R2
Limnephilidae; <i>Pycnopsyche</i>					1			
Odontoceridae; <i>Psilotreta</i>						3		
Philopotamidae; <i>Dolophilodes</i>				8	2	9	10	17
<i>Chimarra</i>	2	53	29	1			2	
Polycentropodidae; <i>Polycentropus</i>							1	
Psychomiidae; <i>Lype</i>					1			
Rhyacophilidae; <i>Rhyacophila</i>				3	3		2	1
Uenoidae; <i>Neophylax</i>					1			
Other Insect Taxa								
DIPTERA (true flies)								
Athericidae; <i>Atherix</i>	22			6		2	5	
Dixidae; <i>Dixa</i>					1			
Empididae; <i>Chelifera</i>					5			
Tipulidae; <i>Antocha</i>						1		1
<i>Dicranota</i>				1	10		1	5
<i>Hexatoma</i>								6
<i>Tipula</i>	4	3		1	1	1		
Chironomidae spp.	26	10	38	20	26	25	31	38
MEGALOPTERA								
Corydalidae; <i>Nigronia</i>	2	8	7	4		3	9	2
<i>Corydalus</i>		1						
Sialidae; <i>Sialis</i>							1	
ODONATA (dragon-, damselflies)								
Cordulegastridae; <i>Cordulegaster</i>	1							
Gomphidae; <i>Stylogomphus</i>	4				5	1		
<i>Ophiogomphus</i>							1	
Corduliidae; <i>Neurocordulia</i>			1					
Calopterygidae; <i>Calopteryx</i>	1		1					
Coenagrionidae; <i>Argia</i>			1					
COLEOPTERA (aquatic beetles)								
Elmidae; <i>Optioservus</i>							1	1
<i>Oulimnius</i>					16	2	4	
<i>Promoresia</i>	11	3		11	7	1	13	
<i>Stenelmis</i>	2		4	3		2		1
Psephenidae; <i>Psephenus</i>	1			2		2	8	3
<i>Ectopria</i>					12		1	
Non-Insect Taxa								
Oligochaeta	1		1		1	4		
Amphipoda (scuds)								
Talitridae; <i>Hyaella</i>		3						
Gastropoda (univalves, snails)								
Ancylidae; <i>Ferrissia</i>						1		
Pelecypoda (bivalve clams)								
Sphaeriidae sp.		1	1					

TABLE 7
RBP METRIC COMPARISON
LITTLE BUSH KILL

METRIC	STATION							
	1LB ¹	2LB ¹	3LB ²	4LB ²	5UNT ¹	6LB ²	R1	R2
1. TAXA RICHNESS	25	17	20	26	23	29	31	24
Cand/Ref (%)	81	55	83	108	74	121	***	***
Biol. Cond. Score	6	0	6	6	4	6	6	6
2. MOD. EPT INDEX	11	6	8	15	12	14	16	15
Cand/Ref (%)	69	38	53	100	75	93	***	***
Biol. Cond. Score	4	0	2	6	4	6	6	6
3. MOD. HBI	3.3	4.3	4.5	2.8	301	3.2	3.5	3.3
Cand-Ref	-0.2	-8	1.2	-0.5	-0.4	-0.1	***	***
Biol. Cond. Score	6	4	2	6	6	6	6	6
4. % DOMINANT TAXA	18	36	27	16	17	21	21	25
Cand-Ref	-3	15	2	-9	-4	-4	***	***
Biol. Cond. Score	6	4	6	6	6	6	6	6
5. % MOD. MAYFLYS	6	5	3	4	0	17	9	14
Ref-Cand	3	4	11	10	9	-3	***	***
Biol. Cond. Score	6	6	6	6	6	6	6	6
TOTAL BIOLOGICAL CONDITION SCORE	28	14	22	30	26	30	30	30
% COMPARABILITY TO REFERENCE	93	47	73	100	87	100		

¹ - Candidate station compared to R1 reference station

² - Candidate station compared to R2 reference station