

State Water Plan: 11D

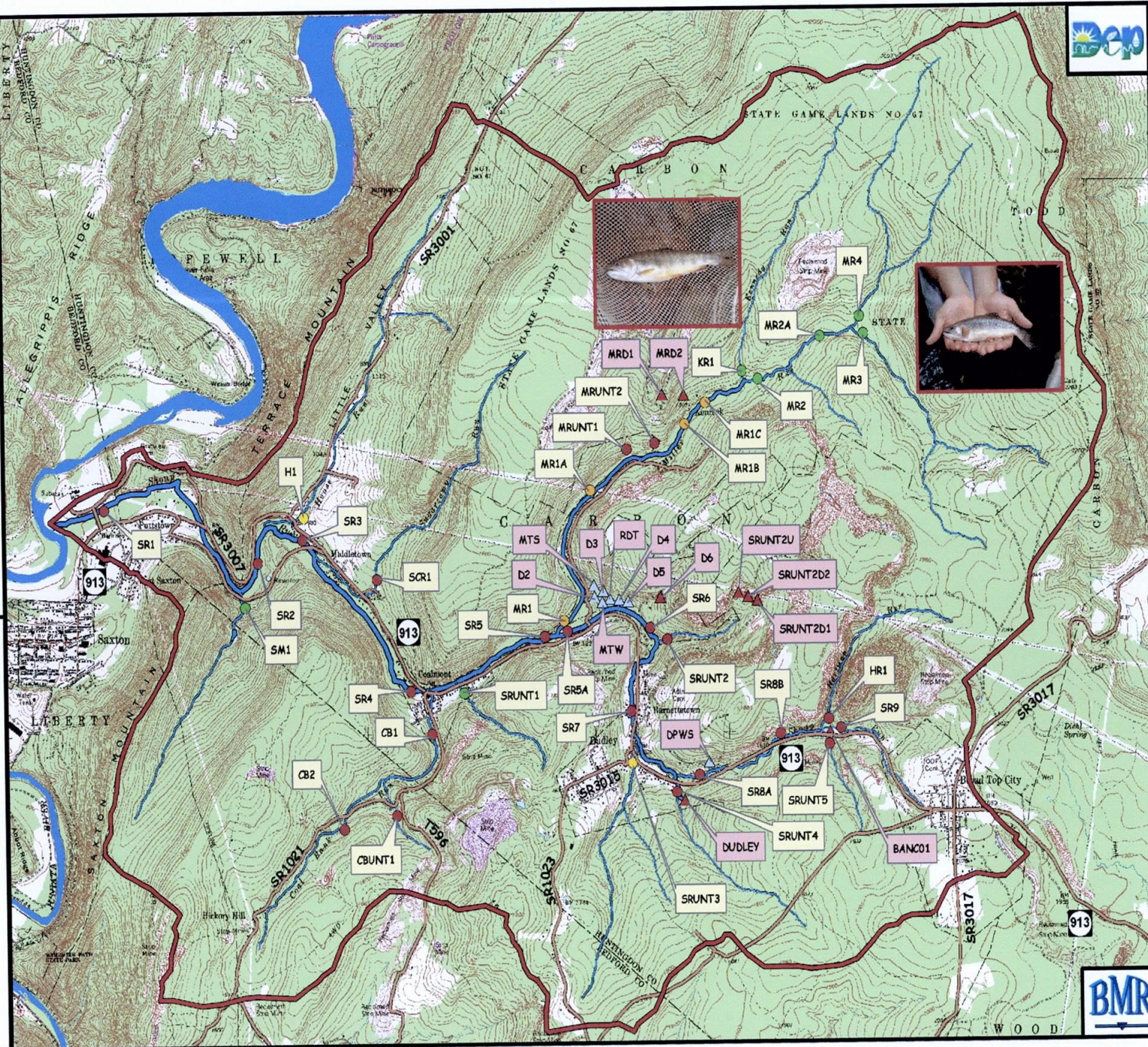
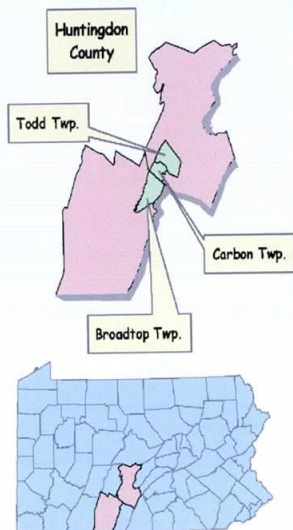


Miles

0 0.25 0.5 1



- ▲ Treated Mine Drainage
- ▲ Non-treated Mine Drainage
- WQ/Bioassessment Sites
- Optimal Conditions
- Sub-optimal Conditions
- Marginal Conditions
- Poor Conditions



QUALITATIVE BIOASSESSMENT OF SHOUP RUN - 2003 to 2008

		MODIFIED HILSENHOFF INDEX	SR1 6/03	SR1 7/04	SM1 6/03	SR2 7/04	H1 6/03	H1 6/04	SR3 6/03	SCR1 6/03	CB1 6/03	CB1 6/04	CB2 6/04	SR4 7/04	MR1 6/03	MR1 6/04	MR1A 6/04	10/08	MR1B 7/03	10/08
MACROINVERTBRATES																				
Amphipoda	Scuds	6					2	10-24												
Gammaridae		4																		
Coleoptera	Beetles	5											<3							
Dytiscidae		5			1		1	3-9			1									
Elmidae		4																		
Psephenidae																				
Decapoda	Crayfish	6			6	<3	3	<3		2	1	<3						1		
Cambaridae																				
Diptera	True Flies	6														<3	<3			
Ceratopogonidae		10	1				38	<3	1	2				<3			<3			
Chironomidae		6																		
Empididae		6														3-9				
Simuliidae		4	1		2		5	<3								<3		1	1	
Tipulidae																				
Ephemeroptera	Mayflies	6			7		2	3-9									<3			3
Baetidae		4			3															
Ephemeridae		3			9		4	<3										3		2
Heptageniidae		4																		
Leptophlebiidae																<3				
Hirudinea	Water Mites	8																		
Isopoda	Sow Bugs	8					3					<3								
Asellidae																				
Megaloptera	Dobsonflies	3					4		1			<3	<3	<3	4	3-9	<3	7		
Corydalidae		2																		
Nigronia		6	2						2											
Sialidae	and Alderflies																			
Odonata	Dragonflies	3						<3												
Aeshnidae		3						<3												
Cordulegastridae		4			1		3													
Gomphidae					2		3	3-9		1							<3			
Oligochaeta	Earthworms	10																		
Plecoptera	Stoneflies	0																		
Chloroperlidae		0						<3	5	5		<3	10-24	<3	6	3-9	3-9	7		1
Leuctridae		2			3										16	3-9	3-9	2		1
Nemouridae		3			8											<3				
Perlidae		2					2			2										
Perlodidae		2			2										1					
Peltoperlidae		0			23															
Pteronarcyidae																	<3			
Tepidoptera		5																		
Trichoptera	Caddisflies	0						<3												
Glossomatidae		5			2	32	<3	3-9			2	3-9			2	3-9	<3	4	1	3
Hydropsychidae		1																		
Lepidostomatidae		4															3-9	13		
Limnephilidae		3																		
Philopotamidae		6			18		1													
Polycentropodidae		1								1						<3				
Rhyacophilidae																				
Total Number of Individual Macroinvertebrates (100 meters)			4	2	117	6	71	46-84	7	15	4	21-33	22-36	9	33	36-72	24-36	24	2	11
Total Number of Macroinvertebrate Taxa (100 meters)			3	1	14	2	13	13	3	7	3	7	5	3	6	12	8	7	2	6

Rare-less than 3, Present-3-9, Common-10-24, Abundant-25-100, Very Abundant-100 or more

FISH

		7/04	10/08
Salvelinus fontinalis	Intolerant		
	< 1 inches < 25 mm		1
	1 to 1.9 inches 25 to 48 mm		4
	2 to 2.9 inches 50 to 73 mm		7
	3 to 3.9 inches 76 to 99 mm		10
	4 to 4.9 inches 101 to 124 mm		7
	5 to 5.9 inches 127 to 149 mm		5
	6 to 6.9 inches 152 to 175 mm		8
Total Number of Individuals (100 meters)		21	42
Total Number of Taxa (100 meters)		1	1

AQUATIC HABITAT

Total Habitat Score (out of 240)	189	188	212	185	178	175	158	130	187	189	185	180	199	185	181		199
----------------------------------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	--	-----

240-181: Optimal, 180-121: Sub-optimal, 120-61: Marginal, less or equal to 60: Poor

INITIAL QUALITATIVE BIOASSESSMENT CRITERIA, STATEWIDE SURFACE WATERS ASSESSMENT PROGRAM

1. Abundance obviously low																				
2. Seven or fewer Families in the collection																				
3. Three or few mayfly individuals*																				
4. Stoneflies collectively present			N		N		N	N		N	N		N	N	N					
5. Mayflies/caddisflies collectively abundant*			N										N	N						
6. 6 EPT Families with Hilsenhoff Index of 4 or less (4 July-Sept.)			N		N								N	N	N					
7. 4 or more Families with Hilsenhoff Index of 3 or less			N		N								N	N	N					
8. 6 or more Families with Hilsenhoff Index of 4 or less			N		N		N	N	N		N	N	N	N	N		N			
9. Dominant Family with Hilsenhoff Index of 4 or less																				
10. Dominant Family with Hilsenhoff Index greater than 5																				
11. 7 or more Families with Hilsenhoff Index of 6 or more																				
12. Dominated by Families with mean Hilsenhoff Index of 5 or <		N	N			N	N	N	N	N	N		N	N	N		N			
13. Dominated by Families with mean Hilsenhoff Index of 6 or >																				
14. Embeddedness + Sediment Deposition is less than 24																				
15. Condition of banks + Bank Vegetation is less than 24																				
16. Habitat Score is less than 140 for riffle/run prevalence																				
Impaired? (I) Not Impaired? (N)	I	I	N	I	I	N	I	I	I	I	I	I	I	I	I	I	I	I	I	I

*Excluding Baetidae, Caenidae, Siphonuridae, Hydropsychidae, and Polycentropodidae

QUALITATIVE BIOASSESSMENT

Aquatic Conditions	P	P	O	P	M	S	P	P	P	P	P	P	M	M	M		M?
Date Assessed	6/03	7/04	6/03	7/04	6/03	6/04	6/03	6/03	6/03	6/04	6/04	7/04	6/03	6/04	6/04		7/03
Sampling Station	SR1	SR1	SM1	SR2	H1	H1	SR3	SCR1	CB1	CB1	CB2	SR4	MR1	MR1	MR1A		MR1B

Impaired Conditions: Poor (P) or Marginal (M) Not Impaired Conditions: Sub-optimal (S) or Optimal (O)

MR1C 7/03	KR1 7/03	KR1 6/04	MR2 6/04	MR2A 7/04	SR5 7/03	SR6 7/04	SRUNT2 7/04	SR7 7/03	SRUNT3 7/04	SR8A 7/03	SR8B 7/03	SR8B 7/04	HR1 7/03	HR1 7/04	SR9 7/03	SR9 7/04
5				<3		3-9	<3		<3					<3		
	3		<3	<3					<3	1	3	3-9				<3
<3		<3	3-9			<3			3-9			<3	3			<3
<3		<3	3-9	3-9					3-9	1	4	<3		<3		<3
1		3-9		<3					<3							
									<3							
											1					
3	1	<3				<3	3-9					<3	1	<3		
				3-9					<3							
									3-9							
5 1	15 40	10-24 10-24 10-24	<3 10-24 <3 3-9 <3 3-9	<3 3-9 3-9 3-9		<3 3-9	10-24 <3		3-9 3-9 3-9			<3		<3 3-9		
1 1		3-9 3-9 <3 >100 <3 <3	10-24 3-9 3-9 10-24	3-9 3-9 3-9		3-9	3-9		3-9 3-9 3-9	4	4	10-24 <3	1			25-100
17	60	157-217	54-120	39-69	0	18-30	22-48	0	48-96	6	12	28-48	5	15	0	34-109
7	5	13	11	13	0	6	5	0	16	3	4	7	3	5	0	4

7/04

7/04 7/04

	Miller Run Downstream of Kennedy Run 34		
28	18	19	
1	1	1	

202	197	198	193	200	215	201	192		182	197	186	190	149	167	129	184
-----	-----	-----	-----	-----	-----	-----	-----	--	-----	-----	-----	-----	-----	-----	-----	-----

