

PINE RUN
CLEARFIELD COUNTY

Water Quality Standards Review
Stream Redesignation Evaluation Report

Segment: Basin
Drainage List: L
Stream Code: 26839



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

APRIL 2004

**Pine Run (26839)
Clearfield County
Drainage List L**

GENERAL WATERSHED DESCRIPTION

Pine Run is a second order tributary to Chest Creek at River Mile Index (RMI) 10.9 in Chest Township, Clearfield County near Westover (Westover quadrangle) and drains 4.19 mi² of land (Figure 1). Land use consists of light residential, reclaimed strip mining, and forest uses. Pine Run currently has a protected designated use of Cold Water Fishes (CWF).

The Pine Run basin's CWF designated use was evaluated for redesignation as Exceptional Value (EV) because of a petition submitted by the Chest Township Road District dated June 1, 2001. The Department's Central Office staff conducted aquatic life use and stream survey work in the Pine Run basin on April 24, 2002.

WATER QUALITY AND USES

Surface Water

No long-term water quality data were available to allow direct comparisons to water quality criteria. Grab samples taken April 24, 2002 revealed a moderately infertile, lightly buffered freestone headwater system with little impact from extensive, historical mining in the watershed. Historical water samples collected by the Department on May 18, 1993 showed elevated levels of aluminum, iron, and manganese, which is indicative of mining impacts. Fecal coliforms were below 20 colonies per 100ml to 40 colonies per 100ml (Table 1), which are normal. The increased alkalinity at station 3 is most likely due to limestone aggregate rip-rap lining the banks at a bridge crossing Pine Run, and was seen in both 1993 and 2002 samples. Stream flow in 2002 was moderate. No recent precipitation events had occurred to influence spring base flow. Because of the instantaneous nature of grab sampling, the indigenous aquatic community is a better indicator of long-term conditions and is used as a measure of aquatic life use.

There are no permitted (NPDES) discharges nor water withdrawals in the Pine Run basin.

Aquatic Biota

An assessment of the physical habitat at three stations on Pine Run revealed optimal habitat for aquatic biota (Table 2). Benthic macroinvertebrate samples were collected using the Department's PA-DEP RBPIII benthic sampling methodology. The PA-DEP RBPIII method was modified from EPA's Rapid Bioassessment Protocols. Macroinvertebrate sampling from the best available riffle habitats at stations 1PR, 2PR, and 3PR revealed a high-quality aquatic invertebrate community typical of headwaters streams (Table 3). Macroinvertebrate densities were relatively low, but this is due to this headwater system's natural infertile conditions, not from pollution sources. Electrofishing conducted by the Department on May 13, 1993 indicated that Pine Run propagates a coldwater fish community, to

include native brook trout (*Salvelinus fontinalis*) (Table 4). Young-of-the-year brook trout were inadvertently captured in the D-frame kick net during the survey on April 24, 2002.

BIOLOGICAL USE QUALIFICATIONS

The biological use qualifying criterion applied to Pine Run was the Department's antidegradation integrated benthic macroinvertebrate scoring test described at §93.4b(a)(2)(i)(A). Five benthic macroinvertebrate metrics (taxa richness, modified EPT index, modified HBI, percent dominant taxon, and percent modified mayflies) were used in an integrated comparison of the stations on Pine Run (1PR, 2PR, 03 PR) with a reference station (1RHR) established in the adjacent Rogues Harbor Run basin. The Rogues Harbor Run basin is designated as Exceptional Value (EV) in Chapter 93. The reference station was selected based on proximity, geologic setting, and drainage area being most similar to the candidate stream. Drainage areas for stations 1PR, 2PR, 3PR, and 01 RHR are 1.16, 2.10, 4.01, and 4.63 square miles, respectively.

Based on the metrics comparison, the scores of all three Pine Run stations (Table 4) exceeded the 92% EV reference score criterion.

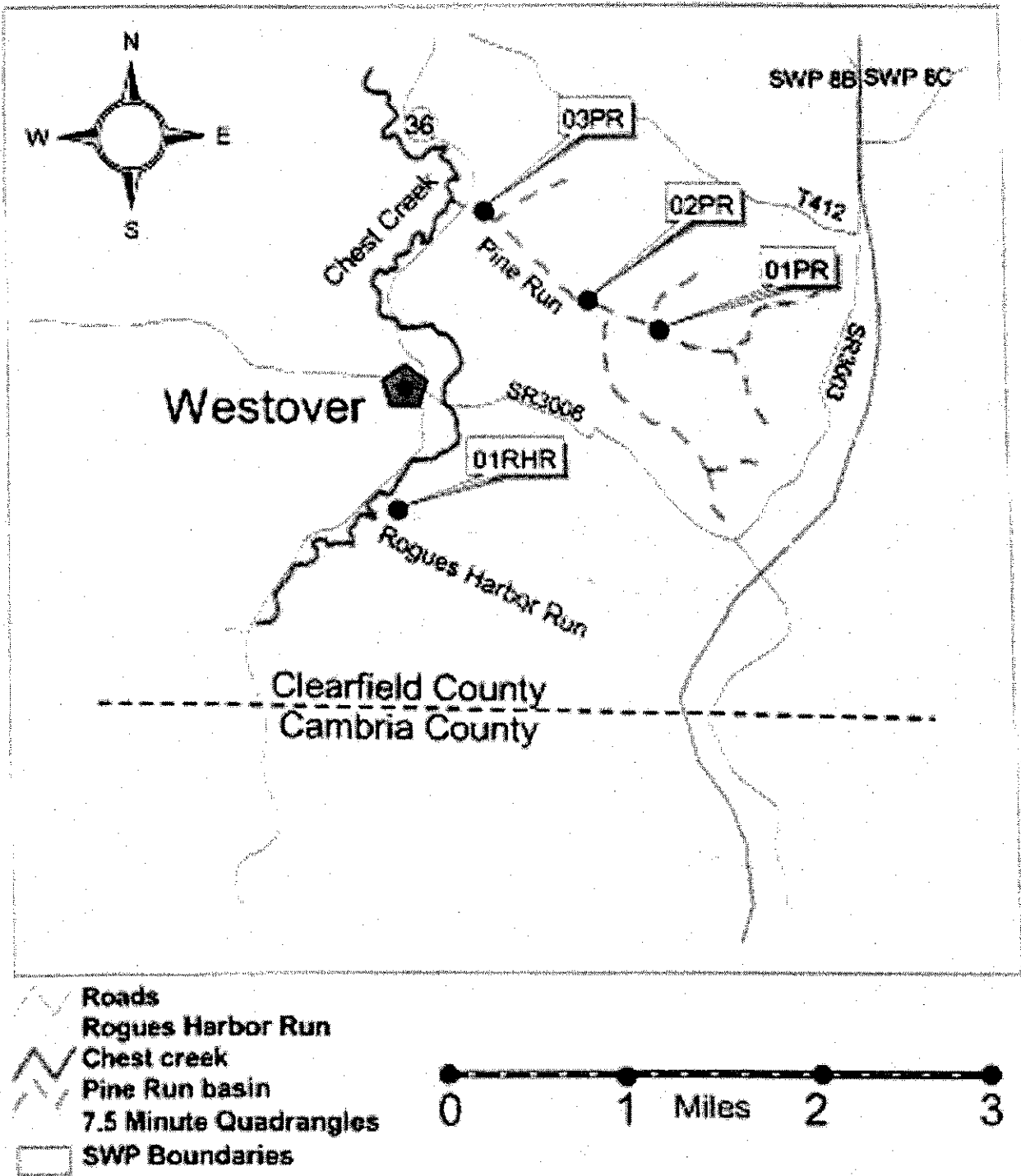
PUBLIC RESPONSE AND PARTICIPATION SUMMARY

The Department provided public notice of this designation evaluation and requested any technical data from the general public through publication in the Pennsylvania Bulletin on April 27, 2002 (39 Pa.B 5503). A similar notice was also published in The Progress, a local Clearfield County newspaper, on April 26, 2002. In addition, Chest Township and the Clearfield County Planning Commission were notified of the evaluation by letter. No data were received in response to this notice.

RECOMMENDATIONS

Based on applicable regulatory criteria, the Department recommends that the use designation of Pine Run basin in Chapter 93 be changed from Cold Water Fishes to Exceptional Value. This recommendation is based on waters with biological condition scores greater than 92% of the reference score. This designation affects approximately 6.85 miles of stream.

Figure 1
 Pine Run and Rogues Harbor Run
 Clearfield and Cambria Counties



**TABLE 1. WATER CHEMISTRY
PINE RUN, CLEARFIELD COUNTY**

STATION	1PR		2PR	2PR downstream	3PR		1RHR
Date ¹	5/18/93	4/24/02	4/24/02	5/18/93	5/18/93	4/24/02	4/24/02
Field Parameters							
pH	-	7.04	6.75	-	-	7.39	N/A
Sp. Cond. (μ S/cm)	489	315	298	607	593	390	N/A
Temperature (C)	12	12.6	10.5	11	11	8.8	N/A
Laboratory Parameters²							
pH	6.4	6.7	6.6	6.4	6.7	7.0	6.6
Alkalinity	19	17.2	15.4	20	46	40.0	9.4
Acidity	0	0.0	0.0	0	0	0.0	0.0
Hardness	223	144.0	128	276	246	184.0	71.0
T Diss. Sol.	-	274.0	236	-	-	298.0	118.0
Susp. Sol.	-	12.0	22.0	-	-	14.0	8.0
NH ₃ -N	-	<0.02	<0.02	-	-	<0.02	<0.02
NO ₂ -N	-	<0.01	<0.01	-	-	<0.01	<0.01
NO ₃ -N	.13	0.16	0.12	.18	.31	0.13	0.14
Total P	<.02	<0.01	<0.01	<.02	.02	<0.01	<0.01
Ca	-	30.9	28.4	-	-	41.8	20.0
Mg	-	16.1	13.9	-	-	19.4	5.1
Cl	-	7.0	8.0	-	-	7.0	3.0
SO ₄	212	117.0	116.0	286	253	144.0	59.7
As ³	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
As Diss ³	-	<4.0	<4.0	-	-	<4.0	<4.0
Cd ³	-	<0.2	<0.2	-	-	<0.2	<0.2
Cd Diss ³	-	<0.2	<0.2	-	-	<0.2	<0.2
hex Cr ³	-	<10.0	<10.0	-	-	<10.0	<10.0
Cr ³	-	<50.0	<50.0	-	-	<50.0	<50.0
Cu ³	<50.0	<4.0	<4.0	<50.0	<50.0	<4.0	<4.0
Cu Diss ³	-	<4.0	<4.0	-	-	<4.0	<4.0
Fe ³	114	123.0	76.0	286	977	64.0	120.0
Pb ³	-	<1.0	<1.0	-	-	<1.0	<1.0
Pb Diss ³	-	<1.0	<1.0	-	-	<1.0	<1.0
Mn ³	291.0	63.0	57.0	206	211	33.0	18.0
Ni ³	-	5.9	5.0	-	-	<4.0	<4.0
Ni Diss ³	-	5.2	4.7	-	-	<4.0	<4.0
Zn ³	-	5.9	5.6	-	-	<5.0	<5.0
Zn Diss ³	-	<5.0	<5.0	-	-	<5.0	<5.0
Al ³	307.0	51.2	55.1	193	612	40.3	72.6
Total Coliform ⁴	-	200	200	-	-	400	300
Fecal Coliform ⁴	-	40	<20	-	-	20	<20

1 - 5/18/93 station dates: DEP North Central Regional Office survey. Except for 2PR, all 5/18/93 stations concurrent with 4/24/02 stations. 5/18/93 2PR near but downstream of 4/24/02 2PR.

2 - Except for pH and indicated otherwise, all values are total concentrations in mg/l

3 - Total concentrations in μ g/l

4 - Colonies per 100ml

TABLE 2. HABITAT ASSESSMENT¹
PINE RUN, CLEARFIELD COUNTY
APRIL 24, 2002

PARAMETER	1PR	2PR	3PR	1RHR
1. instream cover (fish)	18	18	16	19
2. epifaunal substrate	18	18	17	17
3. embeddedness	15	17	16	18
4. velocity/depth regimes	17	17	15	18
5. channel alterations	19	18	16	18
6. sediment deposition	15	15	15	17
7. frequency of riffles	16	17	17	18
8. channel flow status	17	16	16	18
9. condition of banks	16	15	13	16
10. bank vegetation protection	17	15	15	15
11. vegetation disruptive pressure	17	17	16	18
12. riparian vegetation zone width	18	18	17	19
TOTAL HABITAT SCORE	203	201	189	211

¹ Refer to Figure 1 and Table 1 for station locations

TABLE 3.
SEMI-QUANTITATIVE BENTHIC MACROINVERTEBRATE DATA
PINE RUN, CLEARFIELD COUNTY
April 24, 2002

TAXA	1PR	2PR	3PR	1RHR
PLECOPTERA (Stoneflies)				
Chloroperlidae, <i>Haploperla</i> sp.	1			
<i>Swellisa</i> sp.			1	
Leuctridae, <i>Leuctra</i> sp.	2	12	13	3
Nemouridae, <i>Amphinemura</i> sp.	21	13	23	47
<i>Ostrocerca</i> sp.			1	
Peltoperlidae, <i>Tallaperla</i> sp.				1
Perlidae, <i>Acroneuria</i> sp.	7	1		
Perlodidae, <i>Isoperla</i> sp.	2	1		5
Pteronarcycidae, <i>Pteronarcys</i> sp.			1	1
EPHEMEROPTERA (Mayflies)				
Ameletidae, <i>Ameletus</i> sp.			1	
Baetidae, <i>Baetis</i> sp.	1			2
Ephemerellidae, <i>Ephemerella</i> sp.	9		2	19
Heptageniidae, <i>Cinygmula</i> sp.	1	3	8	6
<i>Epeorus</i> sp.			2	1
Isonychidae, <i>Isonychia</i> sp.		2		
Leptophlebiidae, <i>Paraleptophlebia</i> sp.	2		4	
TRICHOPTERA (Caddisflies)				
Hydropsychidae, <i>Cheumatopsyche</i> sp.	3		2	
<i>Diplectrona</i> sp.	9	18	6	2
<i>Hydropsyche</i> sp.			1	
Philopotamidae, <i>Dolophilodes</i> sp.		3		
Polycentropodidae, <i>Ceratomyia</i> sp.	3		1	
Rhyacophilidae, <i>Rhyacophila</i> sp.	1	9	2	2
DIPTERA (True Flies)				
Chironomidae	17	28	21	12
Ceratopogonidae, <i>Probezzia</i> sp.	1			1
Simuliidae, <i>Prosimulium</i> sp.		3		2
Tipulidae, <i>Antocha</i> sp.	6			
<i>Chelifera</i> sp.			3	
<i>Dicranota</i> sp.	1			2
<i>Hexatoma</i> sp.	1			
<i>Psuedolimnophila</i> sp.	1	2	1	
<i>Tipula</i> sp.				1
Miscellaneous Insect Taxa				
Elmidae, <i>Oulimnius</i> sp.	7	4	7	
Gomphidae, <i>Lanthus</i> sp.	5		1	
Corydalidae, <i>Nigronia</i> sp.	1	3		3
Sialidae, <i>Sialis</i> sp.	1			
NON-INSECT TAXA				
Cambaridae <i>Orconectes</i> sp.	1		1	1
Oligochaeta		1	1	2
SUMMARY				
Total number of taxa	24	15	22	19
Total number of individuals	104	103	104	113
Number of grids	28	20	22	24

**TABLE 4. RBP METRIC COMPARISON
PINE RUN, CLEARFIELD COUNTY**

METRIC	STATIONS			
	1PR	2PR	3PR	1RHR
TAXA RICHNESS	24	15	22	19
Cand/Ref (%)	126	79	116	
Biol. Cond. Score	8	7	8	8
MOD. EPT INDEX	10	9	12	10
Cand/Ref (%)	100	90	120	
Biol. Cond. Score	8	8	8	8
MOD. HBI	3.16	2.65	3.00	2.78
Cand-Ref	0.38	-0.13	0.22	
Biol. Cond. Score	8	8	8	8
% DOMINANT TAXA	20.2	27.2	22.1	41.6
Cand-Ref	-21.4	-14.4	-19.5	
Biol. Cond. Score	8	8	8	8
% MOD. MAYFLIES	11.5	4.9	16.3	23
Ref-Cand	11.5	18.1	6.7	
Biol. Cond. Score	8	6	8	8
TOTAL BIOLOGICAL CONDITION SCORE	40	37	40	40
% COMPARABILITY TO REFERENCE	100	93	100	