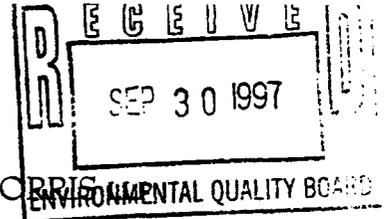


Original: 1874  
Copies: 2  
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Wyatte  
Bereschak



BUCKLEY, NAGLE, GENTRY, BRION, McGUIRE & MORRIS ENVIRONMENTAL QUALITY BOARD

ATTORNEYS AT LAW  
304 NORTH HIGH STREET  
WEST CHESTER, PENNSYLVANIA 19380-2688

C. BARRY BUCKLEY  
RONALD C. NAGLE  
W. RICHARD GENTRY  
STEPHEN P. McGUIRE  
JOSEPH E. BRION  
ANTHONY MORRIS  
JEFFREY R. SOMMER

KRISTIN S. CAMP  
JOHN T. MANNATO\*

(610) 436-4400  
FAX (610) 436-8305  
FAX (610) 436-6179

September 26, 1997

\*Admitted in New Jersey

Environmental Quality Board  
Rachel Carson State Office Building, 15th Floor  
400 Market Street  
Harrisburg, Pennsylvania 17101-2301

RE: Proposed Upgrade of Hay Creek

Dear Sir or Madam:

Please be advised that this office represents Morgantown Properties, a major landowner in the area of the Hay Creek Watershed. It has come to our attention that there is a proposal with regard to a possible upgrade of Hay Creek to an exceptional value stream. My client has requested that we contact you to advise that we are opposed to the upgrade of Hay Creek to an exceptional value stream as an amendment to 25 Pa.Code §§ 93.9f, 93.9q, 93.9t and 93.9v. In reviewing the proposed amendment, there is no scientific data or definitive information to support redesignating Hay Creek and, in fact, to upgrade the stream in accord with the amendment appears to be totally arbitrary.

Our client would be directly affected by any proposed regulatory action to redesignate Hay Creek as an exceptional value stream due to the fact that it owns the property in and around the proposed designated area and is very concerned with regard to inconsistencies regarding land use and land planning which have been discussed with the municipality, Borough of New Morgan, Berks County, Pennsylvania.

We are further concerned that the proposed regulation, although arbitrary as stated above, will have a considerable adverse economic impact upon our client and its land, which impact may not be immediately determined and not fully considered by the Environmental Quality Review Board.

Therefore, on behalf of our client, we respectfully object to the proposed designation and request that any action on the proposal be deferred until a full and

61 OCT 9-10 1997

Environmental Quality Board  
September 29, 1997  
Page 2

complete resolution is reached to the satisfaction of our client with regard to any inconsistencies in the plan

I would request that this letter be included in any packet distributed to each member of the Environmental Quality Board prior to any meeting at which the regulation is to be considered and I would request that we be notified of any public meetings scheduled with regard to the proposed designation so we can attend on behalf of our client.

Respectfully,



Joseph E. Brion

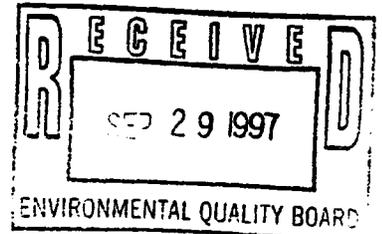
JEB:vjj

cc: Mr. James H. Law

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97 OCT -6 AM 10:19  
INDIANA DEPARTMENT OF  
REVENUE COMMISSION

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Wyatte Bereschak

Environmental Quality Board  
P. O. Box 8477  
Harrisburg, Pa. 17105-8477



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97 OCT -6 11:19:20  
INDEPENDENT COMMISSION  
REVIEW COMMISSION

Date: Sept 26, 1997

Dear E.Q.B.,

*I would like to lend my support to the proposal to have Hay Creek upgraded to a Exceptional Value Stream.*

*It's imperative that we do everything in our power to protect the quality of the water in this stream.*

*As a youth I enjoyed many activities directly related to Hay Creek. When as a parent I watched my children enjoy many of the same activities at this stream. At 6 yrs of age, walking by this creek whose water quality attracts wildlife & plantlife to this wooded habitat is especially rewarding, and because we've been diligent in the care of this creek my grandchildren*

*Thank You, are now able to enjoy it also.*

*Name: Can we do any less for future*

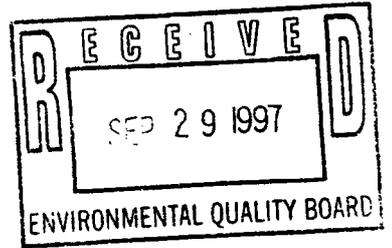
*Address Generations?*

*Thank you*

*John K. Myers  
1115 Cocalico Rd  
Sandusky PA 19508*

Original: 1874  
Co s: Smith  
Sandusky  
Wyatte  
Benes, Pa

Environmental Quality Board  
P. O. Box 8477  
Harrisburg, Pa. 17105-8477



Date: Sept. 26, 1997

Dear E.Q.B.,

IT has taken nature many  
years to return Hay Creek to what  
it was meant to be

There are too many polluted streams,  
barren fields and treeless hillsides in  
this world.

As a bird watcher, fishermen and  
hiker, my wife and I ask you to please  
consider upgrading Hay Creek and not to  
allow the quarry in this area.

Thank you  
Carl

Thank You,

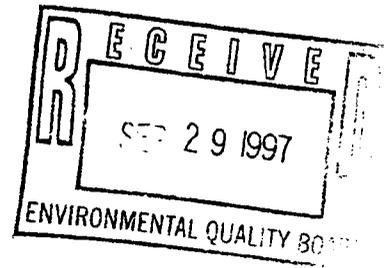
Name: Barbara & Carl Wink

Address 123 W. Washington St.

Fleetwood Pa, 19522

97 OCT -6 AM 10:26  
INDUSTRIAL DEVELOPMENT  
REVIEW COMMISSION

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Copies: Smith  
Sandusky  
Wyatte  
Bereschak



Environmental Quality Board  
P.O. Box 8477  
Harrisburg, PA 17105-8477

Dear E.Q.B.:

I am writing this letter on behalf of my entire family to support the upgrade of Hay Creek to Exceptional Value status. As a resident of Union Township for 10 years, I have spent a lot of time walking along the banks of Hay Creek -- it's a refuge for people as well as wildlife. My children (6 & 8 years old) wade in the Creek and catch polywogs and crayfish. Just about everyone in this area fishes in Hay Creek. The diversity and abundance of plant and animal life is beautiful and rare and fragile; and worthy of protection. It is an asset that once gone, can never be reclaimed. That would be a tremendous loss for the entire state as well as the people of Berks County. Please help us protect our environment for our children.

Sincerely,

*The O'Connors*

Kathleen O'Connor  
Brian O'Connor  
Nicholas O'Connor  
Bridget O'Connor

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INDENTIFIED  
REVIEW COMMISSION



An Equal Opportunity Employer

# HAINES & KIBBLEHOUSE, INC.

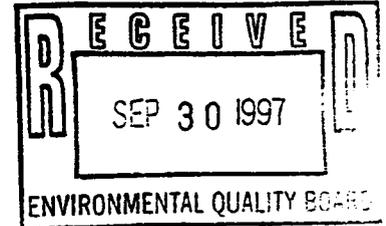
*Demolition*

*Excavating & Paving*

P.O. BOX 196 - SKIPPACK, PA 19474

97 OCT - 8 AM 9:02  
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REVIEW COMMISSION  
September 29, 1997

Ph. (610) 584-8500  
Fax (610) 584-5432



Environmental Quality Board  
15th Floor, RCSOB  
P.O. Box 8477  
Harrisburg, PA 17105-8477

Original: 1874  
Copies: Smith  
Sandusky  
Wyatte  
Bereschak

Re: Stream Re-designations - Hay Creek, et al.  
(PA Bulletin 4094 - Dated Aug. 16, 1997)

Dear Member:

On behalf of Haines & Kibblehouse, Inc. (H&K), I am writing in response to the proposed rule making, specifically, Stream Re-designations - Hay Creek, et al., to express major concerns. Reviewed by the Environmental Quality Board at your meeting on June 17, 1997, public comment was solicited via the August 16, 1997 Pennsylvania Bulletin 4094. While the proposed rule making addressed eight (8) streams within the Commonwealth, this response focuses solely on the proposed re-designation of Hay Creek, a tributary of the Schuylkill River and a portion of the Delaware River Basin in Pennsylvania. Chapter 93, Water Quality Standards, §93.9f, Drainage List F currently designates the entire Hay Creek Basin as Cold Water Fishes (CWF). However, if approved, the proposed rule making would upgrade a major portion of the Hay Creek Basin from CWF to Exceptional Value Waters (EV). The change from CWF to EV is predicated in part on the presence of a Pennsylvania threatened wetland plant species known as bog bluegrass at one location within the basin.

As widely publicized, H&K purchased 416.4 acres of land immediately south of the Borough of Birdsboro Municipal boundary between 1989 and 1991 for development. I am deeply concerned that the proposed rule making and stream re-designations as proposed for Hay Creek will directly impact exhaustive efforts over the last eight years directed at reactivating a site (historically impacted by mining) for the recovery of a valuable natural resource and for additional residential development. Refer to the attached copy of Figure 1 as taken from the "Executive Summary for Hay Creek" for the approximate limits of the land owned by Haines & Kibblehouse, Inc. Despite all of the above, there is no mention of any proposed activity contained in the subject study findings.

Since acquiring the rights to this property, H&K has exhausted countless hours, not to mention resources, in evaluating the site and negotiating with the respective municipalities of Robeson and Union Townships in the attempt at arriving at mutually acceptable agreements to rezone the land to permit the development of approximately 289.6 acres of the property as a noncoal surface mining operation, or quarry. Note that historical use of the property by the prior owners involved the active mining of the property. In fact, highwalls approximating one hundred (100) feet in height remain today near the southern boundary of the property. Past mining by the same company immediately west and across Hay Creek formed a water impoundment which is in use today by the Birdsboro Municipal Authority as a backup water supply.

With the exception of the northern and eastern boundary of the property which joins other privately held land, primarily residential, the H&K property is contiguous with lands to the south and west which are owned by the Birdsboro Municipal Authority. Hay Creek and Route 82 form a natural boundary between the properties and the entire western edge. The common boundary to the south follows the watershed divide, with less than 6 acres of H&K's land which are situated within the watershed area being associated with the Birdsboro Reservoir, or Indian Run Dam, which is situated more than one-quarter mile to the south. The topographic high or ridge which forms the watershed divide is the result of a diabase intrusion which isolates H&K's property hydrogeologically from that of the Birdsboro Municipal Authority.

Negotiations with the respective municipalities of Robeson and Union Townships were initiated prior to formal transfer of title to the subject lands. In Robeson Township, the proposal for a change in zoning resulted in more than thirty hearings, spanning a two-year period. It is relevant to note that the aforementioned hearings included testimony from numerous experts, including a representative from the then Pennsylvania Fish Commission who testified on the occurrence of native trout and macro-invertebrate communities in Hay Creek from its source to the Schuylkill River. Additional negotiations ultimately resulted in an agreement between the Township of Robeson and H&K, which included the rezoning of 130.7 acres of H&K's land which fronts Hay Creek and stretches from the Borough of Birdsboro Municipal boundary southward to the common boundary with the lands of the Birdsboro Municipal Authority. The final agreement with Robeson Township was officially signed on September 20, 1994 and was subsequently reviewed and entered as an Order of Court by the Court of Common Pleas of Berks County.

The negotiations with Union Township in 1989 resulted in initial action by the Township to rezone approximately 92 acres of land for extraction. The area which was rezoned covered a portion of H&K's properties contiguous with the Birdsboro Municipal Authority land and east of the boundary with Robeson Township. Subsequent negotiations with Union Township ultimately resulted in an agreement between the Township of Union and H&K and included the rezoning of an additional 67 acres of the H&K land north of the area initially rezoned to permit extraction activities. The final agreement with Union Township was officially signed on October 16, 1995 and was subsequently reviewed and entered as an Order of Court by the Court of Common Pleas of Berks County.

Separate development plans filed in Union Township in 1989 have proposed the residential subdivision development of the easternmost portion of H&K's lands, or approximately 120.7 acres. In conjunction with additional zoning changes adopted by the Township, the Plan for Subdivision has been revised and is once again before the Township for action.

The rezoning of land by both Townships was completed in conformance with the mandates set forth under Pennsylvania Municipalities Planning Code. The Ordinances, as adopted, were reviewed by the Berks County Planning Commission, and recommendations therefrom were considered by each municipality prior to final adoption. In short, H&K has progressed in a responsible manner along a logical and systematic course in an effort to develop our property in the Hay Creek Basin. Over the last eight (8) years, we have made significant progress in our goal and have entered into agreements with the respective municipalities which go well beyond the norm in protecting the environment and in assuring our intention to be a good neighbor in the community. H&K has encountered disgruntled citizens and a local Municipal Authority which, to this date, refuses to provide water for the proposed residential development. Nonetheless,

despite all of the above which have received significant newspaper coverage, no mention is noted regarding the proposed activity in connection with the possible re-designation of Hay Creek. Based on the timing of the proposed rule making for the re-designation of Hay Creek, one might suspect that the request is the result of collusion or is politically motivated, as the final agreement concerning rezoning of the site was officially signed in October 1995.

With the issue of zoning changes to permit extraction being formally resolved, H&K has filed with the PaDEP an application to develop and operate a noncoal surface mine on the property. In preparing for this submittal, numerous studies and investigations of the property were conducted to define and address the potential for environmental impact, as well as any impact to parties contiguous to the proposed operation. This has included a study of the entire 416.4 acre property for threatened or endangered plant species. A total of six (6) species were identified as part of a Pennsylvania Natural Diversity Inventory (PNDI) search completed in conjunction with preparation of the Noncoal Surface Mining Permit Application. Based on the investigations conducted, it was concluded that none of the listed threatened or endangered plant species exist within the site. Note that one of the justifications for upgrading Hay Creek from CWF to EV was based on the presence of a threatened plant species, specifically, bog bluegrass, which was documented as being present in the Birdsboro Reservoir watershed immediately south of the H&K property.

Testimony presented in March 1991 by a Pennsylvania Fish Commission representative at a hearing before the Township of Robeson indicated that the subject H&K property lies within a segment of Hay Creek which has a transitional environment extending approximately from Geigertown two (2) miles south of our H&K property and northward to Hay Creek's confluence with the Schuylkill River. Within this length (4.5 miles), the stream only marginally supported native reproduction of brown trout, with numerous warm water species also being present. Based on aquatic habitat, the water quality in this segment of Hay Creek was, likewise, deemed good, but not excellent. The water quality of the balance of Hay Creek south of Geigertown to its source was significantly different, with the quality considered excellent and the stream clearly capable of supporting native reproduction of brown trout. The above findings were based on 1977 and 1982 studies. In addition, it was reported that the flooding along Hay Creek in September of 1987 had significantly degraded the segment of Hay Creek from Geigertown northward to its confluence with the Schuylkill River, the degradation being the altering of channels, erosion of stream banks and deposition of thick deposits of sand and silt. In fact, significant damage had also occurred to manmade features, with sections of S.R. 0082 being completely washed away and major portions of Conrail trackage destroyed. Today, ten years later, S.R. 0082 is still closed between Geigertown and the Birdsboro Municipal boundary.

While ten years have lapsed since flooding along Hay Creek and conditions along the stream have no doubt improved, it is questionable that the transitional zone which existed in 1977 and 1982, and which was further degraded in 1987 between Geigertown and Hay Creek's confluence with the Schuylkill River (a length of approximately 4.5 miles), has now shifted northward two miles to the Birdsboro Municipal boundary to justify an EV designation as is now being proposed.

Based on what would seem to be well documented evidence from 1977 to present, Hay Creek's headwaters are of excellent quality and should be protected with EV designation. This would follow established convention in protecting a stream's headwaters, or the most sensitive area. However, from

the unnamed tributary 63882, source to mouth, which encompasses the drainage area associated with the former Bethlehem Steel Grace Mine and tailings disposal area, and the area of continuing development in the Borough of New Morgan, Hay Creek northward should not be given EV status. Unnamed tributary 63882 is a major contributing subbasin to Hay Creek, and based on only the addition of Migratory Fishes to its present CWF designation, there is no justification for Hay Creek downstream of the unnamed tributary 63882 to be afforded EV status.

The same holds true in the case of the Beaver Run Basin, source to mouth. Here the re-designation is from CWF to HQ-CWF. This upgrade for Beaver Run is logical to protect the headwaters of the stream and Hay Creek Basin. However, the proposed upgrade, again, to EV downstream of Beaver Run is lacking in merit.

The Executive Summary accompanying the proposed rule making cites the presence of a threatened semi-aquatic species as partial justification for the upgrade to EV for the segment of the Hay Creek Basin from Beaver Run to the Birdsboro Borough boundary. Its occurrence in the upper reaches of the watershed which feeds the Birdsboro Reservoir, a portion of 1500 acres of undeveloped and protected land, does not justify EV status for Hay Creek, when, again, major portions of the headwaters of Hay Creek cannot support the same. Furthermore, as the referenced occurrence is on protected lands approximately one-half mile east and several hundred feet in elevation above Hay Creek, its existence is in no way dependent on Hay Creek's designation as a stream.

In conclusion, we respectfully request that the Environmental Quality Board (EQB) consider the following before adopting the proposed rule making, specifically, the re-designation of Hay Creek.

1. The proposal as presented for EQB consideration appears to be an attempt to block the ongoing efforts of a landowner and private corporation to develop within the Hay Creek Basin. As the author of this proposal is believed to be opposed to the H&K development, we are deeply concerned that the placement of the EV designation to the Birdsboro Borough boundary, as well as the proposed EV status downstream of a major sub-watershed area which does not support equal status, is arbitrary and without sound basis.
2. Based on prior study by the Pennsylvania Fish Commission, now Pennsylvania Fish and Boat Commission, there was and no doubt remains today a significant transitional zone in Hay Creek in which water quality is good, but not exceptional. That zone was originally determined to extend upstream of our H&K property for at least two miles, and there is no supporting evidence presented in the proposed rule making to suggest that the zone has now shifted to the Birdsboro Borough boundary. Hence, the proposed limit for re-designation of Hay Creek within this transitional zone is without basis.
3. Each of the municipalities of Robeson Township and Union Township, together with H&K, have exhausted considerable time, effort and resources in formulating agreements and adopting ordinances under which development of the property could occur. Those efforts not only originated but were consummated prior to the proposed rule making and the studies referenced herein.

4. The subject property of H&K has been investigated by qualified professionals, and a determination has been made that no threatened or endangered plant species occur within its limits.
5. Historical use of the subject H&K property has involved mining, with unprotected and exposed highwalls in excess of one hundred (100) feet remaining today.
6. Change the proposal to afford the headwaters' portions of Hay Creek increased protection by adopting the proposed recommendations for the following reaches:
  - a. Hay Creek Basin, source to unnamed tributary at RM18.1(UNT 63882) - Change current CWF designation to EV.
  - b. UNT 63882 Basin, source to mouth - Change current CWF designation to CWF, MF.
  - c. Hay Creek Basin, UNT 63882 to Beaver Run - Change current CWF designation to CWF, MF, not EV as requested.
  - d. Beaver Run Basin, source to mouth - Change current CWF designation to HQ-CWF, MF.
  - e. Hay Creek Basin, Beaver Run to mouth - Change current CWF designation to CWF, MF.

With the facts as presented, the recommended EV designation over the regional staff's recommended HQ-CWF, MF request is simply not justified.

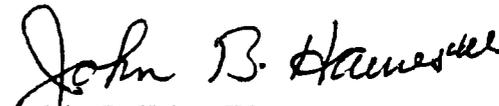
7. Considering the changes in zoning and the agreements entered into by the Townships of Robeson and Union, adjust the northern limit of reach number five (5) southward from the Birdsboro boundary approximately one mile and include the area north thereof in reach six (6) with a re-designation from CWF to CWF, MF. This change would preserve present agreements and preclude possible future questions relevant to a taking. The shift in the proposed boundary would delete all privately held land within reach five (5), which presently includes area developed for residential use. The above proposed change would, likewise, keep the sub-watershed area identified as having a threatened plant species within reach five (5) with an upgraded stream designation should the Board, in its wisdom, decide to retain the EV designation as proposed or some other upgraded status more appropriate based on the proposed designation of the headwaters.
8. Has the cost/benefit of the proposed regulation as mandated by Executive Order 1996-1 truly been assessed with regard to the potential impact of the proposed rule making?
9. While not referenced in the proposed rule making, Berks County has acquired an approximate eight (8) mile stretch of former Conrail railroad line which runs along Hay Creek from just south of Birdsboro to Joanna under the Rails to Trails Program. Adoption of EV status as proposed for Hay Creek, when not justified, would certainly minimize future development along this line and would enhance the trail at the expense of the adjoining property owners.

10. Stream re-designation, when justified, is necessary to preserve our environment for future generations. As conditions improve, streams should be afforded greater protection; however, a jump in designation from CWF to EV, when ignoring the HQ designation as proposed in this instance, is not responsible rule making. As the proposal clearly indicates, "there are no known portions of the Hay Creek Basin that qualify as outstanding national, state, or local resource waters under the Department's Special Protection Waters Selection Criteria." Why then afford it a status that it does not meet?

Thank you for your consideration in this matter, and we trust that you will carefully review the proposal on its merit, or lack thereof, before rendering a decision.

Sincerely yours,

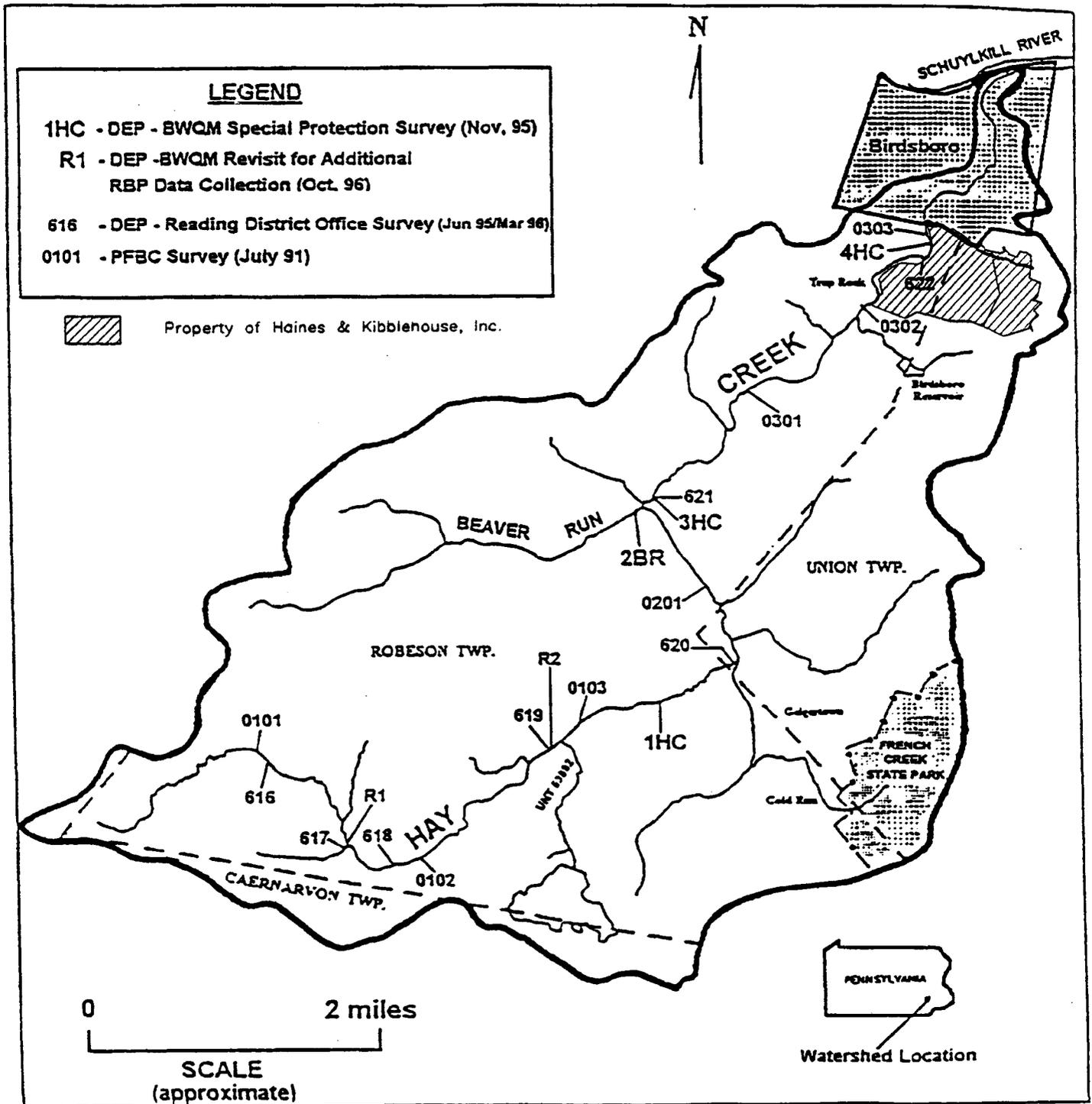
HAINES & KIBBLEHOUSE, INC.

  
John B. Haines IV  
President

Enclosures (1)

cc: Paul R. Ober, Esquire  
James M. Seif  
Daniel Hoffmann  
Samuel A. McCullough  
Bradley Mallory  
Samuel E. Hayes, Jr.  
Johnny J. Butler  
Peter Colangelo  
Donald C. Madl  
John M. Quain  
Dr. Brent D. Glass  
Charles Zogby  
Roger A. Madigan  
Raphael J. Musto  
Camille George  
Robert D. Reber, Jr.  
Howard W. Laur  
Gail Rockwood  
Walter Heine  
Dr. Paul Hess  
David L. Strong

**FIGURE 1  
HAY CREEK  
BERKS COUNTY**



Original: 1874 Copies: Smith, Sandesky  
Wyatte, Bereschak

# Environmental Quality Board

I am sending this  
to support the upgrade  
Hay Creek to exceptional  
I fish the area, and  
of other people do to.  
are fishing videos h  
children in Hay Creek  
Rustic Picnic Area ever  
Please protect the c  
streams that are left

Mildred L. Ziemer

R1 Box 15490

Mahston, Pa 19540

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SEP 29 1997  
ENVIRONMENTAL QUALITY BOARD

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Sandusky  
Wyatte  
Bereschak

ENVIROMENTAL QUALITY BOARD  
P.O BOX 8477  
HARRISBURG PA 17105-8477

DEAR HONERABLE BOARD

I AM WRITING THIS LETTER TO SUPPORT THE UPGRADE OF HAY CREEK TO EXCEPTIONAL VALUE . I LIVE IN THE WATER SHED ~~AREA~~ AREA AND FISH IN THE AREA . HAY CREEK FROM THE BEGINING TO THE END HAS VERY GOOD WATER THATS BETTER THEN MOST PEOPLE DRENK . MUCH OF ROBESON AND UNION TOWNSHIP IS DESIGNATED IN THE BERKS COUNTY PLAN AS A SENSATIVE AREA BECAUSE OF IT'S HEAVILY FORESTED STEEP SLOPES . THE WATER SHED AREA HAS A LOT OF PEOPLE [MAYBE 200 A DAY ] WALK THE PROPOSED HIKING TRAIL . ON THE FIRST WEEK OF TROUT SEASON THERE IS A LOT [200 -600 ] PEOPLE FISHING FROM BIRDSBORO TO NEW MORGAN THERE IS A LOT OF BIRD WATCHERS THERE TOO PLEASE PROTECT THE WATER SHED BECAUSE OF WHAT THE EFFECT WILL HAVE ON THE ENTIRE AREA . I THINK THAT RT.82 SHOULD REMAIN CLOSED [ IT'S BEEN THAT WAY FOR 10 YEARS AND PEOPLE GET BY ] . I HOPE H&K DOESNT QUARRY HERE . IF WE KNEW THE PROPERTY WAS FOR SALE IN 1989 WE WOULD OF ASKED THE P.A GAME COMMISION TO BUY IT . PLEASE THIS IS FOR THE ENDANGERED WILDLIFE AND PLANTS IN THE AREA ALSO FOR THE PEOPLE TOO .

RESPECTFULLY YOURS

*Matt Beisswanger*  
*2103 Highland Ave.*  
*Mt. Penn, Pa. 19606*

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97 OCT -6 AM 10:25  
HARRISBURG  
P.A. GAME COMMISSION

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Bereschak

2  
1

## Environmental Quality Board

I am writing this letter to support the upgrade of Hay Creek to exceptional value. I fish approx - 20 days per year at Hay Creek, and it is the only stream I catch and release native Brown trout. The native Brown trout only survives in cool clean water. I also fish Delaware Bay and Indian River Creek, and this year fished New York waters running into Lake Ontario. You read about pollution as soon as you read your fishing rules. I hope I never read that Hay Creek is polluted.

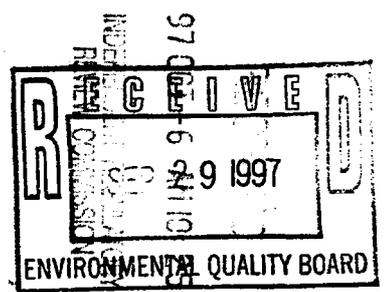
I talked to 10 to 15 people

②

in Redson Twp area and all thought Hay Creek should be exceptional value stream, but didnt think they should have to write or go to meetings for it. Please protect one of the few clean streams that are left.

Gary L Ziemer  
Box 1549 RD#1  
Mohnton, Pa

19540-9646



Please preserve Hay Creek  
AREA

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INDEPENDENT  
REVIEW COMMISSION

CHRISTINA D'AMICO  
P.O. BOX 4033  
READING, PA 19606

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Copies: Smith  
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Wyatte  
Bereschak

Thank you  
C.S. Dimarco Board

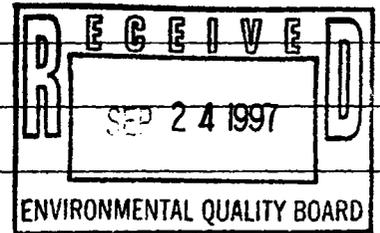


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Original: 1874  
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Sandusky  
Wyatte  
Bereschak

Janet Marino  
723 E. 9th St  
Birdsboro, Pa

Environmental Quality Board  
P.O. Box 8477  
Harrisburg, Pa



Dear Sirs:

I am writing in regard to the upgrade of Hay Creek to Exceptional Value. I definitely support this plan as a native born Birdsboroite. Not only is Hay Creek the headwater to the Birdsboro line of water it is habitat to many migrant birds, and home to many types of fish.

I have just returned from a three mile walk through the said area and have seen all types of people from toddlers to grand parents as families, to young couples to married couples, and I as a widow taking in

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the beauty of the area. It is the only place in Burdick that hasn't been mutilated for the so called progress of large homes or filled with pollution from vehicles.

As a child I enjoyed Hay Creek with my Dad. as a parent with my sons now as a grandparent with my Grandsons and I may not be here to see it but I hope someday they will be able to enjoy it with their children. It is one of the few places God has created which has been improved by man so plans help us improve it more for the next generation.

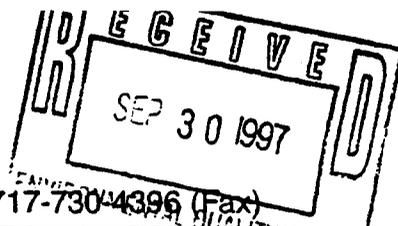
Sincerely yours  
Janet (Romig) Marinis

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97 OCT -3 AM 9:25

RECEIVED



600 N. Twelfth St. • Lemoyne, Pennsylvania 17043  
717-730-4380 or Toll Free (in PA) 800-692-7339 • 717-730-4396 (Fax)



<b>President</b> Edward S. Nikles, Sr. Pike County BA	<b>Vice President</b> Charles L. Kasko BIA of Northeast PA	<b>Associate Vice President</b> Mary C. Pucciarella Blair County BA	<b>Treasurer</b> Dennis L. Brislin BIA of Northeastern PA	<b>Secretary</b> Michael J. Schultz Washington County BA	<b>Executive Vice President</b> David F. Sheppard, Jr., CAE
---	--	---	---	--	--

Original: 1874  
Copies: Smith  
Sandusky  
Wyatte  
Bereschak

Secretary James Seif, Chairman  
Environmental Quality Board  
P.O. Box 8477  
Harrisburg, PA 17105-8477

September 30, 1997

Dear Chairman Seif:

Thank you for the opportunity to provide comments on the Department of Environmental Protection's (DEP) proposal to redesignate the majority of the Hay Creek watershed from a cold water fishery to exceptional value status. This proposal was published in the August 16, 1997 *Pennsylvania Bulletin* (27 Pa.B. 4094-4099).

The Pennsylvania Builders Association (PBA) believes the Environmental Quality Board's action on this proposal is premature since Pennsylvania's special protection waters program is currently undergoing revision. We cannot support the Department's efforts to reclassify streams under criteria which currently are being reconsidered. The EQB and the DEP should not move forward on any stream reclassifications until the revisions to the water quality antidegradation regulations have been finalized.

All streams in Pennsylvania are protected at a minimum for potable water supply, recreation, and fishery uses by the Department's existing regulations. Only streams that exhibit truly outstanding characteristics are to be awarded the exceptional value status.

Based on the information contained in the proposal and the executive summary of streams report, we do not believe Hay Creek warrants exceptional value status. This stream does not possess the outstanding characteristics necessary to obtain the classification.

INDEPENDENT  
REVIEW COMMITTEE  
97 OCT - 8 AM  
PBA

Page Two

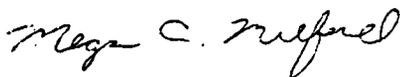
The executive summary of stream reports indicates two of the six reference stations, or 1/3 of the sampling stations indicated the water quality comparison did not meet the exceptional value levels of 92%. How can a stream justify redesignation if the data does not support it? Streams should not be awarded the exceptional value classification if they do not meet all water quality standards. In addition, while the report indicates the stream is of ecological significance, it was only compared to a stream currently designated as high quality.

The report states this stream is not considered a national, state or local resource. Also, it is not clear from the summary if the bog bluegrass, a PA Threatened species, is located throughout the basin or just located in the seeps feeding the Birdsboro Reservoir. If bog bluegrass only exists on the tributary containing the reservoir, then perhaps an exceptional value status may be warranted for that tributary but not the entire proposed area. A high quality designation may be suitable for the remainder of the stream, as was requested by the Department's Reading District Office.

Again, the Pennsylvania Builders Association requests the Department and the EQB not move forward with any stream reclassifications until their water quality program's regulations are finalized. Streams able to fit into the current relatively loose regulatory criteria, may not be able to meet the revised standards contained in the forthcoming final regulation.

Thank you for your consideration in this matter. If you would like to discuss this further, please contact me at (717) 730-4380.

Sincerely,



Megan A. Milford  
PBA Regulatory Specialist

Original: 1874  
Copies: 4

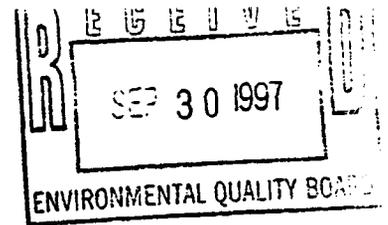
*Januszky*  
*Wyatte*  
*Bereschak*

LAW OFFICES  
**LAMB, WINDLE & MCERLANE, P.C.**

24 EAST MARKET STREET  
BOX 565  
WEST CHESTER, PA. 19381-0565

(610) 430-8000

FAX 610-692-6210



September 29, 1997

Environmental Quality Board  
Rachel Carson State Office Building  
15th Floor  
400 Market Street  
Harrisburg, PA 17101-2301

Re: Proposed Rulemaking  
Stream Redesignations; Hay Creek et al.

Dear Chairman Seif and Members of the Board:

We represent the interests of the Borough of New Morgan, Berks County. The Borough is directly affected by, and has an interest in, the proposed regulatory action to redesignate Hay Creek as exceptional value waters since a portion of the Borough is located within the Hay Creek watershed. Our review of the proposed designation indicates that the designation is inconsistent with the present Borough of New Morgan Comprehensive Plan of 1992, and the land use regulations for Borough lands located within the watershed, as regulated pursuant to the Borough of New Morgan Zoning Ordinance of 1992. It also appears that the proposed designation is inconsistent with several planned development projects within the Borough. Finally, the proposed designation is inconsistent with the Borough's duly adopted Act 537 Sewage Facilities Plan.

The Borough is very concerned that any and all inconsistencies regarding land use and sewage planning on the local level have not been fully considered by the Department in making this proposal. The Borough is further concerned that the proposed regulation will have a considerable adverse economic impact upon the Borough and upon public funds as a result of these inconsistencies. Finally, the Borough is concerned that the impact of the proposal upon proposed activities and projects within the Borough has not been fully considered.

Accordingly, the Borough respectfully objects to the proposed designation, and requests that the Board defer action on the proposal pending the full and complete resolution of any and all inconsistencies on the local level by the Department.

97 OCT -6 AM 10:19

RECEIVED

Environmental Quality Board  
September 29, 1997  
Page 2

The Borough further requests that the enclosed one page summary be included in the agenda packet distributed to each Board member prior any meeting at which the final regulation is to be considered.

Very truly yours,

LAMB, WINDLE & McERLANE, P.C.

By:

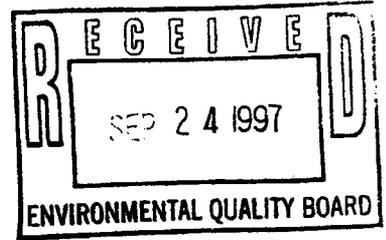
  
Vincent M. Pompo

Enclosure

cc: Borough of New Morgan

RECEIVED  
97 OCT -6 AM 10:19  
INDEPENDENT REVIEW COMMISSION

Environmental Quality Board  
P. O. Box 8477  
Harrisburg, Pa. 17105-8477



Date: September 29, 1997

Original: 1874  
Copies: Smith  
Sandusky  
Wyatte  
Bereschak

Dear E.Q.B.,

I urge you to support the upgrade of  
Hay Creek (Berks Co.) to Exceptional Value. What  
happens in our area affects all the communities  
downstream that receive its waters for  
consumption i.e. Pottstown + Philadelphia.  
We need to improve + protect all surface  
water in southeastern Pennsylvania.  
Future generations deserve no less (and better)  
than we have known.

Respectfully,  
Michael T. Kilareski

Thank You,

Name: Michael T. Kilareski

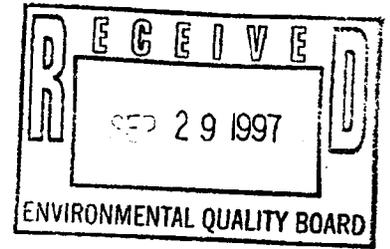
Address 314-Bird St

Birdsboro - PA - 19508

INDEPENDENT  
REVIEW COMMISSION  
97 OCT -3 AM 9:35

RECEIVED

Original: 1874  
Copies: Smith  
Sandusky  
Wyatte  
Bereschak



ENVIRONMENTAL QUALITY BOARD  
P.O BOX 8477  
HARRISBURG PA 17105-8477

DEAR HONERABLE BOARD

I AM WRITING THIS LETTER TO SUPPORT THE UPGRADE OF HAY CREEK TO EXCEPTIONAL VALUE. I LIVE IN THE WATER SHED ~~AREA~~ AREA AND FISH IN THE AREA. HAY CREEK FROM THE BEGINING TO THE END HAS VERY GOOD WATER THATS BETTER THEN MOST PEOPLE DRENK. MUCH OF ROBESON AND UNION TOWNSHIP IS DESIGNATED IN THE BERKS COUNTY PLAN AS A SENSATIVE AREA BECAUSE OF IT'S HEAVILY FORESTED STEEP SLOPES. THE WATER SHED AREA HAS A LOT OF PEOPLE [MAYBE 200 A DAY] WALK THE PROPOSED HIKING TRAIL. ON THE FIRST WEEK OF TROUT SEASON THERE IS A LOT [200 -600] PEOPLE FISHING FROM BIRDSBORO TO NEW MORGAN THERE IS A LOT OF BIRD WATCHERS THERE TO. PLEASE PROTECT THE WATER SHED BECAUSE OF WHAT THE EFFECT WILL HAVE ON THE ENTIRE AREA. I THINK THAT RT.82 SHOULD REMAIN CLOSED [IT'S BEEN THAT WAY FOR 10 YEARS AND PEOPLE GET BY]. I HOPE H&K DOESNT QUARRY HERE. IF WE KNEW THE PROPERTY WAS FOR SALE IN 1989 WE WOULD OF ASKED THE P.A GAME COMMISION TO BUY IT. PLEASE THIS IS FOR THE ENDANGERED WILDLIFE AND PLANTS IN THE AREA ALSO FOR THE PEOPLE TOO.

RESPECTFULLY YOURS

Marc DiLullo   
RD #3 Box 2102  
Birds Boro PA 19508

INDUSTRIAL PROPERTY  
RECEIVED  
9/29/97 4:10:25

Stop the Slay

Oct. 29 '77 8:57

BROOKSIDE C.C.

TEL 610-326-0407

P. 1

Or nal: 1874  
Copies: Smith  
Sandusky  
Legal (2)

**FAX COVER SHEET**

**TO: Kritine M. Shomper  
Jim Smith**

**FROM: Melissa Zabrenski**

**RE: Hay Creek Upgrade - Berks County**

**Please forward a copy of the attached to the Commissioners:**

**Mr. Arthur Coccodrilli**

**Mr. Robert J. Haribson, III**

**Mr. John F. Mizner**

**Mr. Irvin G. Zimmerman**

**Thank you for your assistance.**

**TOTAL PAGES: 9 Including Cover Sheet**

724 Hopewell Street  
Birdsboro, PA 19508

October 28, 1997

Independent Regulatory Review Commission  
14th Floor  
Harristown 2  
333 Market Street  
Harrisburg, PA 17101

Gentlemen:

I am writing in reference to Hay Creek in Berks County. The headwaters of Hay Creek are located in the Borough of New Morgan with the stream flowing approximately 12.8 miles northeasterly to its mouth in Birdsboro. The watershed of Hay Creek not only contains a stream of exceptional value with several types of aquatic life that can only maintain life in "exceptional water quality" but also a large intact block of Piedmont forest, 150 bird species (some rare, at risk and threatened), endangered or threatened plant species, sheer rock faces, steep hills, a National Historic Place (Joanna Furnace), the Horseshoe Trail, Birdsboro Reservoir and a tranquil place for the residents of Berks County to escape the hectic life styles that we are forced to live.

I contacted the Environmental Quality Board to obtain a status on the upgrade of Hay Creek to Exceptional Value. I was told some good news and some bad news. The good news was that 130 to 150 positive responses were received by the EQB in favor of the upgrade to Exceptional Value. This surpassed the responses that were received for the French Creek upgrade by 30 to 50 letters. The bad news was that five negative responses were also received. I questioned whom the negative responses were from and requested copies of which I have received.

The negative comments, as I was told the IRRRC has received, were from the Borough of New Morgan, Morgantown Properties (also of New Morgan), Pennsylvania and Berks County Home Builders Associations, and Haines and Kibblehouse. I have read the letters from these companies, boroughs and associations and cannot believe what I read.

New Morgan is proposing a motor speedway that will drain into Hay Creek at its headwaters, Morgantown Properties has land bordering Hay Creek which they are looking to develop and drain into Hay Creek, the Home Builders Associations are against anything that would jeopardize building, and Haines and Kibblehouse has

Now Morgan is proposing a motor speedway that will drain into Hay Creek at its headwaters, Morgantown Properties as land bordering Hay Creek which they are looking to develop and drain into Hay Creek, the Home Builders Associations are against anything that would jeopardize building, and Haines and Kibblehouse has proposed a 176 lot residential development with an adjoining

---

Independent Regulatory Review Commission  
October 28, 1997

Page 2

quarry, asphalt and reclamation plant that would all drain/discharge into Hay Creek.

The letters from New Morgan, Morgantown Properties and the Builders Associations bluntly point out that upgrading Hay Creek to exceptional value would be an "adverse economic impact" to their future plans. I personally am not against development, after all, we all need a place to live and people deserve to make a living. However, I also believe there is a place for everything and development within the Hay Creek Watershed is not a place for heavy development. As stated in the beginning of my letter, this Watershed is extremely "valuable" to the citizens of Berks County and deserves to be preserved for our children and the future. It also points out in the Special Protection Waters Implementation Handbook that "Exceptional Value waters are maintained and protected at existing quality and uses because they have outstanding ecological and/or recreational values. The social and economic justification procedures do not apply."

Regarding the letter from Haines and Kibblehouse, I do not know where to begin. In the third paragraph of their letter, they state they have "exhausted countless hours, not to mention resources, in evaluating the site and negotiation with the respective municipalities of Robeson and Union Townships in the attempt at arriving at mutually acceptable agreements to rezone the land to permit the development and quarry." The writer of the letter left out a very important part of the "negotiating". Haines and Kibblehouse had filed a lawsuit against both Robeson and Union Townships based on a curative amendment to rezone the property as a quarry district and a medium density residential district. They also state in this paragraph that the Watershed also contains "highwalls approximating one hundred feet in height near the southern boundary of their property". These "highwalls" also add to the beauty of the Watershed in its present condition today.

I cannot comment on the lawsuit filed against Robeson Township. I can however, comment on the lawsuit filed against Union Township of which I am a resident and attend township meetings faithfully since 1994.

The court order agreement that was signed by Union Township Board of Supervisors and Haines and Kibblehouse was not an agreement that the residents of Union accepted, it was what we were given. In Haines and Kibblehouse's letter they stated the township "adopted" additional zoning changes to allow for the residential subdivision. The township was sued by Haines and Kibblehouse and forced to accept and allow these zoning changes. Residents were told month after month that the case was in litigation and that it could not be...

..... and Kibblehouse's letter they stated the township  
"adopted" additional zoning changes to allow for the residential  
subdivision. The township was sued by Haines and Kibblehouse and  
forced to accept and allow these zoning changes. Residents were  
told month after month that the case was in litigation and that  
it could not be discussed at a public meeting. Upon signing the

.....

Independent Regulatory Review Commission  
October 28, 1997

Page 3

court order agreement, the residents were then told about the agreement. The response from Union Township residents was disbelief, sadness and anger. The agreement was definitely not what the residents wanted. Haines and Kibblehouse still have several lawsuits pending against the township and will not remove the suits until their residential subdivision plan is approved. I do not feel this is the way a "respectable" business that is concerned for the environment and citizens of the surrounding communities should conduct business.

They further state that the Berks County Planning Commission reviewed and made recommendations to both municipalities regarding these zoning changes. They are correct, however, the Berks County Planning Commission stated the proposed zoning changes were not acceptable for this area and advised both municipalities not to implement the zoning changes. The solicitor for Union Township, who I feel represented the township irresponsibly, stated they could not take the comments from the Berks County Planning Commission into consideration since the matter was in litigation. Why then did they even submit the plans to the Berks County Planning Commission? I have enclosed copies of the Planning Commissions comments.

Haines and Kibblehouse continues with saying they acted in a responsible manner in an effort to develop their property and went well beyond the norm in protecting the environment and to assure their intentions of being a good neighbor in the community. If this is the case, why then did they file lawsuits to have the zoning changed to their desired uses, not the uses recommended initially by the townships and the Berks County Planning Commission? Haines and Kibblehouse knew what the zoning of the property was when they purchased it in 1989, if they did not like the way it was zoned why did they buy it? They continue to state the re-designation of Hay Creek might be a result of collusion or politically motivated. The citizens of Robeson, Union and Birdsboro want this watershed preserved and protected. It is in no way a political move by the residents. This watershed area is a recreational area enjoyed by the citizens of all ages. It is used for biking, hiking, fishing, or just a walk with the family to enjoy one of the last environmentally sensitive and unbelievably beautiful areas left in Berks County. I personally have walked the area and met people not only from Berks County, but also from Montgomery, Chester and Bucks counties. This watershed is not just "special and exceptional" to the municipalities involved in the Watershed, but to other people in the surrounding communities.

I will not bore you with further comments on the letter from Haines and Kibblehouse as I feel their letter is just another tactic to get what they want. I do request that you read again

but to other people in the surrounding communities.

I will not bore you with further comments on the letter from Haines and Kibblehouse as I feel their letter is just another tactic to get what they want. I do request that you read again

Independent Regulatory Review Commission  
October 28, 1997

Page 4

the 130 to 150 positive responses you received from the people who truly care about the upgrade of Hay Creek from New Morgan to Birdsboro and weigh them against the negative responses of five companies/organizations that no doubt will change forever and possibly even destroy an environment that present citizens treasure. We must remember that once something is gone it can never be brought back. We cannot afford to lose this very exceptional stream and its rare characteristics and surroundings.

In closing, I would be more than happy to take the IRRC on a "field trip" to visit this area and you too can see just how breathtaking and beautiful it is. I hope you will decide in favor of the DEP and the Pennsylvania Fish and Boat Commission to upgrade this stream in its entirety as stated in the proposed rule-making.

Sincerely,

*Melissa T. Zabrenski*  
Melissa T. Zabrenski

cc: Mr. Arthur Coccodrilli  
Mr. Robert J. Harbison, III  
Mr. John F. Mizner  
Mr. Irvin G. Zimmerman  
Representative Dennis Leh  
Hay Creek Watershed Association  
Berks County Planning Commission  
Berks County Soil Conservation District  
Delaware River Basin Commission  
PA Fish and Boat Commission  
Mr. Richard Shertzer  
Army Corp of Engineers  
Schuylkill River Project  
Berks County Conservancy

**BERKS COUNTY  
PLANNING COMMISSION**

(610) 478-6300  
FAX: (610) 478-6316

Berks County Services Center  
633 Court Street, 14th Floor  
Reading, PA 19601-3591

Philip D. Rowe, Jr. Chair  
Harry S. Nelson, Vice-Chair  
Craig J. Lutz, Secretary  
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Zory M. Mearns  
Joseph E. Williams

Glen E. Knoblauch, Executive Director  
Hazel B. Manno, Solicitor

August 14, 1997

Union Twp. Sec.  
Lori A. Burkhardt  
177 Center Road  
Douglassville, Pa. 19518

Re: Birdsboro Heights Subdivision  
File #: 66 & 51 - 8841  
Plan #: 135 (20 Sheets) Dated 7/28 and 8/4/97

Dear Mrs. Burkhardt:

The Berks County Planning Commission staff has reviewed the Preliminary Plan as submitted for the above captioned subdivision. The tract is located on the south side of Hopewell Street and (T-351) and Birdsboro Boro, at its intersection with (SR0345), west of Kulptown.

This plan is reviewed by the Berks County Planning Commission pursuant to Section 502 of the Pennsylvania Municipalities Planning Code. The Commission staff has not evaluated the plan for compliance with local ordinances, unless so noted. The municipality must ensure that the plan meets local zoning, subdivision and land development requirements, and any other regulations. The following comments are added for consideration:

**A. Conformity of the plan with the Berks County Comprehensive Plan:**

Most of the site is located within an Environmentally Sensitive Area, except for a few lots along Chestnut Street (lots 1,2,81 and 82) which are designated Future Growth Areas. The subdivision involves urban type design with a 176 single family and six utility lots on 120 acres, with almost 13,000 linear feet of street and no designated open space and recreational areas. In addition, the southern end of the site overlaps a PNDI site (Birdsboro Boro Reservoir Watershed). A second PNDI (Pennsylvania Natural Diversified Inventory) site involves a state endangered grass which grows in a portion of the above mentioned watershed adjacent to the south end of the site. In summary, the site involves the following environmental conditions: woodland; steep slopes; wetlands; water quality concerns; and adjacent land with endangered plant species.

The staff finds the proposal is not consistent with the plan for an Environmentally Sensitive Area because the proposal does not represent low impact development, which recognizes the limitations of environmentally sensitive land, but does represent urban type development which is not recommended for environmental, economic and aesthetic reasons. The purpose of an Environmentally Sensitive Area is to "Maintain the quality of the natural environment and protect the Environmentally Sensitive Areas of the County".

It is recommended that the above mentioned subdivision proposal be disapproved and a revised preliminary plan submitted.

... .. ENVIRONMENTAL, economic and aesthetic reasons. The purpose of an Environmentally Sensitive Area is to "Maintain the quality of the natural environment and protect the Environmentally Sensitive Areas of the County".

It is recommended that the above mentioned subdivision proposal be disapproved and a revised preliminary plan submission be requested that would greatly reduce the environmental impact on the site. Suggested redesign includes incorporating wetlands and steep slopes into open space areas with nature trails near the perimeter of these areas,

**Union Twp. Sec.  
August 14, 1997  
Page Two**

limiting the clearing of woodland from residential lots, clustering with smaller lot sizes (if possible) in the less sensitive areas of the site and overall reduction in linear feet of street with reduced cartways to the extent possible. The staff has no additional comment at this time, under the circumstances.

The Berks County Planning Commission will review any additional submission of this plan at the request of the municipality. After municipal approval of the plan for recording, a minimum of five prints should be delivered to the Berks County Planning Commission for signature. The Berks County Recorder of Deeds Office should be contacted at (610) 478-3380 relative to any questions regarding recording requirements. The applicant has 90 days to record the plan after the governing body approves the plan at a public meeting.

PennDEP should consider this review as the Berks County Planning Commission's review of the Planning Module required under Act 537. Those persons responsible for preparing the Planning Module submission for PennDEP should include a copy of this review with the module submission.

If there are any questions regarding this review, please contact me.

Very truly yours,



Jon A. Krueger  
Planner III

**BERKS COUNTY PLANNING COMMISSION**

JAK/kj

- cc: Union Twp. P. C. Sec.
- Union Twp. Engineer
- Robeson Twp. Sec.
- Robeson Twp. P. C. Sec.
- Birdsboro Boro Sec.
- Birdsboro Boro P.C. Sec.
- Haines and Kibblehouse, Inc.
- Ross Consulting Engineers
- Jill R. Belfonti c/o Pennsylvania Science Office of the Nature Conservancy
- PennDEP

**BERKS COUNTY  
PLANNING COMMISSION**

(610) 478-6300

Berks County Services Center  
633 Court Street, 14th Floor  
Reading, PA 19601-3591

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Harry S. Nelson, Vice-Chair  
Joseph E. DeSantis  
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Robert B. Ludwig  
Craig J. Lutz  
Terry M. Moenan  
George E. Moyer  
Joseph E. Williams

Clint R. Kooblauch, Executive Director  
Heldi B. Masana, Solicitor

November 14, 1996

Frederick Mogel  
Mogel, Speidel, Bobb & Kershner  
P. O. Box 8381  
Reading, PA 19603-8581

Re: Act 247 Review, Proposed Zoning Ordinance/  
Map Amendment, Union Township

Dear Mr. Mogel:

In accordance with the provisions of the Pennsylvania Municipalities Planning Code, as amended, the Berks County Planning Commission staff has reviewed the proposal amending the HI-Heavy Industrial District regulations and the rezoning of Haines & Kibblehouse lands to HI and MDR. The following comments are offered for consideration:

1. The proposal is not consistent with the County's Comprehensive Plan. Our Land Use Plan 2010 designates the area in question as an Environmentally Sensitive Area. Lands in this category consist of prominent forested areas and steep slopes. According to the Township Comprehensive Plan, the property also has areas containing hydric soils. Urban type development is strongly discouraged by the County Plan due to potential environmental impacts. Low impact and innovative development techniques (such as cluster development) that recognizes the limitations of environmentally sensitive land should be encouraged to maximize conservation of this area.
2. The Berks County Natural Areas Inventory indicates that there are two sites of statewide and local significance in the immediate vicinity (adjacent to) of the proposed rezoning. A fair population of a state-endangered grass grows in the numerous seeps and streamlets that flow into the Birdsboro Reservoir in Robeson and Union Townships. The Inventory recommends restrictions on logging and other activities that would degrade the water quality of the reservoir and will double as protection for the grass species. Also, the Sixpenny Creek and its basin, from its source to the unnamed tributary at RM 1.28, are designated as a High Quality-Cold Water Fishery. The Inventory recommends limited development in the watershed and that a vegetated buffer along its banks be maintained.
3. The submission did not include a zoning map depicting the revised zoning districts. Such a map should be prepared and attached to the ordinance, as indicated by Sections 5 and 6, to avoid any discrepancy in the district locations. It appears as though the existing HI district extends beyond the proposed HI (Union site-Exhibit C). Is it the Township's intention to include this part of the existing HI or is the new HI district just going to include this land referred to in Exhibit C of the Agreement?
4. Staff recommends adding "subject to Section 941 of this Ordinance..."

HI district extends beyond the proposed HI (Union site-Exhibit C) Is it the Township's intention to include part of the existing HI or is the new HI district just going to include this land referred to in Exhibit C of the Agreement?

4. Staff recommends adding "subject to Section 941 of this Ordinance" to Section 408.2G.

Frederick Mogel  
November 14, 1996  
Page 2

- 5. The reference to Section 10619 of the Municipalities Planning Code in Section 408.2J should be to Section 619.
- 6. Area, Yard and Height Regulations, similar to those proposed in Section 408.7, should be retained for uses permitted by right, especially if land not owned by Haines & Kibblehouse is zoned HI. The Area and Yard Regulations proposed by Section 408.3 appear to be intended for non-coal surface mining and quarrying operations. The HI provisions should be written as though there are/or could be multiple owners of the property zoned HI, and therefore, the potential for more than just a quarry. It is conceivable that Haines & Kibblehouse could sell some of their land in the future.
- 7. Staff strongly disagrees with the provisions of Section 408.4 which waive the submission of land development plans. Section 501 of the Municipalities Planning Code requires that all subdivision and land development plans of land be submitted for approval. Land development plans should be required in the HI district.
- 8. Section 408.6C (Junk/Salvage Yards) refers to Section 938, which are provisions for shopping centers. The reference should be to Section 935 (Junk/Salvage Yard Standards).
- 9. Based on the type of uses permitted in the HI district and the limited amount of land zoned HI, the staff questions why residential use (408.6H) is allowed in this district. The Township should determine if residential uses are appropriate in this district.
- 10. Buffer yard provisions were included under the Area, Yard and Height Regulations (Section 408.5) of the existing ordinance. Staff recommends that this provision be retained.
- 11. Section 941 should be expanded to include other items outlined in the Agreement such as: berming requirements, reclamation plan, pre-blast survey, noise, odor and runoff provisions, etc.

Thank you for the opportunity to comment. Section 608 of the PA Municipalities Planning Code (Act 247 as amended) requires that a certified copy of the adopted amendment be forwarded to our office within thirty (30) days of enactment.

Sincerely,



Cheryl A. Auchenbach  
Planner III

CAAF

cc: Union Township Board of Supervisors  
Union Township Planning Commission  
Union Township Engineer

724 Hopewell Street  
Birdsboro, PA 19508

97 OCT 24 PM 8:45

INDEPENDENT REGULATORY  
REVIEW COMMISSION

October 28, 1997

Independent Regulatory Review Commission  
14th Floor  
Harristown 2  
333 Market Street  
Harrisburg, PA 17101

Gentlemen:

I am writing in reference to Hay Creek in Berks County. The headwaters of Hay Creek are located in the Borough of New Morgan with the stream flowing approximately 12.8 miles northeasterly to its mouth in Birdsboro. The watershed of Hay Creek not only contains a stream of exceptional value with several types of aquatic life that can only maintain life in "exceptional water quality" but also a large intact block of Piedmont forest, 150 bird species (some rare, at risk and threatened), endangered or threatened plant species, sheer rock faces, steep hills, a National Historic Place (Joanna Furnace), the Horseshoe Trail, Birdsboro Reservoir and a tranquil place for the residents of Berks County to escape the hectic life styles that we are forced to live.

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quarry, asphalt and reclamation plant that would all drain/discharge into Hay Creek.

The letters from New Morgan, Morgantown Properties and the Builders Associations bluntly point out that upgrading Hay Creek to exceptional value would be an "adverse economic impact" to their future plans. I personally am not against development, after all, we all need a place to live and people deserve to make a living. However, I also believe there is a place for everything and development within the Hay Creek Watershed is not a place for heavy development. As stated in the beginning of my letter, this Watershed is extremely "valuable" to the citizens of Berks County and deserves to be preserved for our children and the future. It also points out in the Special Protection Waters Implementation Handbook that "Exceptional Value waters are maintained and protected at existing quality and uses because they have outstanding ecological and/or recreational values. The social and economic justification procedures do not apply."

Regarding the letter from Haines and Kibblehouse, I do not know where to begin. In the third paragraph of their letter, they state they have "exhausted countless hours, not to mention resources, in evaluating the site and negotiation with the respective municipalities of Robeson and Union Townships in the attempt at arriving at mutually acceptable agreements to rezone the land to permit the development and quarry." The writer of the letter left out a very important part of the "negotiating". Haines and Kibblehouse had filed a lawsuit against both Robeson and Union Townships based on a curative amendment to rezone the property as a quarry district and a medium density residential district. They also state in this paragraph that the Watershed also contains "highwalls approximating one hundred feet in height near the southern boundary of their property". These "highwalls" also add to the beauty of the Watershed in its present condition today.

I cannot comment on the lawsuit filed against Robeson Township. I can however, comment on the lawsuit filed against Union Township of which I am a resident and attend township meetings faithfully since 1994.

The court order agreement that was signed by Union Township Board of Supervisors and Haines and Kibblehouse was not an agreement that the resident's of Union accepted, it was what we were given. In Haines and Kibblehouse's letter they stated the township "adopted" additional zoning changes to allow for the residential subdivision. The township was sued by Haines and Kibblehouse and forced to accept and allow these zoning changes. Residents were told month after month that the case was in litigation and that it could not be discussed at a public meeting. Upon signing the

court order agreement, the residents were then told about the agreement. The response from Union Township residents was disbelief, sadness and anger. The agreement was definitely not what the residents wanted. Haines and Kibblehouse still have several lawsuits pending against the township and will not remove the suits until their residential subdivision plan is approved. I do not feel this is the way a "respectable" business that is concerned for the environment and citizens of the surrounding communities should conduct business.

They further state that the Berks County Planning Commission reviewed and made recommendations to both municipalities regarding these zoning changes. They are correct, however, the Berks County Planning Commission stated the proposed zoning changes were not acceptable for this area and advised both municipalities not to implement the zoning changes. The solicitor for Union Township, who I feel represented the township irresponsibly, stated they could not take the comments from the Berks County Planning Commission into consideration since the matter was in litigation. Why then did they even submit the plans to the Berks County Planning Commission? I have enclosed copies of the Planning Commissions comments.

Haines and Kibblehouse continues with saying they acted in a responsible manner in an effort to develop their property and went well beyond the norm in protecting the environment and to assure their intentions of being a good neighbor in the community. If this is the case, why then did they file lawsuits to have the zoning changed to their desired uses, not the uses recommended initially by the townships and the Berks County Planning Commission? Haines and Kibblehouse knew what the zoning of the property was when they purchased it in 1989, if they did not like the way it was zoned why did they buy it? They continue to state the re-designation of Hay Creek might be a result of collusion or politically motivated. The citizens of Robeson, Union and Birdsboro want this watershed preserved and protected. It is in no way a political move by the residents. This watershed area is a recreational area enjoyed by the citizens of all ages. It is used for biking, hiking, fishing, or just a walk with the family to enjoy one of the last environmentally sensitive and unbelievably beautiful areas left in Berks County. I personally have walked the area and met people not only from Berks County, but also from Montgomery, Chester and Bucks counties. This watershed is not just "special and exceptional" to the municipalities involved in the Watershed, but to other people in the surrounding communities.

I will not bore you with further comments on the letter from Haines and Kibblehouse as I feel their letter is just another tactic to get what they want. I do request that you read again

the 130 to 150 positive responses you received from the people who truly care about the upgrade of Hay Creek from New Morgan to Birdsboro and weigh them against the negative responses of five companies/organizations that no doubt will change forever and possibly even destroy an environment that present citizens treasure. We must remember that once something is gone it can never be brought back. We cannot afford to lose this very exceptional stream and its rare characteristics and surroundings.

In closing, I would be more than happy to take the IRRC on a "field trip" to visit this area and you too can see just how breathtaking and beautiful it is. I hope you will decide in favor of the DEP and the Pennsylvania Fish and Boat Commission to upgrade this stream in its entirety as stated in the proposed rule-making.

Sincerely,

*Melissa T. Zabrenski*  
Melissa T. Zabrenski

cc: Mr. Arthur Coccodrilli  
Mr. Robert J. Harbison, III  
Mr. John F. Mizner  
Mr. Irvin G. Zimmerman  
Representative Dennis Leh  
Hay Creek Watershed Association  
Berks County Planning Commission  
Berks County Soil Conservation District  
Delaware River Basin Commission  
PA Fish and Boat Commission  
Mr. Richard Shertzer  
Army Corp of Engineers  
Schuylkill River Project  
Berks County Conservancy

**BERKS COUNTY  
PLANNING COMMISSION**

(610) 478-6300  
FAX: (610) 478-6316

Berks County Services Center  
633 Court Street, 14th Floor  
Reading, PA 19601-3591

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Craig J. Lutz, Secretary  
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Robert B. Ludgate, Jr.  
Terry M. Maerza  
Joseph E. Williams

Glenn R. Knoblauch, Executive Director  
Heldi B. Masano, Solicitor

August 14, 1997

Union Twp. Sec.  
Lori A. Burkhart  
177 Center Road  
Douglassville, Pa. 19518

Re: Birdsboro Heights Subdivision  
File #: 66 & 51 - 8841  
Plan #: 135 (20 Sheets) Dated 7/28 and 8/4/97

Dear Mrs. Burkhart:

The Berks County Planning Commission staff has reviewed the Preliminary Plan as submitted for the above captioned subdivision. The tract is located on the south side of Hopewell Street and (T-351) and Birdsboro Boro, at its intersection with (SR0345), west of Kulptown.

This plan is reviewed by the Berks County Planning Commission pursuant to Section 502 of the Pennsylvania Municipalities Planning Code. The Commission staff has not evaluated the plan for compliance with local ordinances, unless so noted. The municipality must ensure that the plan meets local zoning, subdivision and land development requirements, and any other regulations. The following comments are added for consideration:

A. Conformity of the plan with the Berks County Comprehensive Plan:

Most of the site is located within an Environmentally Sensitive Area, except for a few lots along Chestnut Street (lots 1,2,81 and 82) which are designated Future Growth Areas. The subdivision involves urban type design with a 176 single family and six utility lots on 120 acres, with almost 13,000 linear feet of street and no designated open space and recreational areas. In addition, the southern end of the site overlaps a PNDI site (Birdsboro Boro Reservoir Watershed). A second PNDI (Pennsylvania Natural Diversified Inventory) site involves a state endangered grass which grows in a portion of the above mentioned watershed adjacent to the south end of the site. In summary, the site involves the following environmental conditions: woodland; steep slopes; wetlands; water quality concerns; and adjacent land with endangered plant species.

The staff finds the proposal is not consistent with the plan for an Environmentally Sensitive Area because the proposal does not represent low impact development, which recognizes the limitations of environmentally sensitive land, but does represent urban type development which is not recommended for environmental, economic and aesthetic reasons. The purpose of an Environmentally Sensitive Area is to "Maintain the quality of the natural environment and protect the Environmentally Sensitive Areas of the County".

It is recommended that the above mentioned subdivision proposal be disapproved and a revised preliminary plan submission be requested that would greatly reduce the environmental impact on the site. Suggested redesign includes incorporating wetlands and steep slopes into open space areas with nature trails near the perimeter of these areas,

Union Twp. Sec.  
August 14, 1997  
Page Two

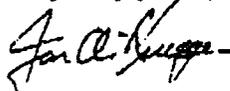
limiting the clearing of woodland from residential lots, clustering with smaller lot sizes (if possible) in the less sensitive areas of the site and overall reduction in linear feet of street with reduced cartways to the extent possible. The staff has no additional comment at this time, under the circumstances.

The Berks County Planning Commission will review any additional submission of this plan at the request of the municipality. After municipal approval of the plan for recording, a minimum of five prints should be delivered to the Berks County Planning Commission for signature. The Berks County Recorder of Deeds Office should be contacted at (610) 478-3380 relative to any questions regarding recording requirements. The applicant has 90 days to record the plan after the governing body approves the plan at a public meeting.

PennDEP should consider this review as the Berks County Planning Commission's review of the Planning Module required under Act 537. Those persons responsible for preparing the Planning Module submission for PennDEP should include a copy of this review with the module submission.

If there are any questions regarding this review, please contact me.

Very truly yours,



Jon A. Krueger  
Planner III

BERKS COUNTY PLANNING COMMISSION

JAK/klj

cc: Union Twp. P. C. Sec.  
Union Twp. Engineer  
Robeson Twp. Sec.  
Robeson Twp. P. C. Sec.  
Birdsboro Boro Sec.  
Birdsboro Boro P.C. Sec.  
Haines and Kibblehouse, Inc.  
Ross Consulting Engineers  
Jill R. Belfonti c/o Pennsylvania Science Office of the Nature Conservancy  
PennDEP

**BERKS COUNTY  
PLANNING COMMISSION**

(610) 478-6300

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Heidi B. Masano, Solicitor

November 14, 1996

Frederick Mogel  
Mogel, Speidel, Bobb & Kershner  
P. O. Box 8581  
Reading, PA 19603-8581

Re: Act 247 Review, Proposed Zoning Ordinance/  
Map Amendment, Union Township

Dear Mr. Mogel:

In accordance with the provisions of the Pennsylvania Municipalities Planning Code, as amended, the Berks County Planning Commission staff has reviewed the proposal amending the HI-Heavy Industrial District regulations and the rezoning of Haines & Kibblehouse lands to HI and MDR. The following comments are offered for consideration:

1. The proposal is not consistent with the County's Comprehensive Plan. Our Land Use Plan 2010 designates the area in question as an Environmentally Sensitive Area. Lands in this category consist of prominent forested areas and steep slopes. According to the Township Comprehensive Plan, the property also has areas containing hydric soils. Urban type development is strongly discouraged by the County Plan due to potential environmental impacts. Low impact and innovative development techniques (such as cluster development) that recognizes the limitations of environmentally sensitive land should be encouraged to maximize conservation of this area.
2. The Berks County Natural Areas Inventory indicates that there are two sites of statewide and local significance in the immediate vicinity (adjacent to) of the proposed rezoning. A fair population of a state-endangered grass grows in the numerous seeps and streamlets that flow into the Birdsboro Reservoir in Robeson and Union Townships. The Inventory recommends restrictions on logging and other activities that would degrade the water quality of the reservoir and will double as protection for the grass species. Also, the Sixpenny Creek and its basin, from its source to the unnamed tributary at RM 1.28, are designated as a High Quality-Cold Water Fishery. The Inventory recommends limited development in the watershed and that a vegetated buffer along its banks be maintained.
3. The submission did not include a zoning map depicting the revised zoning districts. Such a map should be prepared and attached to the ordinance, as indicated by Sections 5 and 6, to avoid any discrepancy in the district locations. It appears as though the existing HI district extends beyond the proposed HI (Union site-Exhibit C). Is it the Township's intention to include this part of the existing HI or is the new HI district just going to include this land referred to in Exhibit C of the Agreement?
4. Staff recommends adding "subject to Section 941 of this Ordinance" to Section 408.2G.

5. The reference to Section 10619 of the Municipalities Planning Code in Section 408.2J should be to Section 619.
6. Area, Yard and Height Regulations, similar to those proposed in Section 408.7, should be retained for uses permitted by right, especially if land not owned by Haines & Kibblehouse is zoned HI. The Area and Yard Regulations proposed by Section 408.3 appear to be intended for non-coal surface mining and quarrying operations. The HI provisions should be written as though there are/or could be multiple owners of the property zoned HI, and therefore, the potential for more than just a quarry. It is conceivable that Haines & Kibblehouse could sell some of their land in the future.
7. Staff strongly disagrees with the provisions of Section 408.4 which waive the submission of land development plans. Section 501 of the Municipalities Planning Code requires that all subdivision and land development plans of land be submitted for approval. Land development plans should be required in the HI district.
8. Section 408.6C (Junk/Salvage Yards) refers to Section 938, which are provisions for shopping centers. The reference should be to Section 935 (Junk/Salvage Yard Standards).
9. Based on the type of uses permitted in the HI district and the limited amount of land zoned HI, the staff questions why residential use (408.6H) is allowed in this district. The Township should determine if residential uses are appropriate in this district.
10. Buffer yard provisions were included under the Area, Yard and Height Regulations (Section 408.5) of the existing ordinance. Staff recommends that this provision be retained.
11. Section 941 should be expanded to include other items outlined in the Agreement such as: berming requirements, reclamation plan, pre-blast survey, noise, odor and runoff provisions, etc.

Thank you for the opportunity to comment. Section 608 of the PA Municipalities Planning Code (Act 247 as amended) requires that a certified copy of the adopted amendment be forwarded to our office within thirty (30) days of enactment.

Sincerely,

  
Cheryl A. Auchenbach  
Planner III

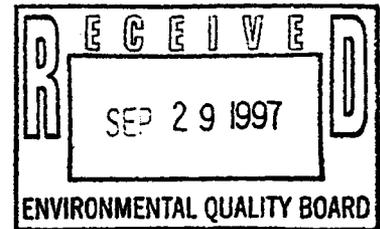
CAAMf

cc: Union Township Board of Supervisors  
Union Township Planning Commission  
Union Township Engineer

Original: 1874  
Copies: Smith  
Sandusky  
Wyatte  
Bereschak

September 18, 1997

(no address)



I, Joshua Brunner, as a citizen of this community despise the idea of turning the old Rt. 82 into a means of public transportation. I feel as this is not fair to the people of the community who use this road as a recreation. It serves to be a place where one can go to exercise or just to take walk-out away from the stress and worries of everyday life. My family and I have been taking our dogs for a walk back "82" for four years now. We have not missed one day in doing so. Even when the weather is treacherous we still would be there. So to deprive people of the one place they can go to that everyone will greet them with a smile and do not have to deal with any traffic would be self-devastating.

This will not only be tragic to the people, but it will also be very harmful and unfair to all the animals that strive to live out in the area. Most of the animals that ended up here had nowhere else to go because of all the construction of new buildings and roads. If you take this habitat away from them they will have nowhere else to migrate to. They will either be another road kill statistic or will just eventually become extinct from that area.

So if you have any amount of decency among you, you will not go forth and continue with the project of urbanizing this "monument of life." As you can see what looks good in black and white may actually have a lot more colors behind it that you don't see and don't bother giving a chance to.

Thank You for your Time,

P.S. Please do the right thing.

Joshua P. Brunner



An Equal Opportunity Employer

# HAINES & KIBBLEHOUSE, INC.

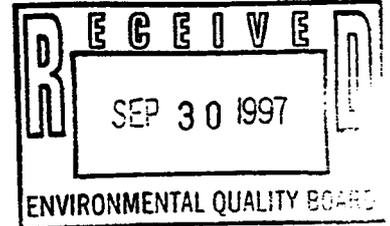
*Demolition*

*Excavating & Paving*

P.O. BOX 196 - SKIPPACK, PA 19474

Ph. (610) 584-8500  
Fax (610) 584-5432

97 OCT - 8 AM 9:02  
REVIEW COMMISSION  
September 29, 1997



Environmental Quality Board  
15th Floor, RCSOB  
P.O. Box 8477  
Harrisburg, PA 17105-8477

Re: Stream Re-designations - Hay Creek, et al.  
(PA Bulletin 4094 - Dated Aug. 16, 1997)

Original: 1874  
Copies: Smith  
Sandusky  
Wyatte  
Bereschak

Dear Member:

On behalf of Haines & Kibblehouse, Inc. (H&K), I am writing in response to the proposed rule making, specifically, Stream Re-designations - Hay Creek, et al., to express major concerns. Reviewed by the Environmental Quality Board at your meeting on June 17, 1997, public comment was solicited via the August 16, 1997 Pennsylvania Bulletin 4094. While the proposed rule making addressed eight (8) streams within the Commonwealth, this response focuses solely on the proposed re-designation of Hay Creek, a tributary of the Schuylkill River and a portion of the Delaware River Basin in Pennsylvania. Chapter 93, Water Quality Standards, §93.9f, Drainage List F currently designates the entire Hay Creek Basin as Cold Water Fishes (CWF). However, if approved, the proposed rule making would upgrade a major portion of the Hay Creek Basin from CWF to Exceptional Value Waters (EV). The change from CWF to EV is predicated in part on the presence of a Pennsylvania threatened wetland plant species known as bog bluegrass at one location within the basin.

As widely publicized, H&K purchased 416.4 acres of land immediately south of the Borough of Birdsboro Municipal boundary between 1989 and 1991 for development. I am deeply concerned that the proposed rule making and stream re-designations as proposed for Hay Creek will directly impact exhaustive efforts over the last eight years directed at reactivating a site (historically impacted by mining) for the recovery of a valuable natural resource and for additional residential development. Refer to the attached copy of Figure 1 as taken from the "Executive Summary for Hay Creek" for the approximate limits of the land owned by Haines & Kibblehouse, Inc. Despite all of the above, there is no mention of any proposed activity contained in the subject study findings.

Since acquiring the rights to this property, H&K has exhausted countless hours, not to mention resources, in evaluating the site and negotiating with the respective municipalities of Robeson and Union Townships in the attempt at arriving at mutually acceptable agreements to rezone the land to permit the development of approximately 289.6 acres of the property as a noncoal surface mining operation, or quarry. Note that historical use of the property by the prior owners involved the active mining of the property. In fact, highwalls approximating one hundred (100) feet in height remain today near the southern boundary of the property. Past mining by the same company immediately west and across Hay Creek formed a water impoundment which is in use today by the Birdsboro Municipal Authority as a backup water supply.

With the exception of the northern and eastern boundary of the property which joins other privately held land, primarily residential, the H&K property is contiguous with lands to the south and west which are owned by the Birdsboro Municipal Authority. Hay Creek and Route 82 form a natural boundary between the properties and the entire western edge. The common boundary to the south follows the watershed divide, with less than 6 acres of H&K's land which are situated within the watershed area being associated with the Birdsboro Reservoir, or Indian Run Dam, which is situated more than one-quarter mile to the south. The topographic high or ridge which forms the watershed divide is the result of a diabase intrusion which isolates H&K's property hydrogeologically from that of the Birdsboro Municipal Authority.

Negotiations with the respective municipalities of Robeson and Union Townships were initiated prior to formal transfer of title to the subject lands. In Robeson Township, the proposal for a change in zoning resulted in more than thirty hearings, spanning a two-year period. It is relevant to note that the aforementioned hearings included testimony from numerous experts, including a representative from the then Pennsylvania Fish Commission who testified on the occurrence of native trout and macro-invertebrate communities in Hay Creek from its source to the Schuylkill River. Additional negotiations ultimately resulted in an agreement between the Township of Robeson and H&K, which included the rezoning of 130.7 acres of H&K's land which fronts Hay Creek and stretches from the Borough of Birdsboro Municipal boundary southward to the common boundary with the lands of the Birdsboro Municipal Authority. The final agreement with Robeson Township was officially signed on September 20, 1994 and was subsequently reviewed and entered as an Order of Court by the Court of Common Pleas of Berks County.

The negotiations with Union Township in 1989 resulted in initial action by the Township to rezone approximately 92 acres of land for extraction. The area which was rezoned covered a portion of H&K's properties contiguous with the Birdsboro Municipal Authority land and east of the boundary with Robeson Township. Subsequent negotiations with Union Township ultimately resulted in an agreement between the Township of Union and H&K and included the rezoning of an additional 67 acres of the H&K land north of the area initially rezoned to permit extraction activities. The final agreement with Union Township was officially signed on October 16, 1995 and was subsequently reviewed and entered as an Order of Court by the Court of Common Pleas of Berks County.

Separate development plans filed in Union Township in 1989 have proposed the residential subdivision development of the easternmost portion of H&K's lands, or approximately 120.7 acres. In conjunction with additional zoning changes adopted by the Township, the Plan for Subdivision has been revised and is once again before the Township for action.

The rezoning of land by both Townships was completed in conformance with the mandates set forth under Pennsylvania Municipalities Planning Code. The Ordinances, as adopted, were reviewed by the Berks County Planning Commission, and recommendations therefrom were considered by each municipality prior to final adoption. In short, H&K has progressed in a responsible manner along a logical and systematic course in an effort to develop our property in the Hay Creek Basin. Over the last eight (8) years, we have made significant progress in our goal and have entered into agreements with the respective municipalities which go well beyond the norm in protecting the environment and in assuring our intention to be a good neighbor in the community. H&K has encountered disgruntled citizens and a local Municipal Authority which, to this date, refuses to provide water for the proposed residential development. Nonetheless,

despite all of the above which have received significant newspaper coverage, no mention is noted regarding the proposed activity in connection with the possible re-designation of Hay Creek. Based on the timing of the proposed rule making for the re-designation of Hay Creek, one might suspect that the request is the result of collusion or is politically motivated, as the final agreement concerning rezoning of the site was officially signed in October 1995.

With the issue of zoning changes to permit extraction being formally resolved, H&K has filed with the PaDEP an application to develop and operate a noncoal surface mine on the property. In preparing for this submittal, numerous studies and investigations of the property were conducted to define and address the potential for environmental impact, as well as any impact to parties contiguous to the proposed operation. This has included a study of the entire 416.4 acre property for threatened or endangered plant species. A total of six (6) species were identified as part of a Pennsylvania Natural Diversity Inventory (PNDI) search completed in conjunction with preparation of the Noncoal Surface Mining Permit Application. Based on the investigations conducted, it was concluded that none of the listed threatened or endangered plant species exist within the site. Note that one of the justifications for upgrading Hay Creek from CWF to EV was based on the presence of a threatened plant species, specifically, bog bluegrass, which was documented as being present in the Birdsboro Reservoir watershed immediately south of the H&K property.

Testimony presented in March 1991 by a Pennsylvania Fish Commission representative at a hearing before the Township of Robeson indicated that the subject H&K property lies within a segment of Hay Creek which has a transitional environment extending approximately from Geigertown two (2) miles south of our H&K property and northward to Hay Creek's confluence with the Schuylkill River. Within this length (4.5 miles), the stream only marginally supported native reproduction of brown trout, with numerous warm water species also being present. Based on aquatic habitat, the water quality in this segment of Hay Creek was, likewise, deemed good, but not excellent. The water quality of the balance of Hay Creek south of Geigertown to its source was significantly different, with the quality considered excellent and the stream clearly capable of supporting native reproduction of brown trout. The above findings were based on 1977 and 1982 studies. In addition, it was reported that the flooding along Hay Creek in September of 1987 had significantly degraded the segment of Hay Creek from Geigertown northward to its confluence with the Schuylkill River, the degradation being the altering of channels, erosion of stream banks and deposition of thick deposits of sand and silt. In fact, significant damage had also occurred to manmade features, with sections of S.R. 0082 being completely washed away and major portions of Conrail trackage destroyed. Today, ten years later, S.R. 0082 is still closed between Geigertown and the Birdsboro Municipal boundary.

While ten years have lapsed since flooding along Hay Creek and conditions along the stream have no doubt improved, it is questionable that the transitional zone which existed in 1977 and 1982, and which was further degraded in 1987 between Geigertown and Hay Creek's confluence with the Schuylkill River (a length of approximately 4.5 miles), has now shifted northward two miles to the Birdsboro Municipal boundary to justify an EV designation as is now being proposed.

Based on what would seem to be well documented evidence from 1977 to present, Hay Creek's headwaters are of excellent quality and should be protected with EV designation. This would follow established convention in protecting a stream's headwaters, or the most sensitive area. However, from

the unnamed tributary 63882, source to mouth, which encompasses the drainage area associated with the former Bethlehem Steel Grace Mine and tailings disposal area, and the area of continuing development in the Borough of New Morgan, Hay Creek northward should not be given EV status. Unnamed tributary 63882 is a major contributing subbasin to Hay Creek, and based on only the addition of Migratory Fishes to its present CWF designation, there is no justification for Hay Creek downstream of the unnamed tributary 63882 to be afforded EV status.

The same holds true in the case of the Beaver Run Basin, source to mouth. Here the re-designation is from CWF to HQ-CWF. This upgrade for Beaver Run is logical to protect the headwaters of the stream and Hay Creek Basin. However, the proposed upgrade, again, to EV downstream of Beaver Run is lacking in merit.

The Executive Summary accompanying the proposed rule making cites the presence of a threatened semi-aquatic species as partial justification for the upgrade to EV for the segment of the Hay Creek Basin from Beaver Run to the Birdsboro Borough boundary. Its occurrence in the upper reaches of the watershed which feeds the Birdsboro Reservoir, a portion of 1500 acres of undeveloped and protected land, does not justify EV status for Hay Creek, when, again, major portions of the headwaters of Hay Creek cannot support the same. Furthermore, as the referenced occurrence is on protected lands approximately one-half mile east and several hundred feet in elevation above Hay Creek, its existence is in no way dependent on Hay Creek's designation as a stream.

In conclusion, we respectively request that the Environmental Quality Board (EQB) consider the following before adopting the proposed rule making, specifically, the re-designation of Hay Creek.

1. The proposal as presented for EQB consideration appears to be an attempt to block the ongoing efforts of a landowner and private corporation to develop within the Hay Creek Basin. As the author of this proposal is believed to be opposed to the H&K development, we are deeply concerned that the placement of the EV designation to the Birdsboro Borough boundary, as well as the proposed EV status downstream of a major sub-watershed area which does not support equal status, is arbitrary and without sound basis.
2. Based on prior study by the Pennsylvania Fish Commission, now Pennsylvania Fish and Boat Commission, there was and no doubt remains today a significant transitional zone in Hay Creek in which water quality is good, but not exceptional. That zone was originally determined to extend upstream of our H&K property for at least two miles, and there is no supporting evidence presented in the proposed rule making to suggest that the zone has now shifted to the Birdsboro Borough boundary. Hence, the proposed limit for re-designation of Hay Creek within this transitional zone is without basis.
3. Each of the municipalities of Robeson Township and Union Township, together with H&K, have exhausted considerable time, effort and resources in formulating agreements and adopting ordinances under which development of the property could occur. Those efforts not only originated but were consummated prior to the proposed rule making and the studies referenced herein.

4. The subject property of H&K has been investigated by qualified professionals, and a determination has been made that no threatened or endangered plant species occur within its limits.
5. Historical use of the subject H&K property has involved mining, with unprotected and exposed highwalls in excess of one hundred (100) feet remaining today.
6. Change the proposal to afford the headwaters' portions of Hay Creek increased protection by adopting the proposed recommendations for the following reaches:
  - a. Hay Creek Basin, source to unnamed tributary at RM18.1(UNT 63882) - Change current CWF designation to EV.
  - b. UNT 63882 Basin, source to mouth - Change current CWF designation to CWF, MF.
  - c. Hay Creek Basin, UNT 63882 to Beaver Run - Change current CWF designation to CWF, MF, not EV as requested.
  - d. Beaver Run Basin, source to mouth - Change current CWF designation to HQ-CWF, MF.
  - e. Hay Creek Basin, Beaver Run to mouth - Change current CWF designation to CWF, MF.

With the facts as presented, the recommended EV designation over the regional staff's recommended HQ-CWF, MF request is simply not justified.

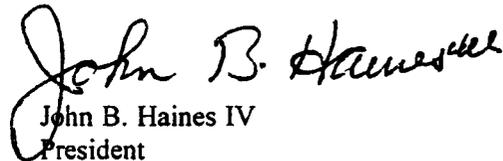
7. Considering the changes in zoning and the agreements entered into by the Townships of Robeson and Union, adjust the northern limit of reach number five (5) southward from the Birdsboro boundary approximately one mile and include the area north thereof in reach six (6) with a re-designation from CWF to CWF, MF. This change would preserve present agreements and preclude possible future questions relevant to a taking. The shift in the proposed boundary would delete all privately held land within reach five (5), which presently includes area developed for residential use. The above proposed change would, likewise, keep the sub-watershed area identified as having a threatened plant species within reach five (5) with an upgraded stream designation should the Board, in its wisdom, decide to retain the EV designation as proposed or some other upgraded status more appropriate based on the proposed designation of the headwaters.
8. Has the cost/benefit of the proposed regulation as mandated by Executive Order 1996-1 truly been assessed with regard to the potential impact of the proposed rule making?
9. While not referenced in the proposed rule making, Berks County has acquired an approximate eight (8) mile stretch of former Conrail railroad line which runs along Hay Creek from just south of Birdsboro to Joanna under the Rails to Trails Program. Adoption of EV status as proposed for Hay Creek, when not justified, would certainly minimize future development along this line and would enhance the trail at the expense of the adjoining property owners.

10. Stream re-designation, when justified, is necessary to preserve our environment for future generations. As conditions improve, streams should be afforded greater protection; however, a jump in designation from CWF to EV, when ignoring the HQ designation as proposed in this instance, is not responsible rule making. As the proposal clearly indicates, "there are no known portions of the Hay Creek Basin that qualify as outstanding national, state, or local resource waters under the Department's Special Protection Waters Selection Criteria." Why then afford it a status that it does not meet?

Thank you for your consideration in this matter, and we trust that you will carefully review the proposal on its merit, or lack thereof, before rendering a decision.

Sincerely yours,

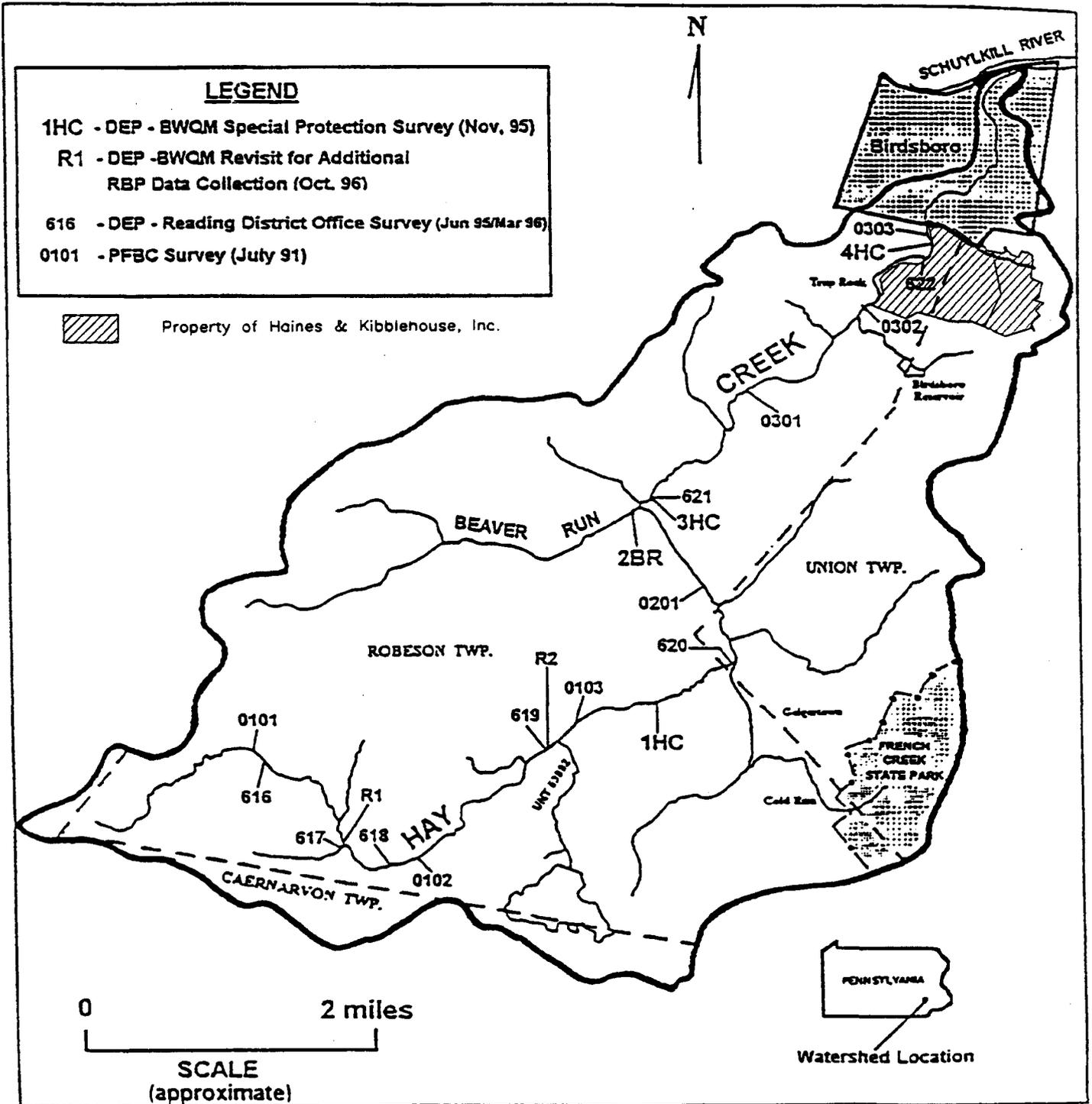
HAINES & KIBBLEHOUSE, INC.

  
John B. Haines IV  
President

Enclosures (1)

cc: Paul R. Ober, Esquire  
James M. Seif  
Daniel Hoffmann  
Samuel A. McCullough  
Bradley Mallory  
Samuel E. Hayes, Jr.  
Johnny J. Butler  
Peter Colangelo  
Donald C. Madl  
John M. Quain  
Dr. Brent D. Glass  
Charles Zogby  
Roger A. Madigan  
Raphael J. Musto  
Camille George  
Robert D. Reber, Jr.  
Howard W. Laur  
Gail Rockwood  
Walter Heine  
Dr. Paul Hess  
David L. Strong

**FIGURE 1  
HAY CREEK  
BERKS COUNTY**



Original: 1874  
Copies: Smith  
Sandusky  
Wyatte

PINE CREEK  
CRAWFORD AND WARREN COUNTIES

SPECIAL PROTECTION EVALUATION REPORT  
WATER QUALITY STANDARDS REVIEW

INDEXED  
FILED

97 OCT 22 AM 11:03

PROGRAM

SEGMENT: BASIN  
DRAINAGE LIST: Q  
STREAM CODE: 54221

QUALITY ASSESSMENT UNIT (DSB)  
DIVISION OF ASSESSMENT AND STANDARDS  
BUREAU OF WATER QUALITY MANAGEMENT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

AUGUST 1996

*Jim Smith -*

*as requested.*

*Sharon*  
*10/20*

## INTRODUCTION

The Pennsylvania Department of Environmental Protection has developed water quality standards for all of the surface waters in the State. These standards, which are designed to safeguard Pennsylvania's streams, rivers, and lakes, consist of both use designations and the criteria necessary to protect those uses.

The Department's Special Protection program is a key element of a national and state program to prevent water pollution. Simply stated, the purpose of the program is to keep clean waters clean and provide Special Protection to exceptionally good quality waters and waters that represent outstanding environmental resources.

Special Protection is provided to streams designated as "High Quality Waters" or "Exceptional Value Waters." These classifications describe streams with excellent existing water quality and environmental features which are deserving of Special Protection. The water quality in a "High Quality Waters" stream can be lowered only if a discharge is the result of necessary social and economic development, the water quality criteria are met, and all existing uses of the stream are protected. "Exceptional Value Waters" are to be protected as existing quality. The water quality in "Exceptional Value Waters" shall not be degraded.

As part of its ongoing review of the water quality standards, the Department conducts evaluations of streams nominated for Special Protection designation. This report contains the results of such an evaluation.

**Executive Summary  
Pine Creek  
Crawford and Warren Counties  
Drainage List Q**

**BACKGROUND**

Pine Creek is a tributary to Oil Creek in the Allegheny River watershed. This basin has a drainage area of 84.8 square miles and contains 155.0 stream miles. The  $Q_{7-10}$  at the mouth of the creek is estimated to be 6.87 cubic feet/second. This watershed is located in Oil Creek and Rome Townships and Titusville Borough, Crawford County; Harmony Township, Forest County; Oil Creek and Allegheny Townships and Pleasantville Borough, Venango County; and Southwest, Eldred, Triumph, Deerfield, and Pittsfield Townships, Warren County. Pine Creek is currently designated Cold Water Fishes (CWF) except for Caldwell Creek, a major tributary, which has a High Quality-Cold Water Fishes (HQ-CWF) designation. In response to a request from the Pennsylvania Fish and Boat Commission (PFBC) this basin was evaluated for possible redesignation as High Quality Waters (HQ) based on the current PFBC Wild Trout designation. This evaluation is based on field surveys conducted in October 1995 and April 1996.

**FINDINGS**

**Water Quality and Uses:**

Streams in the Pine Creek basin support all designated uses. Surface water quality was generally better than established criteria except for alkalinities that were less than 20 mg/l at 12 stations. This probably results from natural conditions.

**National, State, or Local Significance:**

None of the Pine Creek basin constitutes outstanding national, state, or local resource waters under the Department's Special Protection Waters Selection Criteria.

**Ecological or Recreational Significance:**

Selected benthic macroinvertebrate community metrics from 11 stations in the Pine Creek basin were compared to reference stations in the same subcoregion with comparable drainage areas. Based on these comparisons stations on Pine Creek above Caldwell Creek and one station on Caldwell Creek above the West Branch Caldwell Creek indicate waters with excellent ecological attributes. The stations in the remainder of the watershed indicate waters with outstanding ecological attributes.

The PFBC has designated the West Branch Caldwell Creek from Three Bridge Run to the mouth as "Class A" Wild Trout Waters.

The Pennsylvania Natural Diversity Inventory (PNDI) does not indicate the presence of any species of special concern in this basin.

**RECOMMENDATION**

Based on applicable regulatory definitions and the Department's Special Protection Waters Selection Criteria, the Department recommends the following changes to Chapter 93:

**Pine Creek Basin (source to Caldwell Creek)**

- change current CWF designation to HQ-CWF
- based on: waters with excellent ecological attributes (HQ Category 4)
- affects 52.9 stream miles

**Caldwell Creek basin (source to West Branch Caldwell Creek)**

- retain current HQ-CWF designation

**West Branch Caldwell Creek basin (source to mouth)**

- change current HQ-CWF designation to Exceptional Value (EV)
- based on: EV Category IV.2 (waters with outstanding ecological attributes)
- affects 38.9 stream miles

**Caldwell Creek basin (West Branch Caldwell Creek to mouth)**

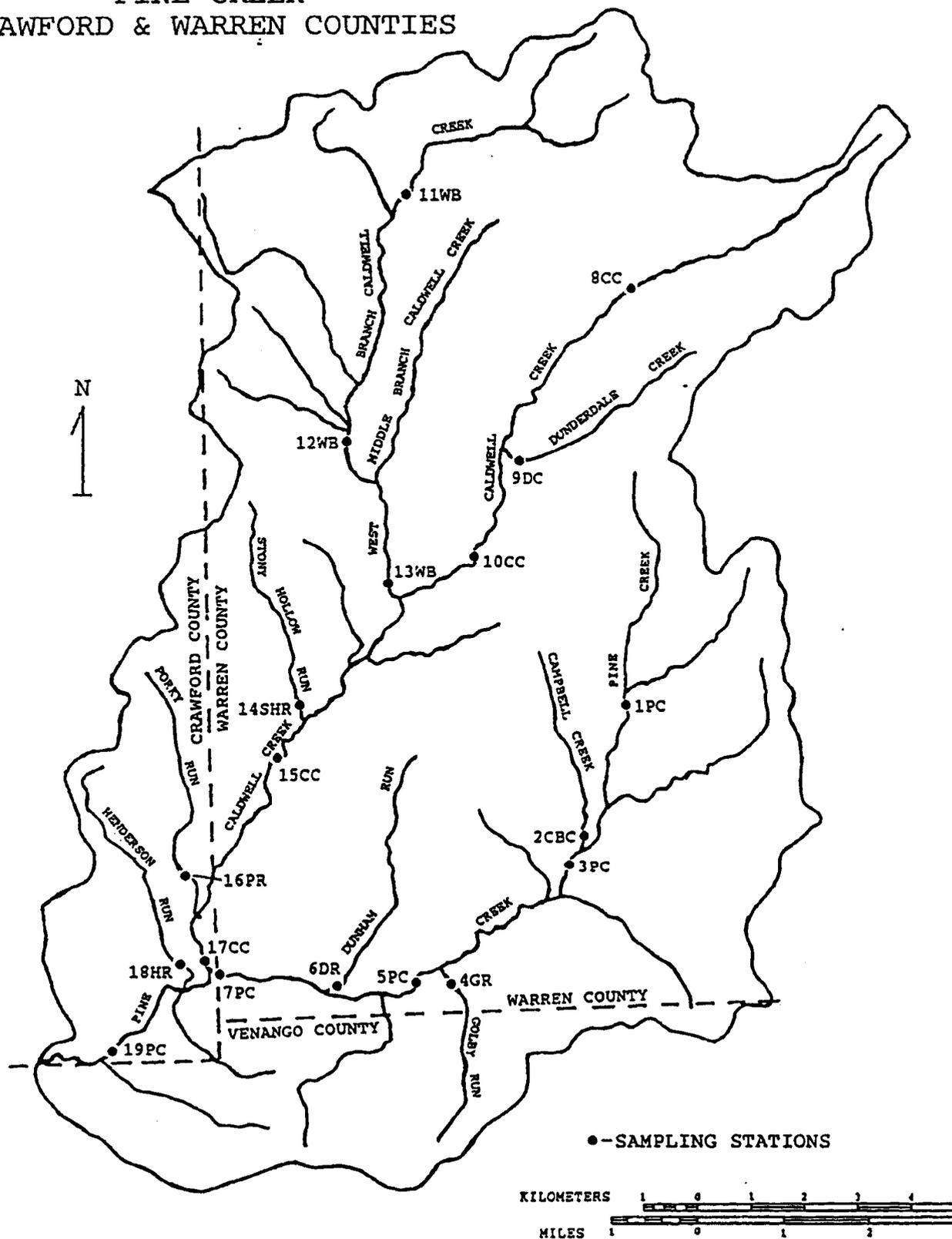
- change current HQ-CWF designation to EV
- based on: EV Category IV.2 (waters with outstanding ecological attributes)
- affects 26.3 stream miles

**Pine Creek basin (Caldwell Creek to mouth)**

- change current CWF designation to EV
- based on: EV Category IV.2 (waters with outstanding ecological attributes)
- affects 17.6 stream miles

This recommendation differs from the original Fish and Boat Commission request in that the West Branch Caldwell Creek basin, Caldwell Creek basin (from West Branch to mouth), and Pine Creek basin (from Caldwell Creek to mouth) have been recommended for a higher level of protection than requested. The remainder of the watershed complies with the original request.

FIGURE 1.  
 PINE CREEK  
 CRAWFORD & WARREN COUNTIES



## GENERAL WATERSHED DESCRIPTION

Pine Creek is a tributary to Oil Creek in the Allegheny River watershed. This basin has a drainage area of 84.8 square miles and contains 155.0 stream miles. The  $Q_{7-10}$  at the mouth of the creek is estimated to be 6.87 cubic feet/second. This watershed is located in Oil Creek and Rome Townships and Titusville Borough, Crawford County; Harmony Township, Forest County; Oil Creek and Allegheny Townships and Pleasantville Borough, Venango County; and Southwest, Eldred, Triumph, Deerfield, and Pittsfield Townships, Warren County. Pine Creek is currently designated Cold Water Fishes (CWF) except for Caldwell Creek, a major tributary, which has a High Quality-Cold Water Fishes (HQ-CWF) designation. In response to a request from the Pennsylvania Fish and Boat Commission (PFBC) this basin was evaluated for possible redesignation as Exceptional Value Waters (EV). This evaluation is based on field surveys conducted in October 1995 and April 1996.

This watershed has a low population density. There are no major population centers in this basin. The entire basin is privately owned. Land use is a mixture of forest (75%), pasture (10%), residential (10%), and agriculture (5%). In the past, this basin supported much oil and gas production but currently oil production has virtually ceased and gas production has been greatly reduced. The National Wetland Inventory Maps indicate the presence of several extensive wetland areas. The flood plains of the main stem of Pine Creek (from 1 mile above Station 3PC to the mouth of Caldwell Creek), Caldwell Creek (from Route 127 to the mouth), and West Branch Caldwell Creek (from just below Station 12WB to the mouth) are mostly forested swamp. Other areas in this basin contain scrub/shrub swamp and emergent marsh.

## WATER QUALITY AND USES

### Surface Water

Surface water quality data for Pine Creek basin has been gathered and analyzed by the Department (Table 2). Samples were taken at 19 stations throughout the watershed (Figure 1 and Table 1). Results from these samples show alkalinities less than the 20 mg/l criterion at 12 stations. This indicates a very limited buffering capacity and probably results from natural conditions. Sulfate ( $SO_4$ ) levels were elevated at Stations 10CC and 13WB. These values seemed anomalous because readings upstream and downstream of these stations were considerably lower. These two stations were resampled and sulfate levels typical of the rest of the basin were recorded the second time (Table 2, page 3). Station 4GR, at the mouth of Golby Run, was also resampled because of high chloride (Cl) levels, and elevated conductivity and hardness values. The resample showed chloride levels, hardness, and conductivity greatly reduced. The elevated levels in the first sample might have resulted from a brine discharge from an oil or gas well. The detection limit for copper (Cu) was higher than the hardness based acute aquatic life criterion, thus precluding a comparison. Except as discussed above, water quality was better than established criteria at all stations.

There are six NPDES permitted discharges (Table 3) and one surface water withdrawal (not a public water supply) located in the Pine Creek Watershed. The discharges consist of one ground water clean-up (GTE), one boiler blowdown (Weyerhaeuser), one cooling tower blowdown (PFV), and four discharges from small sewage treatment facilities. See Table 3 for the permitted and actual flow volumes of these discharges.

### Aquatic Biota

Benthic macroinvertebrate samples were collected at eleven stations during the October 1995 survey. The results of these sampling efforts are presented in Table 4. Benthic macroinvertebrates were collected using sampling techniques adapted from the EPA Rapid Bioassessment Protocols. Taxonomic diversity was good with a mean of 34.8 total taxa per station. EPT scores were high with many genera that are considered sensitive to water quality degradation present.

A total of 29 species of fish were collected at eight stations (Table 6). Wild brown trout were present throughout the basin. Wild brook trout occurred in the headwaters of Caldwell Creek and the West Branch Caldwell Creek. Other cold water species included mottled sculpin and redbreast dace. The diversity of darters was good with six species present. Overall habitat scores for aquatic biota were within the optimal range at all but two of the stations (Table 4). These two stations fell just below the optimal score. Streams within the Pine Creek watershed support all designated uses.

#### **NATIONAL, STATE, OR LOCAL SIGNIFICANCE**

There are no known portions of the Pine Creek basin which qualify as outstanding national, state, or local resource waters under the Department's Special Protection Waters Selection Criteria.

#### **ECOLOGICAL OR RECREATIONAL SIGNIFICANCE**

Selected benthic macroinvertebrate community metrics were compared to reference stations in the same subcoregion with comparable drainage areas (Table 7). Stations IPC, 3PC, and 5PC were compared to Stations R4 and R5 in the Arnot Run (55499) basin. These stations are located in the Unglaciated Allegheny High Plateau subcoregion. The remaining stations in the Pine Creek basin were compared to Stations R1, R2, and R3 in the Spring Creek (56113) watershed. These stations are located in the Northwestern Till Plain subcoregion. Arnot Run has an Exceptional Value (EV) designation and is located in Mead Township, Warren County while Spring Creek is designated HQ-CWF and is located in Spring Creek Township, Warren County. All sampling was conducted 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, all stations in the Pine Creek basin had Biological Condition Scores greater than 83% of the reference streams except for Stations 10CC and 12WB (Table 7). These two low scores are primarily the result of one metric, percent modified mayflies. Percentages of 26 and 20 for Stations 10CC and 12WB respectively indicate a healthy mayfly community but the score of 62% for Station R2, the reference station to which they were compared, is exceptionally high and every station compared to R2 received a very low biological condition score for this metric. If this metric is eliminated and the scores based on only four metrics, Station 10CC scores 83% and Stations 12WB and 13WB score 100% of the reference stream. Based on this analysis Stations 11WB, 12WB, 13WB, 15CC, 17CC, and 19PC all indicate waters with outstanding ecological attributes (scores  $\leq$  92% of the reference stream) Stations 1PC, 3PC, 5PC and 10CC have scores that indicate waters with excellent ecological attributes (scores 83%-91% of the reference stream).

The PFBC has designated the West Branch Caldwell Creek, from Three Bridge Run to the mouth, as a "Class A" Wild Trout Water. The main stems of Pine Creek and Caldwell Creek are stocked with trout and this basin is heavily fished by the public.

#### **RECOMMENDATION**

Based on applicable regulatory definitions and the Department's Special Protection Waters Selection Criteria, the Department recommends the following changes to Chapter 93:

Pine Creek basin (source to West Branch Caldwell Creek)

- change current CWF designation to HQ-CWF
- based on: waters with excellent ecological attributes (HQ Category 4)
- affects 52.9 stream miles

**Caldwell Creek basin (source to West Branch Caldwell Creek)**

- retain current HQ-CWF designation

**West Branch Caldwell Creek basin (source to mouth)**

- change current HQ-CWF designation to Exceptional Value (EV)
- based on: EV Category IV.2 (waters with outstanding ecological attributes)
- affects 38.9 stream miles

**Caldwell Creek basin (West Branch Caldwell Creek to mouth)**

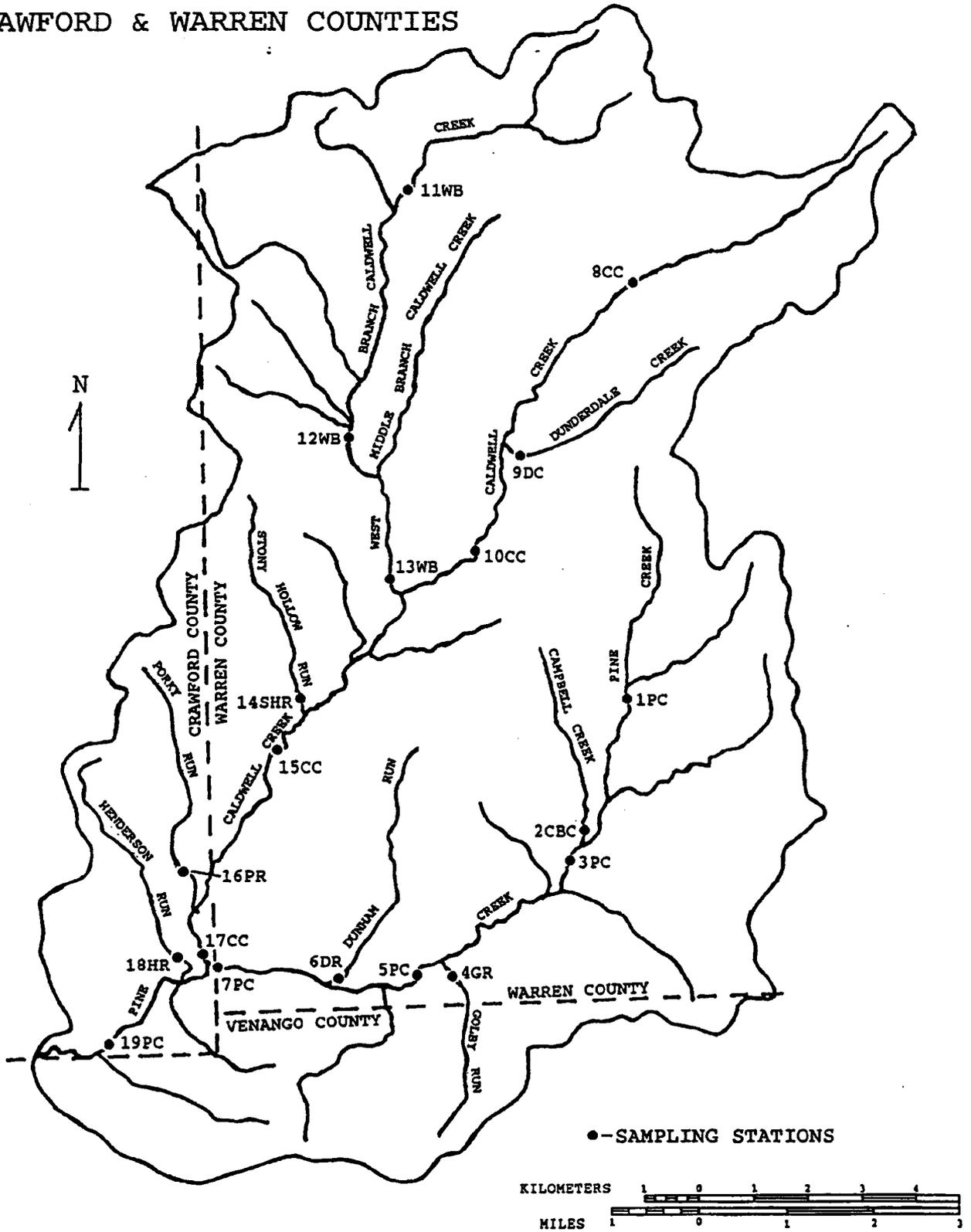
- change current HQ-CWF designation to EV
- based on: EV Category IV.2 (waters with outstanding ecological attributes)
- affects 26.3 stream miles

**Pine Creek basin (Caldwell Creek to mouth)**

- change current CWF designation to EV
- based on: EV Category IV.2 (waters with outstanding ecological attributes)
- affects 17.6 stream miles

This recommendation differs from the original Fish and Boat Commission request in that the West Branch Caldwell Creek basin, Caldwell Creek basin (from West Branch to mouth) , and Pine Creek basin (from Caldwell Creek to mouth) have been recommended for a higher level of protection than requested. The remainder of the watershed complies with the original request.

FIGURE 1.  
PINE CREEK  
CRAWFORD & WARREN COUNTIES



**TABLE 1  
STATION LOCATIONS  
PINE CREEK  
CRAWFORD AND WARREN COUNTIES**

<u>STATION</u>	<u>LOCATION</u>
1PC	Pine Creek approximately 10 meters upstream of the crossing of road T313 Southwest Township, Warren County Lat: 41 40 28      Long: 79 31 10      RMI: 11.05
2CBC	Campbell Creek approximately 250 meters upstream from the mouth Lat: 41 39 05      Long: 79 31 48      RMI: 0.14
3PC	Pine Creek approximately 5 meters upstream of the crossing of road T309 Southwest Township, Warren County Lat: 41 38 53      Long: 79 32 02      RMI: 8.67
4GR	Golby Run approximately 3 meters upstream of the crossing of SR3002 Lat: 41 37 44      Long: 79 33 32      RMI: 0.30
5PC	Pine Creek approximately 15 meters upstream of the crossing of SR3002 Lat: 41 37 47      Long: 79 34 08      RMI: 5.89
6DR	Dunham Run approximately 105 meters upstream from the mouth Lat: 41 37 45      Long: 79 35 21      RMI: 0.06
7PC	Pine Creek approximately 30 meters downstream of the crossing of road T928 Oil Creek Township, Crawford County Lat: 41 37 58      Long: 79 36 52      RMI: 3.15
8CC	Caldwell Creek approximately 5 meters upstream of the crossing of SR3015 Lat: 41 44 19      Long: 79 31 26      RMI: 11.36
9DC	Dunderdale Creek approximately 3 meters upstream of the crossing of SR27 Lat: 41 42 55      Long: 79 32 20      RMI: 0.48
10CC	Caldwell Creek approximately 0.93 stream miles downstream of road T355 Southwest Township, Warren County Lat: 41 41 59      Long: 79 33 10      RMI: 7.37
11WB	West Branch Caldwell Creek approximately 20 meters upstream of road T377 Eldred Township, Warren County Lat: 41 45 32      Long: 79 34 09      RMI: 5.49

- 12WB West Branch Caldwell Creek approximately 15 meters downstream of road T355  
Eldred Township, Warren County  
Lat: 41 43 14 Long: 79 34 50 RMI: 2.45
- 13WB West Branch Caldwell Creek approximately 5 meters upstream of road T304  
Southwest Township, Warren County  
Lat: 41 41 40 Long: 79 34 19 RMI: 0.14
- 14SHR Stony Hollow Run approximately 3 meters upstream of road T304  
Southwest Township, Warren County  
Lat: 41 40 35 Long: 79 35 33 RMI: 0.26
- 15CC Caldwell Creek approximately 10 meters downstream of road T311  
Southwest Township, Warren County  
Lat: 41 40 05 Long: 79 35 55 RMI: 3.29
- 16PR Porky Run approximately 3 meters upstream of road T930  
Oil Creek Township, Crawford County  
Lat: 41 38 53 Long: 79 37 05 RMI: 0.52
- 17CC Caldwell Creek approximately 20 meters upstream of the mouth  
Lat: 41 38 01 Long: 79 36 55 RMI: 0.02
- 18HR Henderson Run approximately 5 meters downstream of road T930  
Oil Creek Township, Crawford County  
Lat: 41 38 01 Long: 79 37 12 RMI: 0.41
- 19PC Pine Creek approximately 15 meters upstream of the SR27 bridge  
Lat: 41 37 08 Long: 79 38 19 RMI: 1.12
- R1 East Branch Spring Creek(56159) approximately 3 meters upstream of road T322  
Spring Creek Township, Warren County  
Lat: 41 48 25 Long: 79 35 14 RMI: 0.37
- R2 Spring Creek(56113) approximately 15 meters upstream of road T322  
Spring Creek Township, Warren County  
Lat: 41 48 44 Long: 79 35 19 RMI: 6.88
- R3 Spring Creek approximately 0.37 stream miles upstream of the mouth  
Lat: 41 51 47 Long: 79 31 16 RMI: 0.37
- R4 Little Arnot Run(55500) approximately 15 meters upstream of the mouth  
Lat: 41 44 33 Long: 79 04 54 RMI: 0.02
- R5 Arnot Run(55499) approximately 75 meters downstream of the confluence with Little  
Arnot Run  
Lat: 41 44 38 Long: 79 04 52 RMI: 0.84

**TABLE 2**  
**WATER CHEMISTRY<sup>1</sup>**  
**PINE CREEK, CRAWFORD & WARREN COUNTIES**  
**OCTOBER 16-18, 1995**

Station	1PC	2CBC	3PC	4GR	5PC	6DR	7PC	8CC	9DC	10CC
<b>Field Parameters</b>										
Temp (°C)	8.2	8.3	7.8	6.8	6.7	9.1	6.1	9.6	7.7	7.9
pH	6.8	6.9	6.3	7.2	6.8	6.5	4.9	5.9	6.4	6.1
Cond (µmhos)	120	127	141	682	225	97	183	108	103	131
Diss. O <sub>2</sub>	NO DATA (meter malfunction)									
<b>Laboratory Parameters</b>										
pH	6.5	6.4	6.5	6.6	6.5	6.4	6.6	6.2	6.3	6.3
Alkalinity	19.8	16.2	22.0	38.0	26.0	17.8	30.0	11.4	18.8	17.8
Acidity	0	1.0	0	0	0	0	0	9.2	1.0	2.8
Hardness	29	27	34	130	44	27	44	25	32	32
T Diss. Sol.	100	90	94	514	74	76	110	102	100	108
Susp. Sol.	10	6	12	2	72	8	10	2	2	4
NH <sub>3</sub> -N	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	0.03
NO <sub>2</sub> -N	<.004	<.004	<.004	<.004	<.004	<.004	<.004	<.004	<.004	<.004
NO <sub>3</sub> -N	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.07	0.04	<0.04
Kjeldahl-N	<0.2	<0.2	<0.2	0.57	<0.2	<0.2	<0.2	<0.2	<0.2	0.26
Total P	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.02	0.03
Ca	11.5	9.64	10.8	37.6	13.7	8.51	11.9	8.17	9.19	10.9
Mg	3.05	2.93	3.33	10.2	4.09	2.56	3.47	2.32	2.51	2.96
Cl	13	17	17	162	33	8.0	27	11	8.0	15
SO <sub>4</sub>	13	12	14	14	28	21	15	17	14	253
As*	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Cd*	<.2	<.2	<.2	<.2	<.2	<.2	<.2	<.2	<.2	<.2
hex Cr*	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cr*	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Cu*	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Fe*	822	182	323	90	287	108	314	904	353	988
Pb*	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Mn*	58	23	46	59	38	14	38	79	82	102
Ni*	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Zn*	15	12	<10	<10	<10	<10	<10	<10	<10	<10
Al*	<135	<135	<135	<135	<135	<135	<135	<135	<135	147
fecal coliforms							100	40		

<sup>1</sup> - Except for pH & conductance and indicated otherwise, all values are total concentrations in mg/l

\* - Total concentrations in ug/l

TABLE 2 (Cont.)<sup>1</sup>

Station	11WB	12WB	13WB	14SHR	15CC	16PR	17CC	18HR	19PC
<b>Field Parameters</b>									
Temp (°C)	9.6	10.2	6.8	6.7	6.9	6.6	6.4	9.2	9.4
pH	6.0	6.0	6.2	5.8	5.6	6.2	5.0	6.3	6.0
Cond (µmhos)	101	95	95	80	112	139	107	148	116
Diss. O <sub>2</sub>	NO DATA (meter malfunction)								
<b>Laboratory Parameters</b>									
pH	6.3	6.4	6.3	6.3	6.3	6.4	6.5	6.6	6.5
Alkalinity	16	22	19.4	14.8	19.4	26	18.4	32	22
Acidity	5	3	0	0.8	0.8	0	0	0	0
Hardness	26	27	24	19	28	35	28	38	33
T Diss. Sol.	94	44	88	76	90	104	84	114	94
Susp. Sol.	<2	<2	<2	<2	<2	<2	4	<2	10
NH <sub>3</sub> -N	0.03	0.02	0.02	0.02	0.02	0.02	<0.02	0.02	0.02
NO <sub>2</sub> -N	<.004	<.004	<.004	<.004	<.004	<.004	<.004	<.004	<.004
NO <sub>3</sub> -N	0.18	0.04	0.04	0.04	0.04	0.11	0.04	0.04	0.04
Kjeldahl-N	0.22	<0.2	<0.2	0.22	<0.2	<0.2	<0.2	<0.2	<0.2
Total P	0.03	0.02	0.02	0.02	0.03	<0.02	0.03	0.02	0.03
Ca	8.52	8.89	9.18	7.02	9.19	11.6	9.78	13.4	10.3
Mg	2.34	2.41	2.62	2.38	2.88	3.35	2.51	3.16	2.85
Cl	10	8.0	7.0	6.0	10	15	10	12	14
SO <sub>4</sub>	14	17	349	12	14	14	16	17	16
As*	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Cd*	<.2	<.2	<.2	<.2	<.2	<.2	<.2	<.2	<.2
hex Cr*	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cr*	<50	<50	<50	<50	<50	<50	<50	<50	<50
Cu*	<10	<10	11	<10	<10	<10	<10	<10	<10
Fe*	788	431	417	270	662	87	616	125	164
Pb*	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Mn*	73	40	32	30	55	<10	37	23	14
Ni*	<25	<25	<25	<25	<25	<25	<25	<25	<25
Zn*	<10	<10	<10	<10	<10	<10	<10	<10	<10
Al*	165	<135	<135	185	<135	<135	<135	192	<135
fecal coliforms			20				240		260

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

\* - Total concentrations in µg/l

**TABLE 2 (Cont.)<sup>1</sup>**  
**RESAMPLE (APRIL 3,1996)**

Station	4GR	10CC	13WB
<b>Field Parameters</b>			
Temp (°C)	6.2	6.9	5.0
pH	7.1	7.3	7.3
Cond (µmhos)	100	77	##
<b>Laboratory Parameters</b>			
pH	6.3	6.3	6.3
Alkalinity	15.4	13.8	13.6
Acidity	0	1.8	0
Hardness	27	28	22
T Diss. Sol.	56	78	42
Susp.Sol.	<2	<2	4
NH <sub>3</sub> -N	<0.02	0.02	0.02
NO <sub>2</sub> -N	<.004	<.004	<.004
NO <sub>3</sub> -N	0.26	0.22	0.42
Kjeldahl-N			
Total P	<0.02	0.02	<0.02
Ca	7.84	7.52	6.07
Mg	2.43	2.03	1.84
Cl	9.0	10	4.0
SO <sub>4</sub>	13	17	16
As*	<4.0	<4.0	<4.0
Cd*	<.2	<.2	<.2
hex Cr*	<10	<10	<10
Cr*	<50	<50	<50
Cu*	<10	<10	<10
Fe*	68	552	179
Pb*	<1.0	<1.0	<1.0
Mn*	<10	66	<10
Ni*	<25	<25	<25
Zn*	<10	<10	<10
Al*	<135	389	<135
fecal coliforms			

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

\* - Total concentrations in µg/l

## - No data (meter malfunction)

**TABLE 3**  
**NPDES PERMITTED DISCHARGES**  
**PINE CREEK**  
**CRAWFORD AND WARREN COUNTIES**

<u>Discharger</u>	<u>NPDES Permit Number</u>	<u>Permitted Flow</u>	<u>Actual Flow (Average)</u>	<u>Estimated Q<sub>7-10</sub> (CFS)</u>
Weyerhaeuser	PA0104493	300 gal/day	0 gal/day	6.87
PFV Enterprises Outfall 001	PA0000701	150 gal/day	1000 gal/day	0.044
Outfall 002		7000 gal/day	1000 gal/day	0.044
Colonial Estates	PA0101320	17,500 gal/day	6,425 gal/day	0.00
Wesley Woods CEC	PA0103101	21,300 gal/day	4,820 gal/day	0.00
GTE	PA0221384	29,000 gal/day	8,700 gal/day	0.045
Hummer, Kirk	PA0221058	400 gal/day	-----	0.00

**TABLE 4  
HABITAT ASSESSMENT SUMMARY  
PINE CREEK  
CRAWFORD & WARREN COUNTIES  
OCTOBER 16-19, 1995**

HABITAT PARAMETER	CANDIDATE STATIONS <sup>1</sup>											REFERENCE STATIONS <sup>1</sup>				
	1PC	3PC	5PC	7PC	10CC	11WB	12WB	13WB	15CC	17CC	19PC	R1	R2	R3	R4	R5
1. instream cover	16	16	14	16	18	14	13	16	17	16	16	18	16	19	18	18
2. epifaunal substrate	19	17	17	13	17	12	16	17	18	14	18	16	18	17	17	15
3. embeddedness	18	16	18	15	15	14	17	16	16	15	17	16	16	17	16	14
4. velocity/depth	17	15	14	18	18	17	16	15	16	17	16	17	17	19	18	18
5. channel alterations	18	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19
6. sediment deposition	18	17	18	14	16	14	16	16	17	16	17	18	18	18	18	18
7. riffle frequency	18	16	16	12	16	13	16	15	15	12	15	14	14	17	16	13
8. channel flow status	13	13	13	12	13	13	13	13	13	13	13	14	13	13	12	12
9. bank condition	16	15	17	16	16	16	17	15	16	16	16	17	14	17	17	16
10. bank vegetation protection	17	16	16	17	17	17	18	16	17	18	18	18	16	18	18	18
11. grazing/disruptive pressures	17	17	12	19	19	19	18	18	18	19	15	19	18	19	19	19
12. riparian vegetation zone width	18	18	11	19	19	19	19	18	18	19	12	19	17	19	19	19
Total Score	205	194	184	189	202	186	197	193	199	193	191	204	195	212	207	199
Rating <sup>2</sup>	OPT	OPT	SUB	OPT	OPT	SUB	OPT	OPT	OPT	OPT	OPT	OPT	OPT	OPT	OPT	OPT

<sup>1</sup> Refer to Figure 1 and Table 1 for stations locations.

<sup>2</sup> OPT - Optimal; SUB - Suboptimal



TABLE 5 (Cont'd.)

Taxa	Station															
	1PC	3PC	5PC	7PC	10CC	11WB	12WB	13WB	15CC	17CC	19PC	R1	R2	R3	R4	R
Leptoceridae; <i>Mystacides</i>	-	-	-	-	-	-	-	-	-	-	-	R	-	-	-	-
Limnephilidae; <i>Goera</i>	R	-	-	R	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pycnopsyche</i>	-	-	-	-	-	-	-	-	-	-	-	R	-	-	-	-
Odontoceridae; <i>Psilotreta</i>	-	-	-	-	-	-	-	-	-	-	-	-	R	-	-	-
Philopotamidae; <i>Chimarra</i>	-	-	-	-	VA	A	-	-	P	R	-	VA	A	-	-	-
<i>Dolophilodes</i>	C	A	R	R	-	A	A	C	-	-	-	R	C	P	C	C
Polycentropodidae; <i>Polycentropus</i>	P	P	R	-	P	R	R	P	-	-	R	R	R	P	-	-
Psychomyiidae; <i>Lype</i>	-	R	-	-	-	R	-	-	P	R	-	-	-	P	R	-
<i>Psychomyia</i>	-	-	-	R	-	-	-	R	P	-	-	-	P	R	-	-
Rhyacophilidae; <i>Rhyacophila</i>	A	P	C	C	-	-	C	P	P	R	R	R	R	P	P	F
Uenoidae; <i>Neophylax</i>	R	-	-	-	-	R	R	P	-	-	-	-	-	-	R	F
<b>Diptera (true flies)</b>																
Athericidae; <i>Atherix</i>	-	C	-	P	P	-	P	P	P	P	P	P	C	P	-	R
Ceratopogonidae sp.	-	P	R	P	P	P	P	P	P	-	C	P	P	C	-	-
Dolichopodidae sp.	-	-	-	-	-	-	-	-	-	-	R	-	-	-	-	-
Empididae; <i>Hemerodromia</i>	-	P	-	R	-	-	-	-	-	-	-	-	P	R	-	-
Simuliidae; <i>Simulium</i>	R	-	-	R	P	-	-	R	-	-	-	R	R	P	-	-
Tabanidae; <i>Chrysops</i>	-	-	-	P	R	C	-	-	-	-	-	R	-	-	-	-
Tipulidae; <i>Antocha</i>	R	P	P	R	-	R	P	P	P	-	-	R	P	P	-	-
<i>Dicranota</i>	P	C	C	C	C	C	A	C	A	-	-	C	R	-	P	C
<i>Hexatoma</i>	P	-	P	P	P	-	P	P	P	P	P	C	C	P	C	F
<i>Limnophila</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	R	-
<i>Tipula</i>	-	R	-	-	-	-	-	-	-	-	-	R	-	R	-	-
Chironomidae spp.	P	P	P	C	A	A	A	P	A	C	A	VA	A	P	C	C
<b>Other Insect Taxa</b>																
<b>Megaloptera (dobson-, alder-, fishflies)</b>																
Corydalidae; <i>Nigronia</i>	-	P	C	C	A	A	C	C	C	C	R	A	A	C	-	-
Sialidae; <i>Sialis</i>	-	P	R	-	P	P	R	-	C	P	P	-	P	P	-	-
<b>Odonata (dragon-, damselflies)</b>																
Aeshnidae; <i>Boyeria</i>	-	-	-	-	-	-	-	P	-	R	-	-	-	-	-	-
Gomphidae; <i>Lanthus</i>	-	R	R	-	-	-	-	R	-	-	-	-	-	-	P	-
<i>Ophiogomphus</i>	-	-	-	P	-	-	-	-	P	P	P	P	-	-	-	-
<i>Stylogomphus</i>	-	-	-	-	-	-	-	-	R	R	P	P	R	C	-	-
Calopterygidae; <i>Calopteryx</i>	-	-	-	R	-	-	-	-	-	-	-	-	-	-	-	-
<b>Coleoptera (aquatic beetles)</b>																
Curculionidae sp.	-	-	-	-	-	R	-	-	-	-	-	-	-	-	-	-
Elmidae; <i>Dubiraphia</i>	-	-	-	R	-	-	-	-	-	-	R	P	-	-	-	-
<i>Optioservus</i>	A	A	VA	A	A	A	VA	C	VA	C	A	A	A	VA	P	-
<i>Oulimnius</i>	A	P	P	R	P	A	A	P	P	-	-	R	P	P	A	-
<i>Promoresia</i>	R	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-
<i>Stenelmis</i>	P	C	C	C	P	P	A	P	A	P	P	C	P	C	-	-

TABLE 5 (Cont'd.)

Taxa	Station															
	1PC	3PC	5PC	7PC	10CC	11WB	12WB	13WB	15CC	17CC	19PC	R1	R2	R3	R4	F
<i>Psephenidae; Psephenus</i>	-	-	C	P	-	R	P	-	C	A	P	A	C	C	-	
<i>Ectopria</i>	R	-	-	-	-	R	P	-	R	-	R	-	-	R	-	
<b>Non-Insect Taxa</b>																
Turbellaria (flat-worms)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Planariidae; <i>Cura</i>	-	-	-	-	-	-	-	-	R	-	-	-	-	-	-	
Nematoda (round-worms)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	R	
Oligochaeta (lumbricid type)	-	R	R	R	-	-	R	-	-	-	-	-	-	R	-	
Oligochaeta	-	-	C	C	-	-	-	R	P	P	P	-	-	-	-	
Decapoda (crayfish)																
Cambaridae sp.	R	-	R	P	-	P	A	-	-	R	-	-	-	P	R	
<i>Cambarus</i>	-	-	-	-	-	-	-	-	-	-	R	P	-	-	-	
<i>Orconectes</i>	-	-	-	-	-	-	-	-	-	-	C	-	-	-	-	
Gastropoda (univalves, snails)																
Ancylidae; <i>Ferrissia</i>	-	R	C	-	-	C	-	-	P	P	-	-	R	-	-	
Pelecypoda (bivalve clams)																
Sphaeriidae sp.	-	-	-	-	-	-	-	-	-	R	-	-	R	-	-	

VA - very abundant, >99 organisms  
A - abundant, 25-99 organisms  
C - common, 10-24 organisms  
P - present, 3-9 organisms  
R - rare, <3

**TABLE 6**  
**FISHES**  
**PINE CREEK**  
**CRAWFORD AND WARREN COUNTIES**

SPECIES	STATION <sup>1</sup>							
	3PC <sup>2</sup>	5PC <sup>2</sup>	7PC <sup>2</sup>	10CC <sup>3</sup>	11WB <sup>3</sup>	13WB <sup>3</sup>	17CC <sup>3</sup>	19PC <sup>2</sup>
Brown trout, <i>Salmo trutta</i>	X	X	X	X	X	X		X
Brook trout, <i>Salvelinus fontinalis</i>				X	X			
Grass pickerel, <i>Esox americanus</i>						X		
Central stoneroller, <i>Campostoma anolmalum</i>		X	X					X
Redside dace, <i>Clinostomus elongatus</i>	X			X		X		
Common shiner, <i>Luxilus cornutus</i>		X	X					X
Pearl dace, <i>Margariscus margarita</i>	X			X			X	
River chub, <i>Nocomis micropogon</i>	X	X					X	X
Silver shiner, <i>Notropis photogenis</i>		X	X	X	X	X	X	X
Rosyface shiner, <i>Notropis rubellus</i>								X
Mimic shiner, <i>Notropis volucellus</i>								X
Toungetied minnow, <i>Exoglossum laurae</i>							X	
Blacknose dace, <i>Rhinichthys atratulus</i>	X	X	X		X	X		X
Longnose dace, <i>Rhinichthys cataractae</i>	X	X	X					X
Creek chub, <i>Semotilus atromaculatus</i>	X		X	X	X	X		X
White sucker, <i>Catostomus commersoni</i>	X	X		X	X	X	X	X
Hog sucker, <i>Hypentelium nigricans</i>	X	X	X	X		X	X	X
Trout-perch, <i>Percopsis omiscomaycus</i>	X	X	X	X		X	X	
Rock bass, <i>Ambloplites rupestris</i>		X						
Bluegill, <i>Lepomis macrochirus</i>					X			
Pumpkinseed, <i>Lepomis gibbosus</i>	X	X						
Smallmouth bass, <i>Micropterus dolomieu</i>		X						X
Greenside darter, <i>Etheostoma blennioides</i>		X	X				X	X
Rainbow darter, <i>Etheostoma caeruleum</i>	X	X	X	X		X	X	X
Fantail darter, <i>Etheostoma flabellare</i>	X	X	X	X		X	X	X
Johnny darter, <i>Etheostoma nigrum</i>	X	X		X	X			X
Banded darter, <i>Etheostoma zonale</i>		X						X
Blackside darter, <i>Percina maculata</i>		X	X	X			X	
Mottled sculpin, <i>Cottus bairdi</i>	X	X	X	X	X	X	X	X

- 1 - See Figure 1 and Table 1 for station locations  
2 - Data from PA Fish and Boat Commission survey (9/13/93)  
3 - Data from DEP survey (4/3/96)

TABLE 7  
SEMI-QUANTITATIVE BENTHIC MACROINVERTEBRATE DATA  
PINE CREEK, CRAWFORD AND WARREN COUNTIES  
OCTOBER 16-19, 1995.

Taxa	Station														
	1PC	3PC	5PC	7PC	10CC	11WB	12WB	13WB	15CC	17CC	19PC	R1	R2	R3	R4
<b>Ephemeroptera (mayflies)</b>															
Baetiscidae; <i>Baetisca</i>		1	3	1					1		1				
Baetidae; <i>Acentrella</i>							1			1			2	1	
<i>Baetis</i>						2	2		1						
Caenidae; <i>Caenis</i>				3						2	1				
Ephemerellidae; <i>Ephemerella</i>	10	2	29	3	1		4	5	6		2	1	2	1	
<i>Eurylophella</i>															1
Emphemeridae; <i>Ephemera</i>								1	3	3	5		1	2	
Heptageniidae; <i>Epeorus</i>	1							1							9
<i>Heptagenia</i>															8
<i>Stenacron</i>			1					1	3	16	19	12	7	2	
<i>Stenonema</i>	6	17	5	3	18	6	3	16	8	34	20	11	31	17	5
Leptophlebiidae; <i>Leptophlebia</i>											13				1
<i>Paraleptophlebia</i>	47	28	7	6	12	21	16	5	12	4	3	7	16	2	2
Oligoneuriidae; <i>Isonychia</i>		12		1	4	2	2	7		2	2	3	18	14	
<b>Plecoptera (stoneflies)</b>															
Capniidae; <i>Paracapnia</i>	2					1		1				1			
Chloroperlidae; <i>Sweltsa</i>							1								1
Leuctridae; <i>Leuctra</i>					1	2						3			1
Perlidae; <i>Acroneuria</i>	3	2			2			1						2	3
<i>Agneta</i>							1	1	1			1			
<i>Paragnetina</i>								2					2		
Perlodidae; <i>Diploperla</i>								2	2						
<i>Isoperla</i>		1					3	3	1						
<i>Isogenoides</i>			2												
Pteronarcyidae; <i>Pteronarcy</i>	1														2
Taeniopterygidae; <i>Taeniopteryx</i>	1			3	3			6	4	1	1			1	
<b>Trichoptera (caddisflies)</b>															
Brachycentridae; <i>Brachycentrus</i>			2	4					3	1	1				
Glossosomatidae; <i>Glossosoma</i>			1												
Helicopsychidae; <i>Helicopsyche</i>				1											
Hydropsychidae; <i>Cheumatopsyche</i>	5	7	11	7	23	8	9	29	9	1		7	8	1	2
<i>Diplectrona</i>	2														4
<i>Hydropsyche</i>	5	27	5	1	11	17	28	22	1			1	4	1	13
Lepidostomatidae; <i>Lepidostoma</i>															1
Leptoceridae; <i>Mystacides</i>												1			
Philopotamidae; <i>Chimarra</i>					23	4				1		24	7		
<i>Dolophilodes</i>	6	14		1		3	7	3					1	1	10

TABLE 7 (Cont'd.)

Taxa	Station														
	1PC	3PC	5PC	7PC	10CC	11WB	12WB	13WB	15CC	17CC	19PC	R1	R2	R3	R4
<b>Trichoptera (caddisflies) (cont'd)</b>															
Polycentropodidae; <i>Polycentropus</i>		1	1												1
Psychomyiidae; <i>Lype</i>									1						1
<i>Psychomyia</i>				1					1				1		
Rhyacophilidae; <i>Rhyacophila</i>	6	2	2	4			4		2	1	1	1			4
Uenoidae; <i>Neophylax</i>	1														1
<b>Diptera (true flies)</b>															
Athericidae; <i>Atherix</i>		1		3	2		1	2	2	2		2	1	1	
Ceratopogonidae sp.			2	2		1			1		6				2
Simuliidae; <i>Simulium</i>														1	1
Tabanidae; <i>Chrysops</i>				1		2									
Tipulidae; <i>Antocha</i>			1				1	1							
<i>Dicranota</i>		2	2	8	6	1	11	2	8			1			2
<i>Hexatoma</i>			2	4	1		2	1	1	5		1	1	2	8
<i>Limnophila</i>															1
<i>Tipula</i>												1			
Chironomidae spp.		2	1	11		14	5	3	6	7	6	13	5	1	3
<b>Other Insect Taxa</b>															
<b>Megaloptera (dobson-, alder-, fishflies)</b>															
Corydalidae; <i>Nigronia</i>			4	4	8	3	2	3	5	2	1	4	5	3	
Sialidae; <i>Sialis</i>		1			2	1				2	3				
<b>Odonata (dragon-, damselflies)</b>															
Aeshnidae; <i>Boyeria</i>								1							
Gomphidae; <i>Lanthus</i>															3
<i>Ophiogomphus</i>				2					2	2	1	1			
<i>Stylogomphus</i>										1	2	1	1	4	
<b>Coleoptera (aquatic beetles)</b>															
Elmidae; <i>Dubiraphia</i>				1											
<i>Optioservus</i>	5	5	39	31	8	15	19	4	19	10	12	8	9	51	1
<i>Oulimnius</i>	17		1			5	1	1	1						24
<i>Promoesia</i>															3
<i>Stenelmis</i>		1	1	5		1	5		15	2	3	2	1	5	
Psephenidae; <i>Psephenus</i>			2	3			1		1	11	2	10	1	5	
<i>Ectopria</i>						1					1			1	
<b>Non-Insect Taxa</b>															
Oligochaeta (lumbricid type)															
Oligochaeta			3	6					1	2	4				
Decapoda (crayfish)															
Cambaridae sp.							3			1	6			2	1
<i>Orconectes</i>											1				
Gastropoda (univalves, snails)															
Ancylidae; <i>Ferrissia</i>			4			4				3					

**TABLE 7 (Cont.)**  
**RBP METRIC COMPARISON**  
**PINE CREEK, CRAWFORD AND WARREN COUNTIES**  
**OCTOBER 16-19, 1995**

METRIC*	STATION															
	1PC	3PC	5PC	7PC	10CC	11WB	12WB	13WB	15CC	17CC	19PC	R1	R2	R3	R4	R5
1. TAXA RICHNESS	16	18	24	27	17	21	24	26	29	25	25	24	22	26	26	25
Cand/Ref (%)	62	72	96	104	77	88	109	118	111	96	96					
Biol. Cond. Score	2	4	6	6	4	6	6	6	6	6	6	6	6	6	6	6
2. MOD. EPT INDEX	12	9	9	11	8	7	10	15	14	10	11	11	11	11	15	13
Cand/Ref (%)	80	69	69	100	73	64	91	136	127	91	100					
Biol. Cond. Score	6	4	4	6	4	4	6	6	6	6	6	6	6	6	6	6
3. MOD. HBI	2.1	2.8	3.4	3.8	3.7	3.8	3.5	3.7	3.3	3.6	4.1	3.6	3.2	3.6	2.9	3.2
Cand-Ref	-0.8	-0.4	0.2	0.2	0.5	0.2	0.3	0.5	-0.3	0.	0.5					
Biol. Cond. Score	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
4. % DOMINANT TAXA	40	22	30	26	17	18	21	23	16	29	17	21	25	41	21	16
Cand-Ref	19	6	14	-15	-8	-3	-4	-2	-25	-12	-24					
Biol. Cond. Score	6**	6	4	6	6	6	6	6	6	6	6	6	6	6	6	6
5. % MOD. MAYFLYS	54	48	34	12	26	25	20	29	27	51	56	29	62	31	23	22
Ref-Cand	-31	-26	-12	19	36	4	42	33	4	-20	-25					
Biol. Cond. Score	6	6	6	4	2	6	0	2	6	6	6	6	6	6	6	6
TOTAL BIOLOGICAL CONDITION SCORE	26	26	26	28	22	28	24	26	30	30	30	30	30	30	30	30
% COMPARABILITY TO REFERENCE	87	87	87	93	73	93	80	87	100	100	100					

\* - Station 1PC compared to R4  
 Station 3PC and 5PC compared to R5  
 Station 7PC, 15CC, 17CC, and 19PC compared to R3  
 Station 10CC, 12WB, and 13WB compared to R2  
 Station 11WB compared to R1

\*\* - Based on the dominant taxon (*Paraleptophlebia*) having a Hilsenhoff score less than 3

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3900-FM-WC0002 Rev. 2/97

**BUREAU OF WATERSHED CONSERVATION  
 ROUTE SLIP**

TO: *Sharon*

Secretary's Office	SE RO (Cons)	Appropriate Action
Office of Water Management	NE RO (W-B)	Deadline _____
Director, BWC	SC RO (Hbg)	Return
Assistant Director	NC RO (Wpt)	As Requested
WQ Assessments & Standards	SW RO (Pgh)	Information
Watershed Support	NW RO (Mdv)	Comments
Water Use Planning		Circulate
Storage Tanks	BWM	File
Office of Chief Counsel	Comptroller	Recycle
Office of Field Operations	WE	Signature Req'd
Bureau of Fiscal Management	BWQP	<b>RUSH</b>
Bureau of Personnel	BOSS	

FROM: *Bab*

DATE: *10-21-97*

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REMARKS:

*Remainder of Hay Cr. PKs.  
 reports for IRRC.*

*Jim Smith — as requested*

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**MILL CREEK**

**CAMBRIA COUNTY**

**SPECIAL PROTECTION EVALUATION REPORT  
WATER QUALITY STANDARDS REVIEW**

**SEGMENT: BASIN**

**DRAINAGE LIST: T**

**STREAM CODE: 45102**

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**QUALITY ASSESSMENT UNIT (KRK)  
DIVISION OF ASSESSMENT AND STANDARDS  
BUREAU OF WATER QUALITY MANAGEMENT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**AUGUST 1996**

## INTRODUCTION

The Pennsylvania Department of Environmental Protection has developed water quality standards for all the surface waters of the state. These standards, which are designed to safeguard Pennsylvania's streams, rivers, and lakes, consist of both use designations and the criteria necessary to protect those uses.

The Department's Special Protection program is a key element of a national and state program to prevent water pollution. Simply stated, the purpose of the program is to keep clean waters clean and provide special protection to exceptionally good quality waters and waters that represent outstanding environmental resources.

Special Protection is provided to streams designated as "High Quality Waters" or "Exceptional Value Waters". These classifications describe streams with excellent existing water quality and environmental features which are deserving of special protection. The water quality in a "High Quality Waters" stream can be lowered only if a discharge is the result of necessary social or economic development, the water quality criteria are met, and all existing uses of the stream are protected. "Exceptional Value Waters" are to be protected at their existing quality. The water quality in "Exceptional Value Waters" shall not be lowered.

As part of its ongoing review of water quality standards, the Department conducts evaluations of streams nominated for Special Protection designations. This report contains the results of such an evaluation.

**EXECUTIVE SUMMARY**  
**MILL CREEK AND LITTLE MILL CREEK**  
**CAMBRIA AND SOMERSET COUNTIES**  
**DRAINAGE LIST T**

**BACKGROUND**

Mill Creek joins Ben's Creek, tributary to Stony Creek, about 0.4 mile from the southwestern Johnstown city line and near the Somerset / Cambria County border (Figure 1). Mill Creek is approximately 6.1 miles long and has a 7.35 square mile drainage area. Little Mill Creek, the only major tributary, has a drainage area of 1.9 square miles. The estimated Q7-10 at the mouth of Mill Creek is 0.37 cubic feet per second (CFS), and Little Mill Creek is 0.01 CFS. Both streams originate from springs in the wooded hills on the Cambria County side of the Cambria / Westmoreland County line. Land use in the basin is mostly privately owned or leased woodland, while farmland and residential areas account for the bulk of other uses. There are very few commercial establishments. There are limited secondary roadways and some private accesses throughout most of the sparsely populated basin.

The Mill Creek basin is currently designated as High Quality - Cold Water Fishes (HQ-CWF). The entire basin was evaluated in response to a request from the Pennsylvania Fish and Boat Commission for redesignation to Exceptional Value Waters (EV). Central Office staff conducted the stream survey on November 14, 15, & 16, 1995.

**FINDINGS**

**Water Quality and Uses**

Water chemistry data indicate that all measured parameters, except alkalinity at all stations, and pH at Stations 1MC and 2LM meet or are better than applicable water quality criteria. The low alkalinity is most likely due to natural conditions. Due to the very low alkalinity and hardness, there is little buffering capacity, especially in the upper reaches of the basin. There are no NPDES permitted discharges, withdrawals, or well-head protection areas in the basin.

DEP and Pennsylvania Fish and Boat Commission (PFBC) data indicate that the Mill Creek basin supports cold water fish species and is supporting designated uses.

### **National, State, or Local Significance**

There is no part of the Mill Creek basin known to qualify as outstanding national, state, or local resource waters under the Department's Special Protection Waters Selection Criteria.

### **Ecological or Recreational Significance**

The Pennsylvania Fish and Boat Commission (PFBC) Area Fisheries Manager notes that Mill Creek and Little Mill Creek have good numbers of naturally reproducing brook trout, neither stream is stocked and there are no "Special Regulations" areas in the watershed. Trout biomass has not been determined for either stream since 1983. At that time, the average brook trout biomass between the headwaters of Mill Creek and RMI 2.5 was calculated to be 11.5 kg/ha.

The Macroinvertebrate Biological Condition Score comparisons for the three stations in the upper basin are better than the 92% comparability to the reference streams as required to gain an Exceptional Value Waters (EV) designation. The comparisons were made to the Piney Run and Clear Shade Creek reference stations. Stations in the lower part of the basin scored 80% and 73%.

Pennsylvania Natural Diversity Inventory (PNDI) database records do not indicate the presence of any species of special concern within the Mill Creek basin.

## **RECOMMENDATIONS**

A portion of the Mill Creek basin satisfies the Outstanding Ecology criterion in the Special Protection Waters Selection Criteria. Based on applicable regulatory definitions and the Department's Special Protection Waters Selection Criteria, the Department recommends the designation of a portion of Mill Creek and all of Little Mill Creek be changed as follows:

### **Mill Creek basin - from source to State Route 271 bridge**

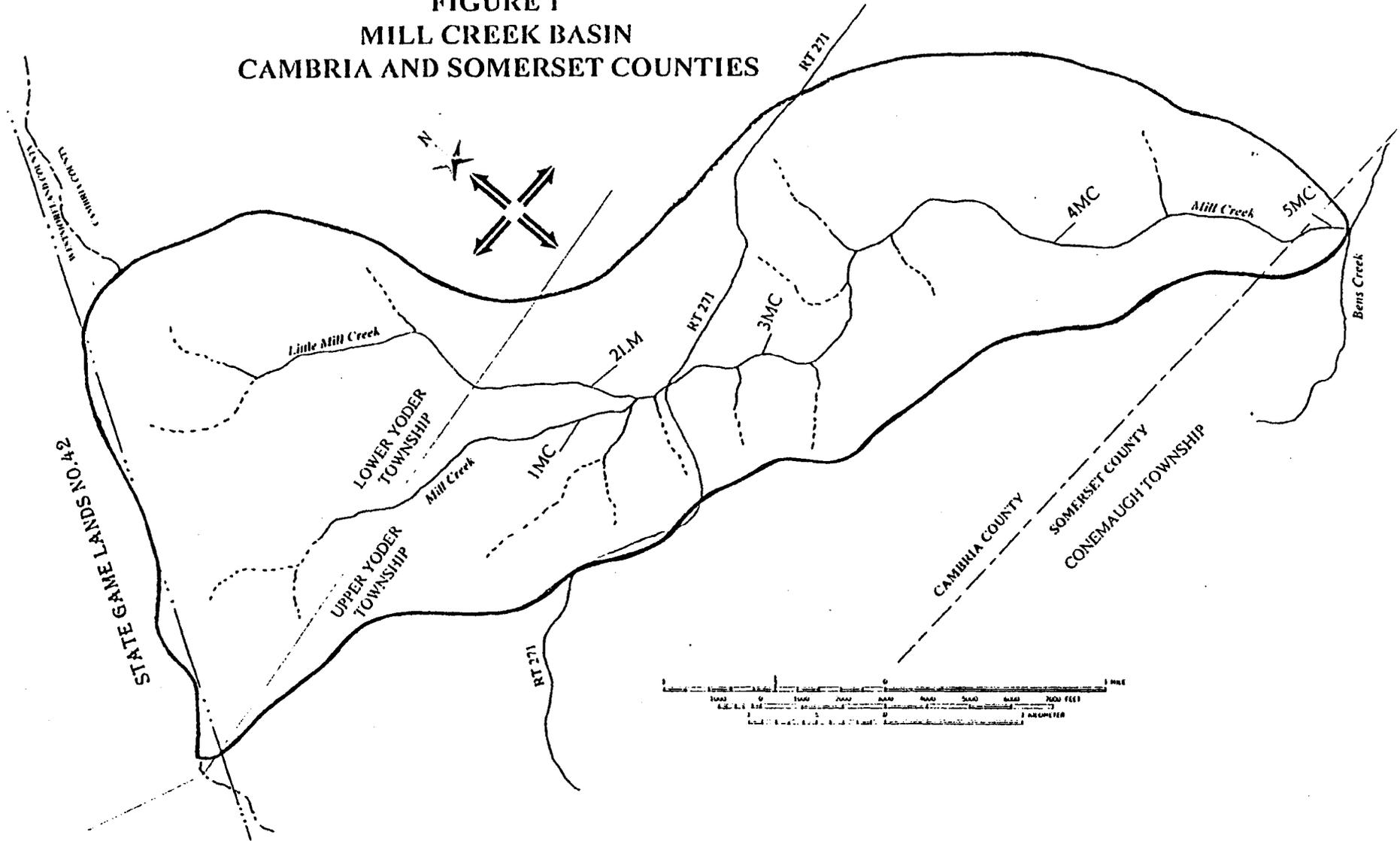
- Change designation from HQ-CWF to EV, based on:  
EV category IV.2: Outstanding Ecology.
- This recommendation affects approximately 6.8 stream miles.

### **Mill Creek basin - from State Route 271 bridge to the mouth**

Retain the present High-Quality Cold Water Fishes (HQ-CWF) designation.

This recommendation differs from the original Fish and Boat Commission request in that the Mill Creek basin from State Route 271 bridge to the mouth will retain its present designation. The remainder of the watershed complies with the original request.

**FIGURE 1**  
**MILL CREEK BASIN**  
**CAMBRIA AND SOMERSET COUNTIES**



## **GENERAL WATERSHED DESCRIPTION:**

Mill Creek flows east-southeast for approximately 6.1 miles from its origin on the eastern side of Laurel Mountain, through the hills of Lower Yoder and Upper Yoder Townships, to Ben's Creek in the Village of Ben's Creek, Conemaugh Township, Somerset County (Figure 1). Mill Creek and Little Mill Creek are high gradient freestone streams for most of their length, averaging a drop of 200 - 300 feet per mile in the headwaters and about 100 feet per mile near the mouth. The estimated Q7-10 at the mouth of Mill Creek is 0.37 cubic feet per second (CFS), and Little Mill Creek is 0.01 CFS. The estimate was calculated using historical data for three gauged streams in the same area. The entire Mill Creek basin drainage area is slightly more than 7.3 square miles. Approximately 7 square miles lies in parts of two townships in Cambria County: Lower Yoder, and Upper Yoder. The remaining 0.3 square mile of the study area (500 yards of stream at the mouth) lies in Somerset County.

Most of the Upper Yoder Township portion of the Mill Creek basin is zoned as a "Conservancy District" where the intent is to preserve the scenic and ecological values of the land and waterways through restriction of use and development. The Lyme Timber Company purchased 950 acres of Mill Creek basin lands and subsequently turned the land over to the Western Pennsylvania Conservancy while maintaining the right to harvest timber in accordance with special restrictions for a specified period of time. Conservation easements are in place for the Lyme Timber Company land.

The basin consists mostly of privately owned or leased woodland. There are some farms and residential areas and also some commercial establishments within the basin. Public lands in the study area are limited to about 50 acres of State Game Lands #42 along the Westmoreland / Cambria County border on the uppermost rim of the basin. Public roadway access into the basin is limited, but most of the basin is accessible (with permission), via private drives and walk-in. Most of the basin is undeveloped with an overall population density of less than 0.5 person per acre.

The Mill Creek basin is currently designated as High Quality - Cold Water Fishes (HQ-CWF). The basin is evaluated in response to a request from the Pennsylvania Fish and Boat Commission for redesignation to Exceptional Value Waters (EV). Central Office staff conducted the stream survey on November 14, 15, & 16, 1995.

## **WATER QUALITY AND USES:**

### **Surface Water**

Water samples were taken at five stations in the Mill Creek basin (Figure 1 & Table 1). Water chemistry data (Table 2) show that water quality in Mill Creek meets or is better than applicable water quality criteria, where comparisons could be made, with the exception of alkalinity at all stations, and pH at Stations 1MC and 2LM. The alkalinity

of Mill Creek and Little Mill Creek is far below the 20 milligrams per liter (mg/l) minimum criterion, ranging from 3.2 - 15 mg/l. There is little doubt that this is due to natural geological conditions. Still, the upper half of the basin appears to be on the verge of having its alkalinity depleted (which would severely impact the stream biota). Total alkalinity at Stations 1MC, 2LM, and 3MC is less than 5 mg/l. Total hardness (CACO<sub>3</sub>) at Stations 1MC, 2LM, and 3MC is less than 20 mg/l. Due to the low alkalinity and hardness, the stream is vulnerable to acid influences.

Because of the low alkalinity and hardness there is almost no buffering capacity to the water. Both the main stem (Mill Creek) and the tributary (Little Mill Creek) had field pH's ranging from 5.8 - 6.4, and the samples measured pH 5.7 - 6.5 in the laboratory. No station has elevated levels of any parameter. Copper is less than the 10mg/l laboratory detection limit at all stations, but the copper criterion levels are also below this laboratory detection limit. Therefore, comparison to the criterion can not be made.

Fecal coliform densities of 10 or fewer per 100ml were recorded from water samples collected at Stations 1MC, 2MC, and 3MC, and only 20 per 100ml at Station 4MC. Near the mouth of Mill Creek (Station 5MC) fecal coliform concentrations rise to 120 per 100ml. The increase is possibly due to a mobile home court between Stations 4MC and 5MC where yard runoff and pets were observed. There is also some potential for malfunctioning on-lot septic systems to add fecal coliforms to the water.

Flow measured near the mouth of Little Mill Creek is 1.4 cubic feet per second (CFS), and near the mouth of Mill Creek it is 6.2 CFS. Flow measurements for these and other stations are included with the water chemistry data in Table 2.

There are no National Pollution Discharge Elimination System (NPDES) permitted discharges or well-head protection areas in the basin. According to the Division of Water Planning and Allocation's water use data system, there are no public water supply surface or ground water withdrawals in the basin.

### **Aquatic Biota**

Total scores for physical habitat assessments in the Mill Creek basin range from 150 to 195 out of a possible 240 points (Table 3). Mill Creek basin headwater Stations 1MC and 2LM have total habitat scores of 189 and 195 respectively, which indicated comparability to the reference streams' overall "optimal" habitat scores. The other three Mill Creek stations have "sub-optimal" habitat scores; short of those for either Exceptional Value reference station visited for this study. Individual habitat parameter scores for all stations except 5MC ranged from 11 to 19 out of a possible 20 points. The "optimal" scores (>15) are recorded in those categories which can normally be linked to low population and little development within the watershed. The "sub-optimal" scores (11-15) are, for the most part, a result of deposition of mud, gravel and sand, and some small areas of moderate erosion in scattered locations. Station 5MC has a few "marginal" individual scores (6-10) as a result of disturbances to the banks and riparian areas and some channelization in the reach.

Benthic macroinvertebrates are collected using a modification of the Environmental Protection Agency's Rapid Bioassessment Protocol (RBP). The macroinvertebrates collected in the Mill Creek basin are listed in Table 4. Thirty-four genera of macroinvertebrates were found at Station 5MC; a marginally greater representation than was found at the other stations. Ten mayfly genera, twelve stonefly genera, and twelve caddisfly genera were collected in the basin. In the soft, low pH headwaters of the basin (Stations 1MC and 2LM) six stonefly genera and ten stonefly genera were collected respectively, and a fair representation of mayflies and caddisflies was found. Most of the macroinvertebrates collected are indicators of good water quality. The macroinvertebrate community appeared healthy, diverse, and contained a number of pollution sensitive genera indicating that the streams have not been subjected to chronic or acute degradation. The population densities of macroinvertebrates were low - presumably limited by the very low alkalinity and pH.

Six species of fish were captured in Mill Creek during this survey: brook trout, mottled sculpin, blacknose dace, longnose dace, central stoneroller, and northern hogsucker (Table 5). Of these, the cold-water species include the brook trout and mottled sculpin. They are present at all five stations. The other four more widely adaptive and temperature tolerant species were captured only at the two stations nearest the mouth of Mill Creek, suggesting that they probably entered Mill Creek from Ben's Creek. Overall, the Mill Creek basin fishery is dominated by brook trout and mottled sculpin. Fish populations are reasonably good for both adults and juveniles, considering the limits of productivity placed upon them by factors of water quality. Trout are not stocked by the PFBC in the Mill Creek basin. Brook trout survive in these streams throughout the year and natural reproduction of trout does occur. The streams of the basin are supporting designated uses.

Algae, periphyton, and some macrophytes appear throughout the Mill Creek basin, but they are rare at most stations and not abundant at any of the stations. No slimes were seen and no unusually high or low levels of dissolved oxygen were recorded during the daylight measurements.

## **NATIONAL, STATE, OR LOCAL SIGNIFICANCE**

There is no part of the Mill Creek basin known to qualify as outstanding national, state, or local resource waters under the Department's Special Protection Waters Selection Criteria.

## **ECOLOGICAL OR RECREATIONAL SIGNIFICANCE**

The Pennsylvania Fish and Boat Commission (PFBC) has not given any portion of Mill Creek any "Special Regulations" designation. However, Mill Creek has been recognized by PFBC personnel for its locally good production of wild brook trout. Trout biomass has not been determined since 1983. At that time, the average brook trout biomass between the headwaters and RMI 2.5 was calculated to be 11.5 kg/ha.

Piney Run (45295), a tributary to Clear Shade Creek, was chosen for macroinvertebrate metric comparisons for Mill Creek basin Stations 1MC, 2LM, and 3MC based upon its Exceptional Value Waters (EV) designation, similarity of drainage area at the sampled site, and location within the same ecoregion and sub-ecoregion as that part of the Mill Creek basin; Central Appalachians Forested Hills and Mountains (Ecoregion 69-A). Clear Shade Creek (45293), a tributary to Shade Creek, was chosen for macroinvertebrate metric comparisons for Stations 4MC, and 5MC based upon its Exceptional Value Waters (EV) designation, similarity of drainage area at the sampled site, and location within the same ecoregion.

Five benthic macroinvertebrate metrics are used to compare the samples: taxa richness, modified EPT index, modified Hilsenhoff index, percent dominant taxon, and percent modified mayflies (Table 6). Based on these comparisons, scores for Stations 1MC, 2LM and 3MC are better than the 92% comparability required to gain an Exceptional Value Waters designation under Special Protection Waters Selection Criterion IV- 2: Waterbodies with outstanding ecological attributes. The other two Mill Creek stations scored 80% and 73% comparability. Lower scores are at least partially due to increased nutrients leading to higher numbers of less sensitive taxa and correspondingly higher (worse) Hilsenhoff index scores. It should be noted that the population densities of macroinvertebrates in the basin are generally depauperate so each *entire* randomly collected sample was sorted and counted.

Pennsylvania Natural Diversity Inventory (PNDI) database records do not indicate the presence of any species of special concern within the Mill Creek basin. Habitat for one rare wetland species of special concern ( high-bush cranberry; *Viburnum trilobum*) may occur within the Mill Creek basin. Records show that *Viburnum trilobum* occurs along nearby Allwine Creek.

## **RECOMMENDATIONS**

A portion of the Mill Creek basin satisfies the Outstanding Ecology criterion in the Special Protection Waters Selection Criteria. Based on applicable regulatory definitions and the Department's Special Protection Waters Selection Criteria, the Department's recommendations are as follows:

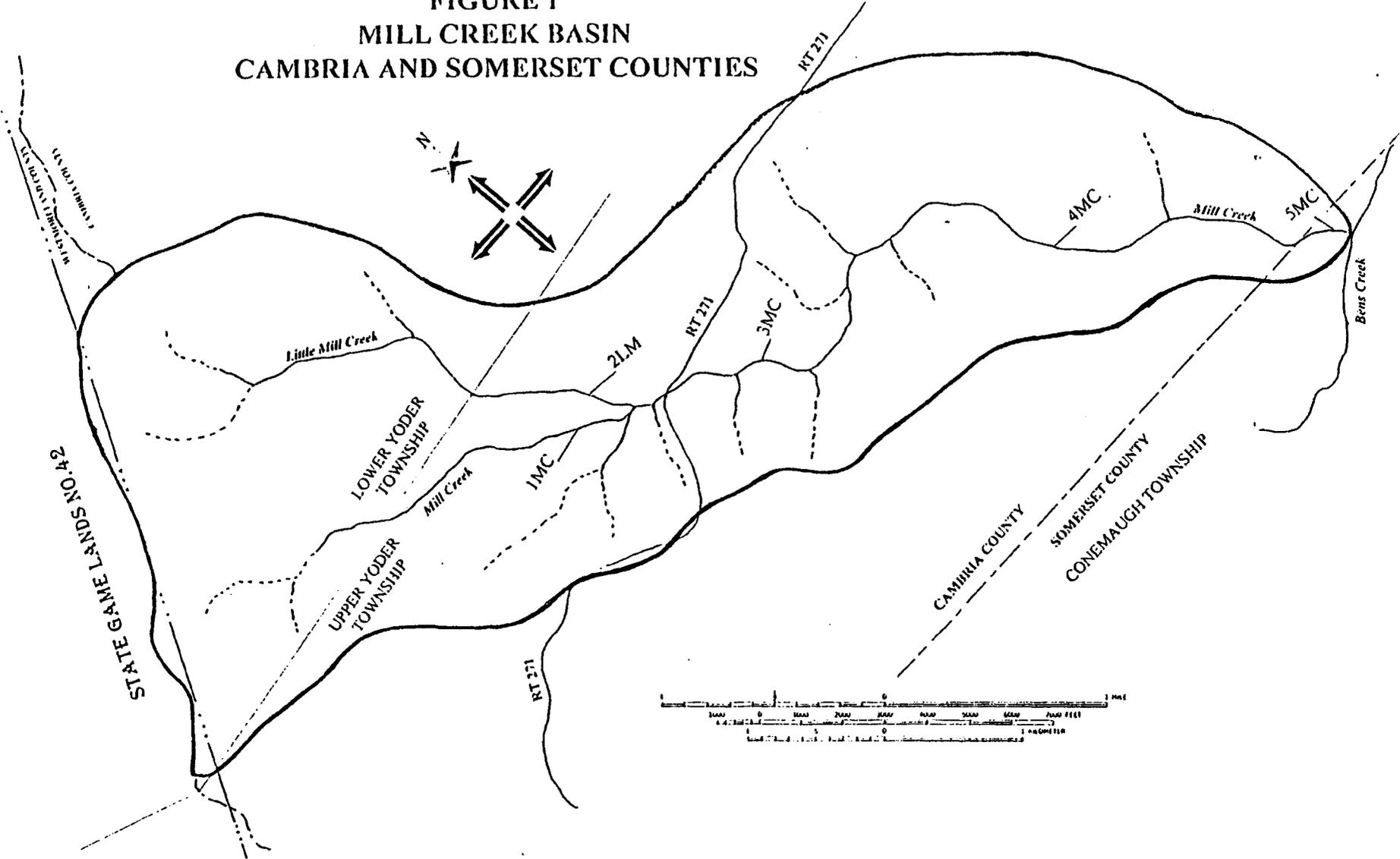
### **Mill Creek basin - from source to State Route 271 bridge**

- Change designation from HQ-CWF to EV, based on:  
EV category IV.2: Outstanding Ecology.
- This recommendation affects approximately 6.8 stream miles.

### **Mill Creek basin - from the State Route 271 bridge to the mouth**

- Retain the present High-Quality Cold Water Fishes (HQ-CWF) designation.

**FIGURE 1**  
**MILL CREEK BASIN**  
**CAMBRIA AND SOMERSET COUNTIES**



**Table 1**  
**STATION LOCATIONS**  
**Mill Creek (45102) and Little Mill Creek (45110), Cambria and Somerset Countys**

Station	Station Description	Stream Code	Drainage Area (Square Miles)	River Mile (RMI)	Latitude	Longitude
1MC (45102-1)	Mill Creek; approximately 0.1 mile upstream from the confluence with Little Mill Creek and about 500 yards upstream of the Route 271 Mill Creek crossing.	45102	1.4	4.2	40°18'35"	78°59'25"
2LM (45110-2)	Little Mill Creek; approximately 0.1 mile upstream from the confluence with Mill Creek and about 500 yards upstream of the Route 271 Mill Creek crossing.	45110	1.9	0.1	40°18'38"	78°59'21"
3MC (45102-3)	Mill Creek; about 800 yards downstream of the Route 271 Mill Creek crossing.	45102	4.3	3.4	40°18'20"	78°58'41"
4MC (45102-5)	Mill Creek; 1.3 miles up Wilshire Blvd. (aka Mill Creek Road), and adjacent to the dismantled water authority pumphouse.	45102	6.7	1.2	40°17'37"	78°57'03"
5MC (45102-6)	Mill Creek; approximately 0.1 mile upstream from the mouth, and about 100 yards upstream of the Route 403 Mill Creek crossing in the Village of Bens Creek.	45102	7.3	0.1	40°17'02"	78°56'09"
reference Piney Run	Approximately 100 yards upstream of the Township Route 816 crossing.	45295	2.6	3.4	40°08'40"	78°43'44"
reference Clear Shade Cr.	Approximately 50 yards upstream of the Crumb Road crossing and 200 yards downstream of the confluence with Cub Run. This is 1/2 mile south of the Gallitzin State Forest border.	45293	~10	7.1	40°11'28"	78°44'36"

**TABLE 2**  
**WATER CHEMISTRY<sup>1</sup>**  
**MILL CREEK and LITTLE MILL CREEK**  
**CAMBRIA and SOMERSET COUNTIES**  
 November 15, 1995

Station	1MC	2LM	3MC	4MC	5MC
Sample ID#	916054	916055	916056	916058	916059
<b>Field Parameters</b>					
Temp (°C)	1.1	0.2	0.4	1	1.2
pH	5.8	6.4	6.4	**	**
Cond (µmhos)	66	19	107	231	231
Diss. O <sub>2</sub>	9.7	9.5	13	9.5	11
Flow (CFS)	2.11	1.43	3.58	6.06	6.25
<b>Laboratory Parameters</b>					
pH	5.8	5.7	6.1	6.5	6.5
Alkalinity	3.2	3.2	4	13.2	15
T Diss. Sol.	28	14	12	142	122
Susp. Sol.	8	<2	<2	<2	<2
NH <sub>3</sub> -N	<0.02	<0.02	<0.02	<0.02	<0.02
NO <sub>2</sub> -N	<.004	<.004	<.004	<.004	<.004
NO <sub>3</sub> -N	0.59	0.51	0.68	0.86	0.97
Kjeldahl-N	<0.2	<0.2	<0.2	<0.2	<0.2
Total P	<0.02	<0.02	<0.02	<0.02	<0.02
Hardness	16	14	15	43	51
Ca	3.43	2.99	5.01	12.4	13.9
Mg	1.27	0.969	1.56	3.45	3.89
Cl	6	1	14	45	46
SO <sub>4</sub>	<10	<10	12	19	20
As*	<4	<4	<4	<4	<4
Cd*	<0.2	<0.2	<0.2	<0.2	<0.2
hex Cr*	<10	<10	<10	<10	<10
Cr*	<50	<50	<50	<50	<50
Cu*	<10	<10	<10	<10	<10
Fe*	45	42	133	188	114
Pb*	<1	<1	<1	<1	<1
Mn*	44	25	51	40	26
Ni*	<25	<25	<25	<25	<25
Zn*	15	<10	12	<10	<10
Al*	<135	<135	157	<135	<135
Acidity	4.4	4.4	1.4	0.0	0.0
fecal coliforms	<10	<10	10	20	120

1 - Except for pH & conductance and indicated otherwise, all values are total concentrations in milligrams per liter.

\* - Total concentrations in ug/l      \*\* - Meter malfunction

**Table 3**  
**HABITAT ASSESSMENT SUMMARY**  
**Mill Creek (45102) and Little Mill Creek (45110), Cambria and Somerset Counties**  
**November 15 & 16, 1995**

Habitat Parameter	Station <sup>1</sup>					<u>REFERENCES<sup>2</sup></u>	
	1MC	2LM	3MC	4MC	5MC	<i>PR</i>	<i>CSC</i>
Instream Cover (fish)	18	17	16	14	14	18	10
Epifaunal Substrate	16	16	15	15	15	17	10
Embeddedness	14	14	15	15	15	18	13
Velocity /Depth Regimes	14	17	16	15	15	20	15
Channel Alterations	18	18	16	16	8	20	19
Sediment Deposits	12	13	11	15	14	18	19
Frequency of Riffles	15	15	14	14	14	18	14
Channel Flow Status	14	16	14	18	18	18	18
Condition of Banks	15	16	16	12	14	18	18
Bank Vegetation Protection	16	16	15	15	9	17	19
Vegetation Disruptive Pressure	19	19	18	14	8	19	19
Riparian Vegetative Zone Width	18	18	16	13	6	20	20
<b>Total Score</b>	<b>189</b>	<b>195</b>	<b>167</b>	<b>176</b>	<b>150</b>	<b>221</b>	<b>194</b>

<sup>1</sup> Refer to Figure 1 for station locations. <sup>2</sup> Reference streams: PR= Piney Run, CSC= Clear Shade Creek.  
 "Optimal" = 240-181 "Sub-optimal" = 180-121 "Marginal" = 120-61 "Poor" = 60-0

**Table 4**  
**Benthic Macroinvertebrate Taxa List**  
**Mill Creek Basin, Cambria and Somerset Counties**  
**November 14-16, 1995**

Taxa	STATIONS <sup>1</sup>							-REFERENCES-
	1MC	2LM	3MC	4MC	5MC	PR	CSC	
<b>Ephemeroptera (mayflies)</b>								
Ephemerellidae; <i>Ephemerella</i>			P	C	P	A	A	
<i>Eurylophella</i>	R		R	P		P	A	
Ephemeridae; <i>Ephemera</i>			R	P	R			
<i>Litobrancha recurvata</i>	R							
<i>Epeorus</i>		R	R			C	A	
<i>Stenacron</i>		R						
<i>Stenonema</i>	P	R	C	P	C	VA	A	
Leptophlebiida; <i>Leptophlebia</i>								
<i>Paraleptophlebia</i>			R	R	P		P	
Oligoneuriidae; <i>Isonychia</i>				C	C			
Siphonuridae; <i>Ameletus</i>	R							
<b>Plecoptera (stoneflies)</b>								
Capniidae; <i>Allocapnia</i>			R	C				
<i>Paracapnia</i>	P	A	R				C	
Chloroperlidae; <i>Sweltsa</i>	R	R						
Leuctridae; <i>Leuctra</i>	C	C	P	R		C		
Nemouridae; <i>Soyedina</i>		R						
Peltoperlidae; <i>Peltoperla/Tallaperla</i>	R	P	P	R		P		
Perlidae; <i>Acroneuria</i>	R	P	R	R	R		P	
Perlodidae; <i>Clioperla</i>				R				
<i>Diploperla</i>		P		R	R		P	
<i>Isoperla</i>		R				P		
Pteronarcyidae; <i>Pteronarcys</i>					R			
Taeniopterygidae; <i>Taeniopteryx</i>	R	A	R	C	P	A	P	
<i>Strophopteryx</i>		P						
<b>Tricoptera (caddisflies)</b>								
Brachycentridae; <i>Adicropheps</i>	R							
Glossosomatidae; <i>Glossosoma</i>				R	P			
Hydropsychidae; <i>Cheumatopsyche</i>					A	VA	VA	
<i>Diplectrona</i>	A	C	P	R				
<i>Hydropsyche</i>	C	P	R		C	VA	VA	
<i>Parapsyche</i>	R							
Leptoceridae; <i>Triaenodes</i>		P						
Limnephilidae; <i>Limnephilus</i>		R						
<i>Pycnopsyche</i>								
Philopotamidae; <i>Dolophilodes</i>	C	P		P	R	VA	VA	
Polycentropodidae; <i>Polycentropus</i>			P	P	P			
Psychomiidae; <i>Lype</i>			R					
Rhyacophilidae; <i>Rhyacophila</i>	C	C	P	R		C	P	
Uenoidae; <i>Neophylax</i>				P				

<b>Diptera (true flies)</b>							
Ceratopogonidae; <i>Bezzia</i>				P	R		
<i>Ceratopogon</i>		R					
Empididae; <i>Chelifera</i>				R			
<i>Hemerodromia</i>					P		
Psychodidae; <i>Pericoma</i>							
Simuliidae; <i>Prosimulium</i>		R					
<i>Simulium</i>		R					
Tabanidae; <i>Chrysops</i>				R	P		
Tipulidae; <i>Antocha</i>					C		
<i>Dicranota</i>	R			R	P	P	A
<i>Hexatoma</i>	P	P	A	C	C		
<i>Limnophila</i>	P	P		R			
<i>Ormosia</i>	R						
<i>Pseudolimnophila</i>				R			
<i>Tipula</i>			R	P			P
Chironomidae	P	C	C	VA	C	VA	A
<b>Other Insect Taxa</b>							
<b>Megaloptera (dobson, alder, fishflies)</b>							
Corydalidae; <i>Nigronia</i>			R	P	R		
Sialidae; <i>Sialis</i>			R	R			
Odonata (dragon, damselflies)							
Aeshnidae; <i>Boyeria</i>			R	R			
Gomphidae; <i>Lanthus</i>	R		R				P
<b>Coleoptera (aquatic beetles)</b>							
Elmidae; <i>Optioservus</i>				P	P		
<i>Oulimnius</i>	R	R		A	A	C	P
<i>Promoresia</i>	C					A	P
Psephenidae; <i>Ectopria</i>				P	R		
<b>Lepidoptera (aqua. caterpillars)</b>							
Pyralidae; <i>Petrophila</i>							
<b>Non-Insect Taxa</b>							
Nematoda (roundworms)							
Oligochaeta	C	P	C		C		
Isopoda (aquatic sowbugs)							
Asellidae; <i>Lirceus</i>		R					
Decapoda (crayfish)							
Cambaridae; <i>Cambarus</i>	R				R		

<sup>1</sup> Refer to Figure 1 and Table 1 for station locations.

R-rare = 1 or 2, P-present = 3-9 C-common = 10-24 A-abundant =25-99 VA-very abundant =>100

Exceptional Value Reference Streams: PR- Piney Run CSC- Clear Shade Creek

**Table 5**  
**FISHES**  
**Mill Creek (45102) and Little Mill Creek (45110)**  
**Cambria and Somerset Countys**  
**November 14-16, 1995**

SPECIES	1MC	2LM	3MC	4MC	5MC
brook trout <i>Salvelinus fontinalis</i>	X	X	X	X	X
mottled sculpin <i>Cottus bairdi</i>	X	X	X	X	X
blacknose dace <i>Rhinichthys atratulus</i>				X	X
longnose dace <i>Rhinichthys cataractae</i>				X	X
central stoneroller <i>Campostoma anomalum</i>				X	X
northern hogsucker <i>Hypentelium nigricans</i>				X	X

X-This species was captured at this Station  
Refer to Figure 1 and Table 1 for Station locations.

**Table 6.**  
**Semi-Quantitative Benthic Macroinvertebrate Data**  
**and RBP Metric Comparisons<sup>1</sup>**  
**Mill Creek Basin, Cambria and Somerset Counties**  
**November 14-16, 1995**

Taxa	STATIONS <sup>2</sup>					REFERENCES	
	1MC	2LM	3MC	4MC	5MC	PR	CSC
<b>Ephemeroptera (mayflies)</b>							
Ephemerellidae; <i>Ephemerella</i>			5	10	3	4	9
<i>Eurylophella</i>	1		1	3		1	4
Ephemeridae; <i>Ephemerella</i>			1	7	2		
<i>Litobranchea recurvata</i>	1						
<i>Epeorus</i>		1	1			3	7
<i>Stenacron</i>		1					
<i>Stenonema</i>	8	1	12	4	21	13	10
Leptophlebiidae; <i>Leptophlebia</i>							
<i>Paraleptophlebia</i>			1	2	3		1
Oligoneuriidae; <i>Isonychia</i>				21	13		
Siphonuridae; <i>Ameletus</i>	1						
<b>Plecoptera (stoneflies)</b>							
Capniidae; <i>Allocapnia</i>			1	9			
<i>Paracapnia</i>	5	28	1				2
Chloroperlidae; <i>Sweltsa</i>	2	2					
Leuctridae; <i>Leuctra</i>	18	16	5	1		3	
Nemouridae; <i>Soyedina</i>		1					
Peltoperlidae; <i>Peltoperla/Tallaperla</i>	1	4	6	1		1	
Perlidae; <i>Acroneuria</i>	2	3	2	1	2		1
Perlodidae; <i>Clioperla</i>				1			
<i>Diploperla</i>		4		2	1		1
<i>Isoperla</i>		1				1	
Pteronarcyidae; <i>Pteronarcys</i>					1		
Taeniopterygidae; <i>Taeniopteryx</i>	2	25	1	11	6	10	1
<i>Strophopteryx</i>		6					
<b>Tricoptera (caddisflies)</b>							
Brachycentridae; <i>Adicropheps</i>	1						
Glossosomatidae; <i>Glossosoma</i>				1	5		
Hydropsychidae; <i>Cheumatopsyche</i>					52	12	14
<i>Diplectronea</i>	34	10	4	1			
<i>Hydropsyche</i>	11	5	2		15	18	13
<i>Parapsyche</i>	1						
Leptoceridae; <i>Triaenodes</i>		3					
Limnephilidae; <i>Limnephilus</i>		1					
<i>Pycnopsyche</i>							
Philopotamidae; <i>Dolophilodes</i>	20	3		4	2	15	30

Polycentropodidae; <i>Polycentropus</i>			3	3	9		
Psychomiidae; <i>Lype</i>			1				
Rhyacophilidae; <i>Rhyacophila</i>	13	21	3	2		3	1
Uenoidae; <i>Neophylax</i>				5			
<b>Diptera (true flies)</b>							
Ceratopogonidae; <i>Bezzia</i>				3	2		
<i>Ceratopogon</i>		1					
Empididae; <i>Chelifera</i>				1			
<i>Hemerodromia</i>					6		
Psychodidae; <i>Pericoma</i>							
Simuliidae; <i>Prosimulium</i>		1					
<i>Simulium</i>		2					
Tabanidae; <i>Chrysops</i>				1	3		
Tipulidae; <i>Antocha</i>					11		
<i>Dicranota</i>	2			2	5	1	5
<i>Hexatoma</i>	6	3	27	11	10		
<i>Limnophila</i>	5	4		1			
<i>Ormosia</i>	2						
<i>Pseudolimnophila</i>				1			
<i>Tipula</i>			2	3			1
Chironomidae	5	21	16	101	22	14	7
<b>Other Insect Taxa</b>							
<b>Megaloptera (dobson, alder, fishflies)</b>							
Corydalidae; <i>Nigronia</i>			1	3	2		
Sialidae; <i>Sialis</i>			1	1			
Odonata (dragon, damselflies)							
Aeshnidae; <i>Boyeria</i>			1	1			
Gomphidae; <i>Lanthus</i>	2		2				1
<b>Coleoptera (aquatic beetles)</b>							
Elmidae; <i>Optioservus</i>				3	6		
<i>Oulimnius</i>	1	1		34	61	2	1
<i>Promoresia</i>	23					9	1
Psephenidae; <i>Ectopria</i>				4	1		
<b>Lepidoptera (aqua. caterpillars)</b>							
Pyrilidae; <i>Petrophila</i>							
<b>NonInsect Taxa</b>							
Nematoda (roundworms)							
Oligochaeta	10	3	12		16		
Isopoda (aquatic sowbugs)							
Asellidae; <i>Lirceus</i>		1					
Decapoda (crayfish)							
Cambaridae; <i>Cambarus</i>	1				1		

<b>DATA ANALYSIS (Piney Creek Reference)</b>	1MC	2LM	3MC	4MC	5MC	PR
<b>Taxa Richness</b>	26	28	25			16
candidate / reference	1.62	1.75	1.56			
biological condition score	(6)	(6)	(6)			
<b>Modified EPT Index</b>	15	16	15			10
candidate / reference	1.50	1.60	1.50			
biological condition score	(6)	(6)	(6)			
<b>Modified Hilsenhoff Index</b>	2.1	2.2	3.4			3.0
candidate minus reference	-0.9	-0.8	0.4			
biological condition score	(6)	(6)	(6)			
<b>% Dominant Taxon</b>	19	16	24			16
candidate minus reference	3	0	8			
biological condition score	(6)	(6)	(6)			
<b>% Modified Mayflies</b>	19	18	19			19
reference minus candidate	0	1	0			
biological condition score	(6)	(6)	(6)			
<b>total BC score / 30 as %</b>	100	100	100			

<b>DATA ANALYSIS (Clear Shade Creek Reference)</b>	1MC	2LM	3MC	4MC	5MC	CSC
<b>Taxa Richness</b>				34	27	19
candidate / reference				1.79	1.42	
biological condition score				(6)	(6)	
<b>Modified EPT Index</b>				19	10	11
candidate / reference				1.73	0.91	
biological condition score				(6)	(6)	
<b>Modified Hilsenhoff Index</b>				3.8	4.7	2.5
candidate minus reference				1.3	2.2	
biological condition score				(2)	(0)	
<b>% Dominant Taxon</b>				39	22	27
candidate minus reference				12	-5	
biological condition score				(4)	(6)	
<b>% Modified Mayflies</b>				18	15	26
reference minus candidate				10	13	
biological condition score				(6)	(4)	
<b>total BC score / 30 as %</b>				80	73	

Exceptional Value Reference Streams: PR- Piney Run CSC- Clear Shade Creek

<sup>1</sup> Semi-quantitative data for Mill Creek and Little Mill Creek reflects the identification of the entire randomly collected qualitative sample. Semi-quantitative data for reference streams Piney Run and Clear Shade Creek is based on a randomly selected subsample of 100+ individuals taken from the qualitative samplings.

<sup>2</sup> Refer to Figure 1 and Table 1 for station locations

Original: 1874  
Copies: Smith  
Sandusky  
Wyatte

**SANDY RUN**  
**SOMERSET and FAYETTE COUNTIES**

**Special Protection Evaluation Report  
Water Quality Standards Review**

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**Segment: Basin**

**Drainage List: V**

**Stream Code: 38618**

**Quality Assessment Unit (JJM)  
Division of Assessment and Standards  
Bureau of Water Quality Management  
Department of Environmental Protection**

**April 1996**

## **Introduction**

The Pennsylvania Department of Environmental Protection has developed water quality standards for all the surface waters of the State. These standards, which are designed to safeguard Pennsylvania's streams, rivers, and lakes, consist of both use designations and the criteria necessary to protect those uses.

The Department's Special Protection Program is a key element of a national and state program to prevent water pollution. Simply stated, the purpose of the program is to keep clean waters clean and provide Special Protection to exceptionally good waters, and waters that represent outstanding environmental resources.

Special Protection is provided to streams designated as "High Quality Waters" or "Exceptional Value Waters". These classifications describe streams with excellent existing water quality and environmental features which are deserving of Special Protection. The water quality in a "High Quality Waters" stream can be lowered only if a discharge is the result of necessary social or economic development, the water quality criteria are met, and all the existing uses of the stream are protected. "Exceptional Value Waters" are to be protected at their existing quality. The water quality in "Exceptional Value Waters" shall not be lowered.

As part of its ongoing review of water quality standards, the Department conducts evaluations of streams nominated for Special Protection designations. This report contains the results of such an evaluation.

## Executive Summary

### Sandy Run (38618) Somerset and Fayette Counties Drainage List V

#### BACKGROUND

Sandy Run is located in southwestern Pennsylvania and is tributary to Laurel Hill Creek. The 10.8 mi<sup>2</sup> basin encompasses portions of Lower Turkeyfoot, Upper Turkeyfoot, and Middle Creek Townships in southwestern Somerset County, and a small portion of Springfield Township in Fayette Township. The waters of the Sandy Run basin traverse a total of 20.1 stream miles. The Sandy Run basin currently has the protected water use designation High Quality-Cold Water Fishes (HQ-CWF), and was evaluated for redesignation as Exceptional Value Waters at the request of the Pennsylvania Fish and Boat Commission (PFBC). One component of the evaluation was a field survey conducted by central office staff on October 23-25, and November 7-8, 1995.

#### FINDINGS

##### Water Quality and Uses

Waters in the Sandy Run basin support all designated uses associated with the current HQ-CWF designation. Surface water quality data were collected from ten stations throughout the basin by one time grab samples. The results indicate that, with the noted exceptions, water quality in the Sandy Run basin is generally better than applicable standards. Depressed pH was measured at four stations and alkalinity was below the 20 mg/l criterion at all stations sampled. Elevated iron levels were found in 2SR UNT, and elevated cadmium, zinc, and aluminum levels were present in the Flugey Hollow sample. All criteria exceedances appear to be natural. Overall, the water chemistry is representative of a soft, poorly buffered, system that is subject to acid precipitation inputs. No NPDES discharges or public water supplies are present in the basin.

##### National, State, or Local Significance

No portion of the Sandy Run basin possesses attributes that qualify as outstanding national, state or local resources under the Department's Special Protection Waters Selection Criteria.

##### Ecological or Recreational Significance

A portion of the Sandy Run basin satisfies Exceptional Value Criterion IV-2, waterbodies with outstanding ecological attributes. One station in the Sandy Run basin qualifies for an Exceptional Value Waters designation by earning a score >92% of the reference station's. Station 10SR exceeded the reference station for three of the five metrics measured, and earned an overall score of 100%. The remaining three stations sampled received scores below 83% (1SR = 73%; 4SR = 73%; and 8HR = 80%) and therefore do not merit redesignation on the basis of outstanding ecology.

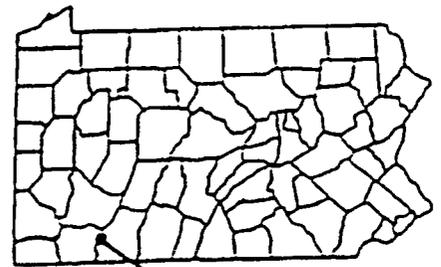
According to the Pennsylvania Natural Diversity Index (PNDI), no species of concern are known to reside in the basin.

## **RECOMMENDATIONS**

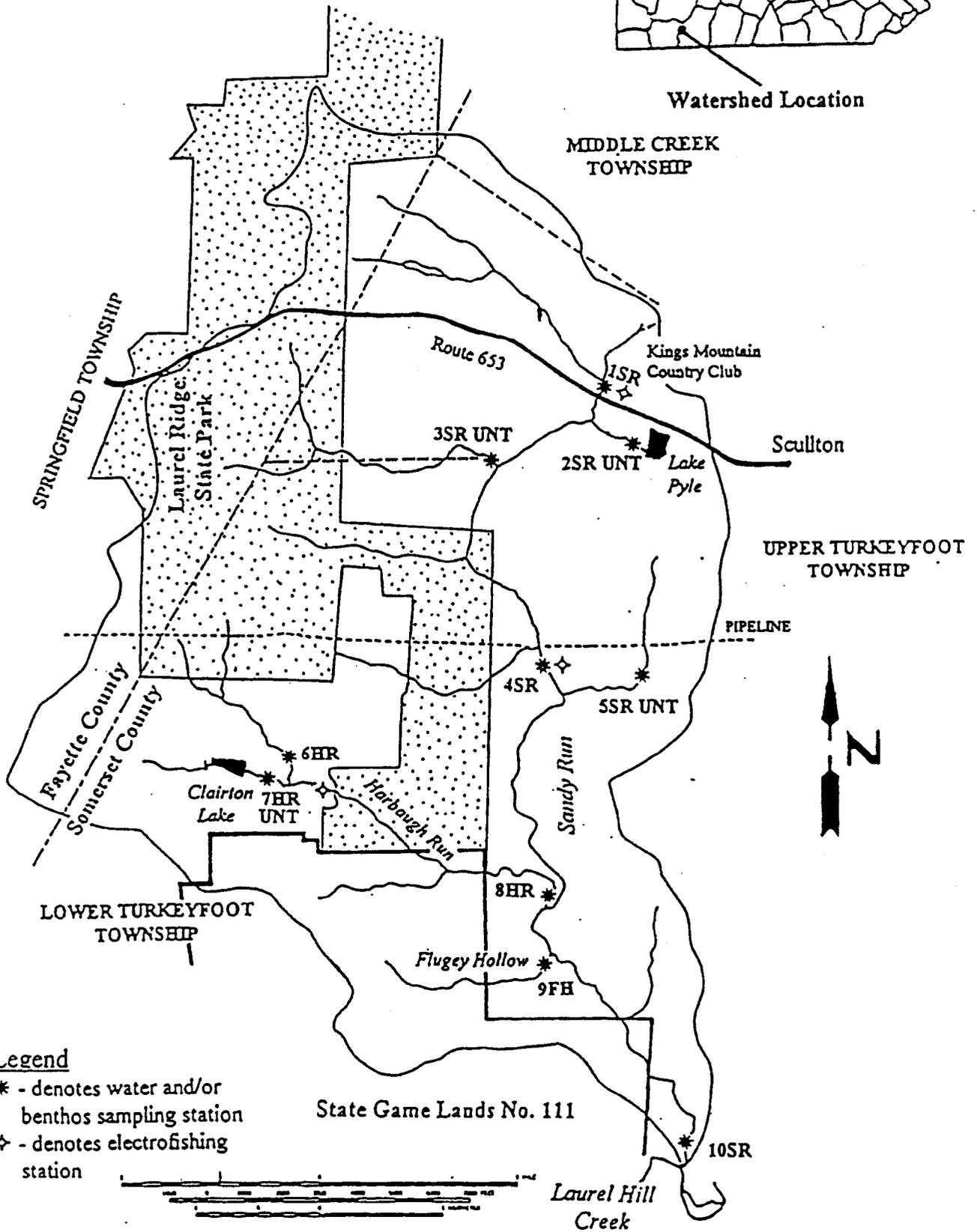
Based on applicable regulatory definitions and the Department's Special Protection Waters Selection Criteria, the Department recommends that the current High Quality - Cold Water Fishes (HQ-CWF) designation be retained for the Sandy Run basin from the headwaters to, and including, Flugey Hollow. The Sandy Run basin from Flugey Hollow to the mouth should be designated Exceptional Value Waters (EV) based on Criterion IV-2, waterbodies with outstanding ecological attributes. This recommendation affects 2.2 stream miles; 17.9 stream miles will retain their current designation.

The Department's recommendation differs from the Pennsylvania Fish and Boat Commission's request for the entire basin to be designated Exceptional Value Waters (EV). Based on biotic integrity, 2.2 miles of Sandy Run were designated EV and the remainder will retain the High Quality-Cold Water Fishes designation.

Figure 1  
 Sandy Run (38618)  
 Somerset & Fayette Counties

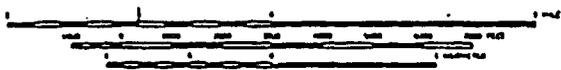


Watershed Location



Legend

- \* - denotes water and/or benthos sampling station
- ◊ - denotes electrofishing station



**Sandy Run (38618)**  
**Somerset and Fayette Counties**  
**Drainage List V**

**GENERAL WATERSHED DESCRIPTION**

Sandy Run is located in southwestern Pennsylvania and is tributary to Laurel Hill Creek at river mile 9.80 (Figure 1). The 10.8 mi<sup>2</sup> basin encompasses portions of Lower Turkeyfoot, Upper Turkeyfoot, and Middle Creek Townships in southwestern Somerset County, and a small portion of Springfield Township in Fayette Township. According to the DEP stream directory, ten named and unnamed streams are tributary to Sandy Run. The waters of the Sandy Run basin traverse a total of 20.1 stream miles. One major subbasin, Harbaugh Run (2.70 mi<sup>2</sup>), is present in the watershed (Table 1). An estimated Q 7-10 flow of 0.44 cubic feet per second for the mouth of Sandy Run was estimated from the United States Geological Survey gage #03080000 which is located near the mouth of Laurel Hill Creek at Ursina, PA.

The Sandy Run basin currently has the protected water use designation High Quality-Cold Water Fishes (HQ-CWF). The basin was evaluated in response to a request from the Pennsylvania Fish and Boat Commission (PFBC) who requested that the stream be redesignated to Exceptional Value Waters (EV). One component of the evaluation was a field survey conducted by central office staff on October 23-25, and November 7-8, 1995 (Table 1).

Laurel Ridge State Park occupies approximately 26.2% of the Sandy Run basin, and Pennsylvania State Game Lands #111 occupy an additional 10.9%. The remainder of the basin is privately owned. Some minor timber harvesting recently occurred in conjunction with removal of gypsy moth affected trees, however, no industries are present within the basin. An inactive gravel pit is located due south of Lake Pyle and another lies in the extreme headwaters of Sandy Run. Additionally, an inactive deep coal mine is located approximately three-tenths of a mile south of Lake Pyle. A Texas Eastern natural gas pipeline bisects the basin (See Figure 1). A portion of the Kings Mountain Country Club is located within the watershed, as well as a private recreational lake, Clairton Lake. The community surrounding Clairton Lake, and one clustered around Route 653 near Lake Pyle comprise the primary residential areas in the basin. Neither the county nor the townships regulate land use through zoning ordinances and no plans exist which afford specific protection to the stream. Although basin specific population data is not available, according to 1990 census data the total population of Lower Turkeyfoot Township is 670 residents and Upper Turkeyfoot Township contains 1132 residents. An estimated population for the basin based on the rate of people per occupied unit is 247 residents.

Sandy Run is located in the Allegheny Mountain Section of the Appalachian Plateaus Province. The basin is located in ecoregion 69A except for the mouth of the stream and Flugey Hollow which lie in ecoregion 69B. Ecoregion 69, the Central Appalachians, consists of only two sub-regions, the forested hills and mountains, 69A, and the uplands and forests of mixed land use, 69B. The sub-ecoregion delineations within the basin coincide with the boundaries of two major soil map units, Hazelton-Cookport and Rayne-Gilpin-Wharton-Cavode. The Hazelton-Cookport

soils lie on foot slopes of hills and on mountains and tend to be located in the northern and middle portions of the Sandy Run basin. These soils are underlain by sandstone and shale-siltstone with small areas of colluvium. Generally ecoregion 69B, which encompasses Flugey Hollow and the lower Sandy Run basin, lies in the Rayne-Gilpin-Wharton-Cavode map unit. This soil assemblage is generally found on ridges and hills and consists of shale and/or coal layers overlain by layers of sandstone and shale and siltstone.

Access throughout the watershed is quite limited. State Route 653 and township road T-455 are the only roads bisecting the basin. A limited number of small township roads are present in the residential areas. Much of the basin is accessible only by foot. The stream is quite protected since the roads in the basin lie on the upland areas rather than running parallel to the stream. Basin elevations range from 1580 feet to 2929 feet. Topography and surface features are portrayed on the Kingwood and Mill Run 7.5 minute series USGS quadrangles.

According to the Department of the Interior National Wetland Inventory quadrangles, the majority of the wetlands in the basin are palustrine, forested, broad-leaved deciduous wetlands which are temporary in nature. Lake Pyle, Clairton Lake, and several small ponds are described as intermittently exposed to permanent diked or impounded, palustrine, open water wetlands. Several areas of palustrine, narrow-leaved persistent emergent vegetation occur on the Kings Mountain Country Club property and just south of Route 653. One area of upper perennial, permanent, open water, riverine wetlands exists on the mainstem of Sandy Run approximately one-third mile downstream from Flugey Hollow.

## WATER QUALITY AND USES

### Surface Water

Surface water quality data were collected at ten stations in the Sandy Run basin through one time grab samples (Tables 1 & 2). The results indicate that, with the noted exceptions, water quality in the Sandy Run basin is generally better than applicable standards. Criteria exceedances include an iron violation at 2SR UNT, and cadmium, zinc, and aluminum violations at Station 9FH. The Flugey Hollow metals violations coincide with the lowest pH measured in the basin (pH=4.6). Samples from the other stations exhibited extremely low metals levels. All criteria exceedances appear to be natural. Conductivity, hardness, calcium, magnesium, and nutrient levels are extremely low in the basin. The result is soft, infertile, minimally buffered waters which are easily affected by acid precipitation inputs. The copper and hardness detection limits precludes comparison of in situ levels with applicable criteria in most cases (Cu - all stations; Hardness - stations 1SR, 4SR, and 10SR). Alkalinity levels were below the 20 mg/l minimum at all stations sampled, and pH was below 6.0 at four stations (2SR UNT, 3SR UNT, 5SR UNT, AND 9FH), but these appear to be due to natural conditions. Bacteriological sampling revealed fecal coliform levels ranging from <10 to 750 colonies per 100 ml. The highest bacteria counts were collected from 2SR UNT which is the outflow from Lake Pyle. The lowest fecal coliform count was from the sample taken at the mouth of Sandy Run (10SR). Waters in the Sandy Run basin support all designated uses associated with the current HQ-CWF designation. No NPDES discharges or public water supplies are present in the basin.

PFBC water chemistry results show historical water quality very similar to current conditions. An August 1969 stream survey report shows lab pH's of 5.3 and 5.9 for two stations that roughly correlate to Stations 4SR and 10SR. In fact, a November 1984 report by the PFBC recommended a removal of 1.9 miles of Sandy Run, from the Rt. 653 bridge to 200 yards below T-455, from stocking due to low pH (April 24, 1984 - pH was measured at 5.0).

### **Aquatic Biota**

Physical habitat assessments for the Sandy Run sampling stations revealed that the all stations possessed optimal habitat for benthic macroinvertebrates and fish (4 stations)(Table 3). Scores ranged from 193 at Station 1SR to 232 near the mouth of Sandy Run (Station 10SR). The reference watersheds' scores ranged from 203 to 219 reflecting the presence of optimal habitat at both stations.

Benthos samples were collected from four stations within the watershed (Table 4). All benthic macroinvertebrate samples were collected from the best available habitat located within the sampled reach. Taxa richness ranged from 26 genera at Station 4SR to 41 genera at Station 1SR. Station 1SR was located in a low gradient area which possessed appropriate habitat for a variety of megalopterans, odonates, and hemipterans as well as the expected mayfly/stonefly/caddisfly assemblage. The total number of EPT (Ephemeroptera/Plecoptera/Trichoptera) taxa varied from 15 at Station 4SR to 19 at Station 10SR. Sensitive stonefly and caddisfly genera were common throughout the watershed. Except for the scarcity of mayfly genera, Sandy Run's benthic macroinvertebrate results reflect the presence of a diverse, sensitive community which is indicative of good to excellent stream conditions.

The primary potential for nonpoint source pollution is from residences located near the stream, dirt roads used for access to and from the residences, and timbering in the watershed. All anthropogenic impact on the basin occurs in the headwater areas of Sandy and Harbaugh Runs. From the water sampling and habitat assessment that was conducted, none of these activities currently appear to be significantly impacting overall water quality. The middle of the basin has one township road passing over the stream, otherwise, the middle and lower basin is extremely pristine.

The Sandy Run basin supports designated uses (Table 5). The PFBC surveyed the fish population in portions of the basin in 8/69, 4/78, 12/78, 4/82, 4/86, and 1/87. Brook trout were collected from every station in all surveys except for Station 2 in 1969. This August 1969 PFBC evaluation found that the productivity of wild trout was too low for Sandy Run to qualify as a Wild Trout Stream. In April 1978, a PFBC report approved the stream reach from the Rt. 653 bridge to 200 yards below T-455 for trout stocking. At that time, the evaluators recommended that the lower portion of the basin be inventoried for possible inclusion in the wilderness trout streams program since more trout were collected than had been captured in the 1969 survey.

In July 1982 Sandy Run was evaluated by the PFBC to gather fishery population data, and to formulate a management plan for Section 3 of Sandy Run. Brook trout were collected from both stations sampled. Additionally, brown trout and rainbow trout were collected from Station 2 although it is presumed that they entered the basin via Laurel Hill Creek. Other species collected

at Station 2 were blacknose and longnose dace; this was the only sampling occasion where those species were observed. Based on this sampling effort, the recommendation was made to manage Section 3 as an unstocked wild brook trout fishery and to consider it for inclusion as a Wilderness Trout Stream.

On November 14, 1984 an "early warning" was issued for termination of stocking in 1985. The reach of stream from Route 653 to the T-455 was recommended for removal from the stocking list due to low stream pH. In 1984, some of the pre-season stocked trout were killed by the low pH and trout stocked inseason were distressed.

Trout stocking on the upper section of Harbaugh Run was initiated in the 1940's. In 1978, Harbaugh Run was assessed and the recommendation was made to remove the stream as an approved trout water due to lack of adequate access, dense brush, and small physical size. Brook trout, brown trout, sculpin, creek chub and white sucker were observed during this survey. Some of the species found during this sampling effort may have only been in the stream channel because Lake Clairton was drained at the time of sampling. The recommendation to remove Harbaugh Run from the stocking list was approved in December 1978.

In October 1995, DEP staff electrofished three stations in the Sandy Run basin (Table 5). Naturally reproducing brook trout were common within the basin. They were collected at all stations sampled and were observed in sections where fish sampling was not conducted. The captured fish appeared healthy, possessed good color, and ranged in size from 1 to 13 inches. The only other species found was mottled sculpin, collected in Harbaugh Run.

No portion of the Sandy Run basin is designated as a Class A Wild Trout Water or a wilderness trout stream. Additionally, no portion of the basin is currently stocked with trout by the PFBC.

#### NATIONAL, STATE, OR LOCAL SIGNIFICANCE

No portion of the Sandy Run basin possesses attributes that qualify as outstanding national, state or local resources under the Department's Special Protection Waters Selection Criteria.

#### ECOLOGICAL OR RECREATIONAL SIGNIFICANCE

A portion of the Sandy Run basin satisfies Exceptional Value Criterion IV-2, waterbodies with outstanding ecological attributes. Benthic macroinvertebrate samples from four stations in the Sandy Run watershed were compared to reference stations of similar drainage area using a modification of EPA's Rapid Bioassessment Protocol III (RBP) (Table 6). The selected reference stations are in basins designated as Exceptional Value Waters which are located in the same ecoregion and subcoregion as the candidate stations. The reference watersheds were sampled at the same time as the candidate. The Sandy Run stations were compared to two reference stations: one was located in the Blue Hole Creek watershed (Middle Creek Township, Somerset County), and the second was in the Isers Run basin (Black Township, Somerset County) basin. Blue Hole Creek, which lies in ecoregion 69A was used as a reference for stations 1SR, 4SR, and 8HR. Candidate station 10SR was compared to the mouth of Isers Run which lies in ecoregion

69B. The best available habitat was sampled in all cases. The metrics used for comparison included taxa richness, modified EPT, percent dominant, percent modified mayfly, and modified Hilsenhoff Biotic Index.

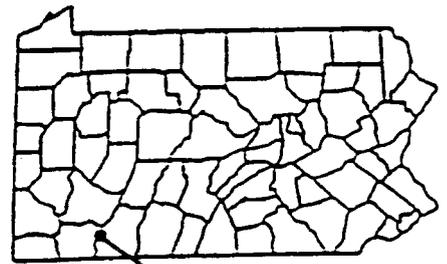
Each of the candidate stations was biologically comparable to the reference watershed for the taxa richness, modified Hilsenhoff Index, and percent dominant taxon metrics. Stations 1SR and 4SR contained slightly fewer EPT taxa (10 genera) than the comparable reference station, R1BHC (13 genera). Sandy Run stations 1SR, 4SR, and 8HR compared poorly to the reference station relative to the percentage of sensitive mayflies present in the RBP subsamples. Each of these stations contained from 0% to 8% mayflies versus 54% mayflies in the Blue Hole Creek sample. Stations 1SR and 4SR earned an overall score of 73% of the reference station's, and 8HR earned a score which was 80% of the reference station's. Station 10SR earned 100% of the Isers Run reference watershed's score for overall biological comparability. This station exceeded station R2IR's scores for taxa richness, the modified EPT, and percent dominance. Station 10SR's RBP subsample contained 26 taxa versus 19 for Isers Run. Fourteen EPT taxa were present in the candidate sample as compared to 10 in the reference. The percent dominant taxon for the mouth of Sandy Run was a tremendous 13% compared to 38% for station R2IR. The 10SR station's score qualifies for an Exceptional Value Waters designation by earning >92% of the reference station's. The other stations sampled do not merit redesignation on the basis of outstanding ecology (Table 6).

No portion of the Sandy Run watershed possesses attributes that qualify for the Special Protection Waters Program on the basis of threatened or endangered aquatic or semi-aquatic species or substantial water recreation. According to the Pennsylvania Natural Diversity Index (PNDI), no aquatic or semi-aquatic species of concern are known to reside in the basin.

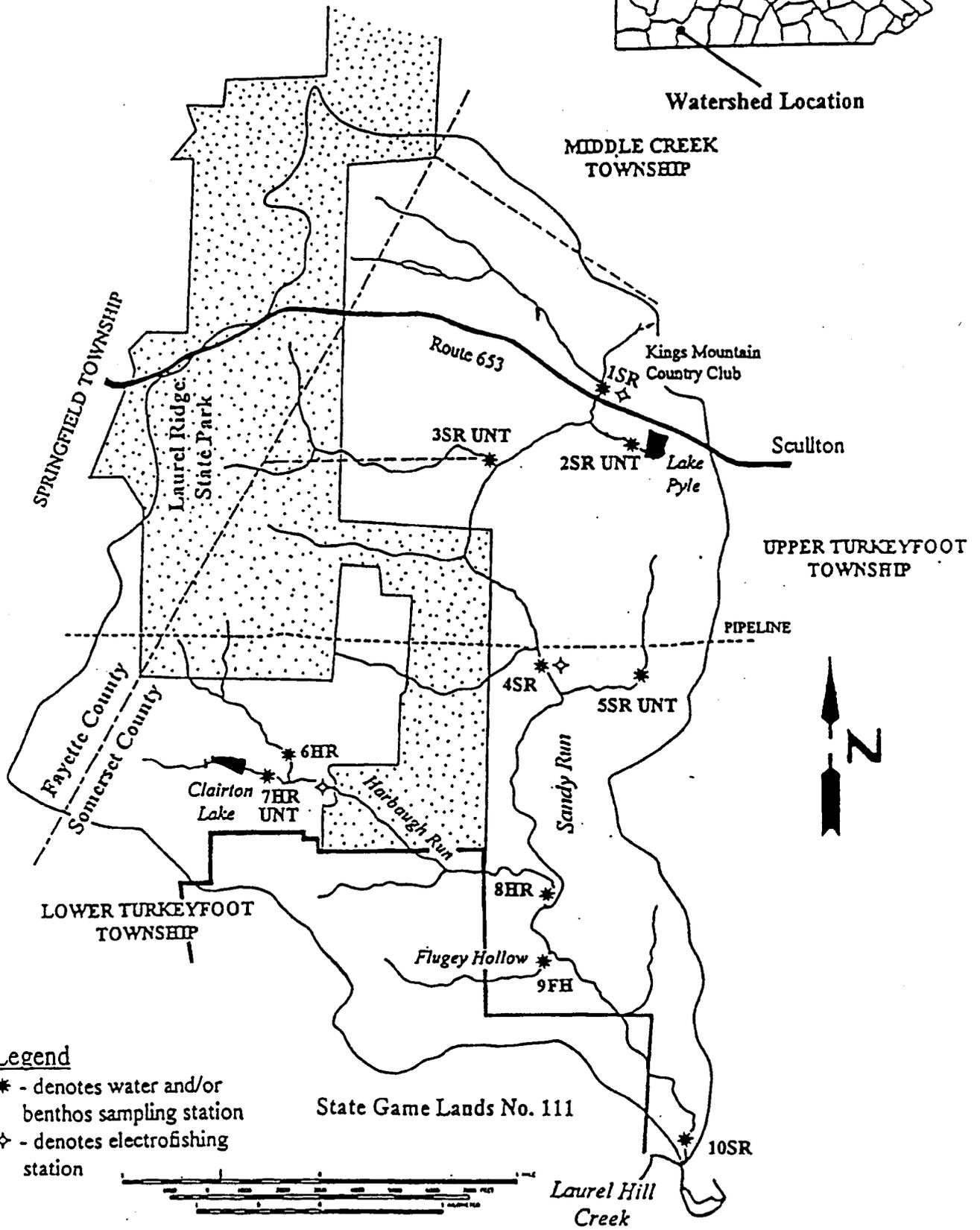
## **RECOMMENDATIONS**

Based on applicable regulatory definitions and the Department's Special Protection Waters Selection Criteria, the Department recommends that the current High Quality - Cold Water Fishes (HQ-CWF) designation be retained for the Sandy Run basin from the headwaters to, and including, Flugey Hollow. The Sandy Run basin from Flugey Hollow to the mouth should be designated Exceptional Value Waters (EV) based on Criterion IV-2, waterbodies with outstanding ecological attributes. This recommendation affects 2.2 stream miles; 17.9 stream miles will retain their current designation.

Figure 1  
 Sandy Run (38618)  
 Somerset & Fayette Counties

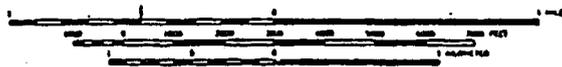


Watershed Location



Legend

- \* - denotes water and/or benthos sampling station
- ◊ - denotes electrofishing station



**Table 1****STATION LOCATIONS****Sandy Run (38618), Somerset and Fayette Counties**

<b>Station</b>	<b>Station Description</b>	<b>Stream Code</b>	<b>Drainage Area</b>	<b>RMI Location</b>	<b>Latitude</b>	<b>Longitude</b>
1SR	Sandy Run Headwaters - Sampling location was 30 feet upstream of the Route 653 bridge in Upper Turkeyfoot Township.	38618	1.37	5.15	39 57'08"	79 19'52"
2SR UNT	Unnamed Tributary from Lake Pyle - Sampling was conducted 15 feet upstream of the western side of the dirt road located off Route 653 which loops around Lake Pyle and serves as a entrance to the gravel pit	38630	0.17	0.07	39 56'59"	79 19'52"
3SR UNT	Unnamed Tributary 38628 at Mouth - Sampled 25 feet upstream of mouth. Station was accessed from Sandy Run Road in Upper Turkeyfoot Township.	38628	1.48	0.01	39 56'50"	79 20'28"
4SR	Sandy Run Midway - Station was located 40 feet downstream of the T455 crossing on the border of Upper and Lower Turkeyfoot Townships.	38618	5.10	3.28	39 56'00"	79 20'12'
5SR UNT	Unnamed Tributary 38625 Near Mouth - Station was sampled 25 feet above the T 455 road crossing in Upper Turkeyfoot Township.	38625	0.76	0.05	39 55'53"	79 20'02"
6HR	Harbaugh Run Headwaters - Stream was sampled 25 feet above the T 455 road crossing in Lower Turkeyfoot Township.	38621	0.72	1.81	39 55'35"	79 21'39"
7HR UNT	Unnamed Tributary 38623 through Clairton Lake - Sampled from dirt road located off T 455 in Lower Turkeyfoot Township.	38623	0.71	0.11	39 55'31"	79 21'46"

**Table 1****STATION LOCATIONS Continued****Sandy Run (38618), Somerset and Fayette Counties**

Station	Station Description	Stream Code	Drainage Area	RMI Location	Latitude	Longitude
8HR	Harbaugh Run at Mouth - Harbaugh Run was sampled 30 feet upstream of the confluence with Sandy Run.	38621	2.66	0.01	39 54'57"	79 20'13"
9FH	Flugey Hollow at Mouth - Stream was sampled 40 feet upstream of the confluence with Sandy Run.	38620	0.55	0.01	39 54'46"	79 20'10"
10SR	Sandy Run near Mouth - Sandy Run was sampled 425 feet upstream of the confluence with Laurel Hill Creek.	38618	10.80	0.08	39 53'54"	79 19'24"
R1BHC	Blue Hole Creek near Mouth - The stream was sampled 2375 feet above the mouth. The station was accessed from Blue Hole Road in Middle Creek Township, Somerset County.	38663	5.63	0.45	39°57'48"	79°17'19"
R2IR	Isers Run near Mouth - The stream was sampled 3000 feet above the mouth. The station was accessed via a foot path off of SR 3011 in Black Township, Somerset County.	38843	10.37	0.57	39°51'39"	79°12'35"

**Table 2**  
**WATER CHEMISTRY**  
**Sandy Run (38618), Somerset and Fayette Counties**  
**October 23-25, November 7-8, 1995**

Field Parameters <sup>1</sup>	Stations <sup>2</sup>									
	1SR	2SR UNT	3SR UNT	4SR	5SR UNT	6HR	7HR UNT	8HR	9FH	10SR
Temperature (C)	7.6	7.6	5.8	7.5	7.7	7.7	8.7	4.5	5.0	8.7
Conductivity (umhos)	48.8	53.8	43.7	46.4	42.0	32.9	53.9	43.0	40.0	41.3
Dissolved O <sub>2</sub>	◇	6.8	9.1	◇	◇	◇	◇	11.9	11.3	10.5
Stream Flow <sup>3</sup>	-	-	-	1.46	-	-	-	-	-	5.09
<b>Laboratory Parameters</b>										
pH	6.1	5.5	5.0	6.0	5.8	6.1	6.4	6.3	4.6	6.1
Alkalinity	4.4	4.8	2.2	3.6	3.4	5.4	14.8	6.8	1.2	4.0
Acidity	0.0	3.4	1.8	1.6	3.6	2.4	0.0	2.6	7.2	3.0
Hardness	<10.0	20.0	11.0	<10.0	10.0	12.0	13.0	15.0	11.0	<10.0
Total Dis. Solids	50.0	56.0	24.0	58.0	40.0	44.0	68.0	46.0	30.0	38.0
Suspended Solids	<2.0	18.0	<2.0	6.0	<2.0	4.0	<2.0	4.0	6.0	4.0
NH <sub>3</sub> -N	0.03	0.03	<0.02	0.02	<0.02	0.02	0.02	<0.02	<0.02	0.03
NO <sub>2</sub> -N	<.004	.004	<.004	<.004	<.004	<.004	<.004	<.004	<.004	<.004
NO <sub>3</sub> -N	0.13	0.13	0.24	0.11	<0.04	0.07	0.31	0.15	0.18 <sup>^</sup>	0.07
Kjeldahl-N	<0.2	0.42	0.35	0.21	0.21	<0.2	0.42	0.22	<0.2	0.24
Total P	<0.02	0.03	0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02
Ca	3.53	4.72	2.58	3.53	3.00	2.66	5.97	4.25	2.04	3.39
Mg	0.84	0.632	0.82	0.97	1.13	1.05	1.48	1.17	1.05	1.06
Cl	5.0	4.0	5.0	5.0	5.0	3.0	3.0	2.0	2.0	4.0
SO <sub>4</sub>	<10.0	11.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
As*	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Cd*	<0.2	0.21	0.21	<0.2	<0.2	<0.2	<0.2	<0.2	0.40	<0.2
hex Cr*	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Cr*	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
Cu*	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Fe*	156.0	1610.0	237.0	95.0	213.0	198.0	205.0	69.0	209.0	37.0
Pb*	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Mn*	33.0	185.0	87.0	29.0	63.0	31.0	22.0	<10.0	196.0	<10.0
Ni*	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Zn*	<10.0	16.0	16.0	<10.0	10.0	12.0	<10.0	<10.0	32.0	<10.0
Al*	<135.0	385.0	246.0	<135.0	<135.0	<135.0	<135.0	<135.0	576.0	<135.0
Fecal Colif. Col/100 ml	10	750	60	<10	20	20	10	-	-	<10

<sup>1</sup> Except for pH, conductance, and those indicated otherwise, all values are total concentrations in mg/l.

\* Total concentrations in ug/l

<sup>2</sup> Station locations shown in Figure 1.

<sup>3</sup> Stream flow value is given in cubic feet per second (cfs).

◇ Dissolved oxygen data unavailable due to mechanical failure of probe.

<sup>^</sup> Laboratory reports possible matrix interference affecting result for this parameter.

### Table 3

#### HABITAT ASSESSMENT SUMMARY

Sandy Run (38618), Somerset and Fayette Counties  
 October 23-25, November 7-8, 1995

Habitat Parameter	Station <sup>1</sup>					
	1SR	4SR	8HR	10SR	R1BHC	R2IR
Instream Cover (fish)	13	19	19	20	16	18
Epifaunal Substrate	15	18	18	18	17	17
Embeddedness	15	16	16	18	14	15
Velocity/Depth Regimes	15	20	19	20	15	17
Channel Alterations	17	18	20	20	20	20
Sediment Deposits	15	18	17	19	18	18
Frequency of Riffles	14	19	19	19	18	18
Channel Flow Status	19	19	18	18	18	19
Condition of Banks	18	18	18	20	15	17
Bank Vegetation Protection	20	20	19	20	18	20
Vegetation Disruptive Pressure	15	18	20	20	20	20
Riparian Vegetative Zone Width	17	18	19	20	14	20
<b>Total Score</b>	<b>193</b>	<b>221</b>	<b>222</b>	<b>232</b>	<b>203</b>	<b>219</b>
<b>Rating<sup>2</sup></b>	<b>OPT</b>	<b>OPT</b>	<b>OPT</b>	<b>OPT</b>	<b>OPT</b>	<b>OPT</b>

<sup>1</sup> Refer to Figure 1 for station locations.

<sup>2</sup> OPTimal, SUB-optimal, MARGinal, and POOR habitat ratings are based on the Riffle/Run prevalence Habitat Assessment Field Data Sheet.

Table 4

Benthic Macroinvertebrate Taxa List  
Sandy Run, Somerset and Fayette Counties  
October 23-25, November 7-8, 1995

Taxa	Station					
	1SR	4SR	8HR	10SR	R1BHC	R2IR
<b>Ephemeroptera (mayflies)</b>						
Baetidae; <i>Baetis</i>	-	R	-	P	R	P
Ephemerellidae; <i>Ephemerella</i>	R	-	-	P	VA	C
<i>Eurylophella</i>	P	-	P	-	R	R
Heptageniidae	-	-	-	P	-	-
<i>Epeorus</i>	-	-	R	R	C	A
<i>Heptagenia</i>	-	-	-	-	-	R
<i>Leucrocuta</i>	-	-	P	-	-	R
<i>Stenacron</i>	R	R	R	-	P	-
<i>Stenonema</i>	C	R	P	P	A	R
Leptophlebiidae	-	-	-	R	-	-
<i>Habrophlebia</i>	-	-	-	-	-	R
<i>Paraleptophlebia</i>	P	-	-	-	-	R
<b>Plecoptera (stoneflies)</b>						
Capniidae	-	-	R	-	-	-
<i>Paracapnia</i>	VA	A	P	C	P	A
Chloroperlidae; <i>Sweltsa</i>	-	R	-	P	P	-
Leuctridae; <i>Leuctra</i>	VA	A	C	C	P	A
Peltoperlidae; <i>Tallaperla</i>	P	C	P	R	R	-
Perlidae; <i>Acroneuria</i>	-	P	P	P	-	P
Perlodidae; <i>Diploperla</i>	A	P	R	R	-	R
Taeniopterygidae	-	-	-	-	P	-
<i>Taeniopteryx</i>	C	A	C	P	-	R
<b>Tricoptera (caddisflies)</b>						
Glossosomatidae; <i>Glossosoma</i>	-	-	-	R	P	-
Hydropsychidae; <i>Diplectrona</i>	VA	A	A	C	A	A
<i>Hydropsyche</i>	R	A	P	P	C	C
Hydroptilidae; <i>Palaeagapetus</i>	-	-	-	-	R	-
Lepidostomatidae; <i>Lepidostoma</i>	-	R	-	-	-	-
Limnephilidae	P	-	P	-	-	R
<i>Pycnopsyche</i>	R	-	-	-	-	-
Odontoceridae; <i>Marilia</i>	R	-	-	-	-	-
Philopotamidae; <i>Dolophilodes</i>	-	A	C	C	C	R
Polycentropodidae; <i>Polycentropus</i>	P	-	R	P	R	R
Rhyacophilidae; <i>Rhyacophila</i>	A	C	C	P	P	P

Table 4 - Continued

Taxa	Station					
	1SR	4SR	8HR	10SR	R1BHC	R2IR
<b>Diptera (true flies)</b>						
Ceratopogonidae; <i>Bezzia</i>	R	P	-	-	P	-
<i>Ceratopogon</i>	R	-	-	-	-	-
Empididae; <i>Chelifera</i>	R	-	-	-	-	-
Simuliidae; <i>Prosimulium</i>	-	-	R	-	-	R
<i>Simulium</i>	-	-	-	R	P	R
Tabanidae; <i>Chrysops</i>	C	-	-	-	-	-
Tipulidae; <i>Dicranota</i>	P	-	R	C	P	C
<i>Hexatoma</i>	P	-	P	-	P	-
<i>Limnophila</i>	P	-	-	-	-	-
<i>Tipula</i>	P	-	R	-	P	R
Chironomidae	A	C	A	A	A	VA
<b>Other Insect Taxa</b>						
<b>Megaloptera (dobson-, alder-, fishflies)</b>						
Corydalidae; <i>Nigronia</i>	C	P	R	P	-	P
<i>Chauliodes</i>	R	-	-	-	-	-
Sialidae; <i>Sialis</i>	P	-	-	R	-	-
<b>Odonata (dragon-, damselflies)</b>						
Cordulegastridae; <i>Cordulegaster</i>	P	-	-	-	-	-
Calopterygidae; <i>Calopteryx</i>	R	-	-	-	-	-
<b>Coleoptera (aquatic beetles)</b>						
Elmidae; <i>Optioservus</i>	P	P	-	-	-	-
<i>Oulimnius</i>	C	A	R	P	P	-
<i>Promoresia</i>	P	P	-	P	-	-
<i>Stenelmis</i>	-	R	-	-	-	-
<b>Hemiptera (true bugs)</b>						
Hebridae; <i>Merragata</i>	R	-	-	-	R	-
Vellidae; <i>Microvelia</i>	R	-	-	-	-	-
<b>Non-Insect Taxa</b>						
Copopoda; <i>Calanoida</i>	R	-	-	-	-	-
Oligochaeta Lumbricidae	P	A	C	C	C	C
Oligochaeta Tubificidae	-	C	R	-	C	P
<b>Isopoda (aquatic sowbugs)</b>						
Asellidae; <i>Caecidotea</i>	VA	P	C	P	R	R
<b>Decapoda (crayfish)</b>						
Cambaridae	-	R	-	-	-	-
<i>Cambarus</i>	P	-	R	R	R	-
Unknown	P	-	-	-	-	-
<b>Taxa Richness</b>	41	26	29	29	30	29

# Table 5

## Fishes

Sandy Run (38618)  
Somerset and Fayette Counties

Species	PFBC SR Sta. 1 8/69	PFBC SR Sta. 2 8/69	PFBC SR Sec. 1 4/78	PFBC HR Sec. 1 12/78	PFBC HR Sec. 2 4/82	PFBC SR Sec. 3 Sta. 1 4/86	PFBC SR Sec. 3 Sta. 2 4/86	PFBC SR Sec. 2 1/87	DEP 1SR 10/95	DEP HR 10/95	DEP 4SR 10/95	DEP R1BHC 10/95
Brook Trout <i>Salvelinus fontinalis</i>	X		X	X	X	X	X	X	X	X	X	X
Brown Trout <i>Salmo trutta</i>				X			X					
Rainbow Trout <i>Oncorhynchus mykiss</i>							X					
Mottled Sculpin <i>Cottus bairdi</i>		X	X	X	X	X		X		X		
Fallfish <i>Semotilus corporalis</i>		X										
Creek Chub <i>Semotilus atromaculatus</i>				X								
White Sucker <i>Catostomus commersoni</i>				X								
Blacknose Dace <i>Rhinichthys atratulus</i>							X					
Longnose Dace <i>Rhinichthys cataractae</i>							X					

### Station Locations:

☞ PFBC Sandy Run Station 1 8/69, Section 1 4/78, and Section 2 1/87 of were all sampled 200 meters below the T-455 road crossing.

☞ PFBC 8/69 Station 2 was located approximately 650 meters upstream of the mouth of Sandy Run.

☞ PFBC Section 1 sampling of Harbaugh Run on 12/78 was conducted 30 meters downstream of the T-312 bridge.

☞ PFBC Section 2 sampling of Harbaugh Run on 4/82 was conducted 0.9 km upstream of the mouth.

☞ PFBC Section 3, Station 1 4/86 was sampled 570 meters downstream of the T-455 bridge; Station 2 4/86 was sampled 100 meters upstream from the mouth of Sandy Run.

☞ DEP sampling stations are shown on Figure 1.

Table 6

Semi-Quantitative Benthic Macroinvertebrate Data  
and RBP Metric Comparisons<sup>1</sup>  
Sandy Run, Somerset and Fayette Counties  
October 23-25, November 7-8, 1995

Taxa	Station <sup>2</sup>					
	1SR	4SR	8HR	10SR	R1BHC	R2IR
<b>Ephemeroptera (mayflies)</b>						
Baetidae; <i>Baetis</i>	-	-	-	3	-	2
Ephemerellidae; <i>Ephemerella</i>	-	-	-	1	36	4
<i>Eurylophella</i>	-	-	1	-	-	-
Heptageniidae	-	-	-	3	-	-
<i>Epeorus</i>	-	-	1	1	3	7
<i>Heptagenia</i>	-	-	-	-	-	-
<i>Leucrocuta</i>	-	-	2	-	-	1
<i>Stenacron</i>	-	-	1	-	2	-
<i>Stenonema</i>	2	-	4	2	21	-
Leptophlebiidae; <i>Paraleptophlebia</i>	2	-	-	-	-	-
<b>Plecoptera (stoneflies)</b>						
Capniidae; <i>Paracapnia</i>	22	16	5	5	3	7
Chloroperlidae; <i>Sweltsa</i>	-	1	-	2	1	-
Leuctridae; <i>Leuctra</i>	13	16	6	8	1	10
Peltoperlidae; <i>Tallaperla</i>	2	3	3	1	1	-
Perlidae; <i>Acroneuria</i>	-	1	3	6	-	1
Perlodidae; <i>Diploperla</i>	4	-	1	1	-	-
Taeniopterygidae	-	-	-	-	1	-
<i>Taeniopteryx</i>	1	10	12	2	-	2
<b>Tricoptera (caddisflies)</b>						
Glossosomatidae; <i>Glossosoma</i>	-	-	-	-	1	-
Hydropsychidae; <i>Diplectrona</i>	38	10	20	6	11	13
<i>Hydropsyche</i>	-	7	5	5	6	2
Lepidostomatidae; <i>Lepidostoma</i>	-	1	-	-	-	-
Limnephilidae	-	-	1	-	-	-
<i>Pycnopsyche</i>	1	-	-	-	-	-
Philopotamidae; <i>Dolophilodes</i>	-	9	5	10	5	1
Polycentropodidae; <i>Polycentropus</i>	1	-	1	2	1	1
Rhyacophilidae; <i>Rhyacophila</i>	3	1	8	1	1	1
<b>Diptera (true flies)</b>						
Ceratopogonidae; <i>Bezzia</i>	-	1	-	-	1	-
Simuliidae; <i>Prosimulium</i>	-	-	-	-	-	1
<i>Simulium</i>	-	-	-	1	1	-
Tabanidae; <i>Chrysops</i>	1	-	-	-	-	-

Table 6 - Continued

Taxa	Station <sup>2</sup>					
	1SR	4SR	8HR	10SR	R1BHC	R2IR
<b>Diptera (true flies) Continued</b>						
Tipulidae; <i>Dicranota</i>	2	-	1	10	-	3
<i>Hexatoma</i>	1	-	2	-	2	-
Chironomidae	6	8	14	13	6	38
<b>Other Insect Taxa</b>						
<b>Megaloptera (dobson-, alder-, fishflies)</b>						
Corydalidae; <i>Nigronia</i>	1	2	1	3	-	1
<i>Chauliodes</i>	1	-	-	-	-	-
Sialidae; <i>Sialis</i>	-	-	-	1	-	-
<b>Coleoptera (aquatic beetles)</b>						
Elmidae; <i>Oulimnius</i>	2	6	-	3	1	-
<i>Promoresia</i>	-	-	-	1	-	-
<b>Non-Insect Taxa</b>						
Oligochaeta Lumbricidae	1	10	4	7	9	5
Oligochaeta Tubificidae	-	1	-	-	1	-
<b>Isopoda (aquatic sowbugs)</b>						
Asellidae; <i>Caecidotea</i>	37	3	6	5	-	1
<b>Decapoda (crayfish)</b>						
Cambaridae; <i>Cambarus</i>	1	-	1	-	-	-
<b>Total Number Individuals</b>	145	106	108	103	115	101
<b>Taxa Richness</b>	21	18	24	26	22	19
candidate/reference	0.95	0.82	1.09	1.37	-	-
biol. cond. score	6	6	6	6	6	6
<b>Modified EPT Index</b>	10	10	15	14	13	10
candidate/reference	0.77	0.78	1.15	1.40	-	-
biol. cond. score	4	4	6	6	6	6
<b>Modified Hilsenhoff Index</b>	2.5	2.7	2.4	3.0	2.6	3.0
candidate - reference	-0.1	0.1	-0.2	0	-	-
biol. cond. score	6	6	6	6	6	6
<b>% Dominant Taxon</b>	27%	15%	19%	13%	31%	38%
candidate - reference	-4	-16	-12	-25	-	-
biol. cond. score	6	6	6	6	6	6
<b>% Modified Mayfly</b>	3%	0%	8%	7%	54%	12%
reference - candidate	51	54	46	5	-	-
biol. cond. score	0	0	0	6	6	6
<b>Total Biological Condition Score</b>	22	22	24	30	30	30
<b>% Comparability to Reference Station<sup>3</sup></b>	73%	73%	80%	100%	-	-

1Semi-quantitative based on randomly selected subsample (100+ indiv.) from qualitative samplings.

2Refer to Figure 1 and Table 1 for station locations.

3Reference stations were elected based on documented ecological integrity, location in appropriate sub-core region, and current EV designation. R1BHC was used as a reference station for 1SR, 4SR, and 8HR. R2IR was used as a reference station for 10SR.

Original: 1874  
Copies: Smith  
Sandusky  
Wyatte

**SOUTH FORK  
LITTLE CONEMAUGH RIVER**

**CAMBRIA COUNTY**

RECEIVED  
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REVIEW COMMISSION

**SPECIAL PROTECTION EVALUATION REPORT  
WATER QUALITY STANDARDS REVIEW**

**Segment: Basin**

**Drainage List: T**

**Stream Code: 45848**

**QUALITY ASSESSMENT UNIT (TES)  
DIVISION OF ASSESSMENT AND STANDARDS  
BUREAU OF WATER QUALITY MANAGEMENT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**AUGUST 1996**

## INTRODUCTION

The Pennsylvania Department of Environmental Protection has developed water quality standards for all of the surface waters in the State. These standards, which are designed to safeguard Pennsylvania's streams, rivers, and lakes, consist of both use designations and the criteria necessary to protect those uses.

The Department's Special Protection program is a key element of a national and state program to prevent water pollution. Simply stated, the purpose of the program is to keep clean waters clean and provide Special Protection to exceptionally good quality waters and waters that represent outstanding environmental resources.

Special Protection is provided to streams designated as "High Quality Waters" or "Exceptional Value Waters." These classifications describe streams with excellent existing water quality and environmental features which are deserving of Special Protection. The water quality in a "High Quality Waters" stream can be lowered only if a discharge is the result of necessary social and economic development, the water quality criteria are met, and all existing uses of the stream are protected. "Exceptional Value Waters" are to be protected as existing quality. The water quality in "Exceptional Value Waters" shall not be degraded.

As part of its ongoing review of the water quality standards, the Department conducts evaluations of streams nominated for Special Protection designation. This report contains the results of such an evaluation.

## EXECUTIVE SUMMARY

### South Fork Little Conemaugh River - Cambria County Drainage List T

#### BACKGROUND

The South Fork Little Conemaugh River is a tributary to the Little Conemaugh River located in Summerhill and Adams Townships, Cambria County (Figure 1). The study area addressed by this report is the basin upstream of its confluence with Beaverdam Run (at Beaverdale) and drains approximately 13.6 sq. mi. The basin is presently classified High Quality-Cold Water Fishes (HQ-CWF). The Pennsylvania Fish & Boat Commission (PFBC) manages the mainstem upstream of the Beaverdale Reservoir as Class A Wild Brook Trout Waters and as a "Wilderness Trout Stream". The Department's Southwest Region requested that it be considered for redesignation as Exceptional Value Waters (EV). This report is based on an evaluation applying the Special Protection Waters Selection Criteria (May 1993) to information gathered from various government agency files and field surveys conducted during November and December 1995.

Approximately 49% of the watershed is managed as part of State Game Lands #26 by the Pennsylvania Game Commission (PGC). Most of the study area is forested. Residential uses are restricted to the lower study area in Beaverdale. Adams Township has enacted zoning and sub-division ordinances but Summerhill Township has not.

The study area is perched on the leading edge of the Allegheny Front; a geologic feature that represents a major geologic change from the eastern anthracite coal and non-coal regions to the western bituminous coal fields. The most important geologic exposure in the immediate area is the coal-bearing Allegheny Group that supported coal mining (deep and surface mines) in Beaverdale and on the western ridge of the study area.

#### FINDINGS

**Water Quality and Uses.** The South Fork Little Conemaugh River is a softwater system with naturally low buffering capacity. All alkalinities were <6 mg/l (and usually exceeded by acidity), thus not meeting the Chapter 93 criterion of  $\geq 20$  mg/l. The pH levels at four stations were lower than the minimum Chapter 93 criterion of 6. The hardness-based criteria for zinc were exceeded at stations 5UNT, 6SFLC, and 7SFLC and for nickel at 7SFLC. Manganese and aluminum concentrations were also elevated at some stations.

With the exception of the parameters discussed above and Station 7SFLC, the water quality of the study area is generally excellent. Most of the measured parameters exhibited concentrations that were below detection limits and were better than applicable criteria. Degradation from acid mine drainage (AMD) is evident at Station 7SFLC. The AMD discharges and resulting degradation existed prior to November 25, 1975; the date that defines Chapter 93's "existing uses".

There are no NPDES permitted point-source discharges in the study area. Nonpoint-sources include on-lot septic fields serving residences and old, historic groundwater seeps and discharges emanating from past mining operations; some of which date back to the late 1940s.

There are three permitted water company withdrawals in the study area; two reservoir intakes and one stream diversion. All are owned by the Highland Sewer & Water Authority (HSWA).

Aquatic biota results for the upper watershed and most of the mainstem were indicative of high water quality. While pollution sensitive taxa were fairly well represented in much of the study area, negative impacts to the mayfly populations were noticeable. These impacts are most likely due to the inability of the stream's poor buffering capacity to neutralize acidic influences (primarily AMD). South Fork Little Conemaugh River's upper section is a Class A Wild Brook Trout fishery based on a trout biomass of 31.09 kilograms/hectare (kg/ha). This section; upstream of the Beaverdam Reservoir (PFBC station 0101), has been designated as a "Wilderness Trout Stream" by the PFBC.

**National, State, or Local Significance.** There are no attributes that meet the selection criteria for national or local significance. However, the stream section designated as a "Wilderness Trout Stream" by the PFBC, meets the Special Protection Criterion for Exceptional Value Waters as stated in EV Category II.3 - "Outstanding State Resource: Wilderness Trout Stream".

**Ecological or Recreational Significance.** The Pennsylvania Natural Diversity Inventory (PNDI) database was searched to identify any aquatic Species of Special Concern in the watershed. None were found.

The ecological significance evaluation for South Fork Little Conemaugh River indicated that two stations (2RR and 4SFLC) exceeded the 93% comparability score required for EV designation (EV Category IV.2 - "Other Waters of Substantial Recreational or Ecological Significance: Outstanding Ecology"); indicating that South Fork Little Conemaugh River's Special Protection designation should be revised.

## RECOMMENDATIONS

Based on applicable regulatory definitions and the Department's Special Protection Waters Selection Criteria, the Department recommends that the protected use for portions of the South Fork Little Conemaugh River basin upstream of its confluence with Beaverdam Run be revised as follows:

- South Fork Little Conemaugh River; basin, source to the Beaverdale Reservoir dam ( 9.9 stream miles ):
  - change from HQ-CWF to EV.
  - based on EV Categories II.3 (Outstanding State Resource: Wilderness Trout Stream) and IV.2 (Other Waters of Substantial Recreational or Ecological Significance: Outstanding Ecology).
- South Fork Little Conemaugh River; mainstem, Beaverdale Reservoir dam to unnamed tributary 45928 locally known as "Sunshine Creek" ( 2.9 stream miles ):
  - change from HQ-CWF to EV.
  - based on EV Category IV.2 (Other Waters of Substantial Recreational or Ecological Significance: Outstanding Ecology).
- South Fork Little Conemaugh River; Bottle Run and unnamed tributaries from the Beaverdale Reservoir dam to unnamed tributary 45928:
  - retain current HQ-CWF designation.
- South Fork Little Conemaugh River; basin, from unnamed tributary 45928 to PA Rt 869 bridge:
  - retain current HQ-CWF designation.
- South Fork Little Conemaugh River; basin, PA Rt 869 bridge to Beaverdam Run (0.8 stream miles):
  - change from HQ-CWF to CWF.
  - based on degradation from acid mine drainage prior to November 25, 1975 (the date that defines Chapter 93's "existing uses") which indicates that the original HQ designation was incorrect.

In summary, of the total 21.6 HQ-CWF stream miles in the study area, 14.5 miles are recommended to be changed to EV and 0.8 miles to be changed to CWF, removing their Special Protection status. No change is recommended for 6.3 stream miles.

These recommendations satisfy the request made by the Department's Southwest Region to change the designation of the upper basin (above Beaverdale Reservoir) to EV. However, the scope of these recommendations goes further. The lower HQ-CWF portion of the South Fork Little Conemaugh River was not part of the original request, but was included in the study because of observed degraded water quality conditions that were inappropriate for its HQ-CWF designation. This resulted in extensive recommended changes affecting the HQ designation of some sections of this lower basin.

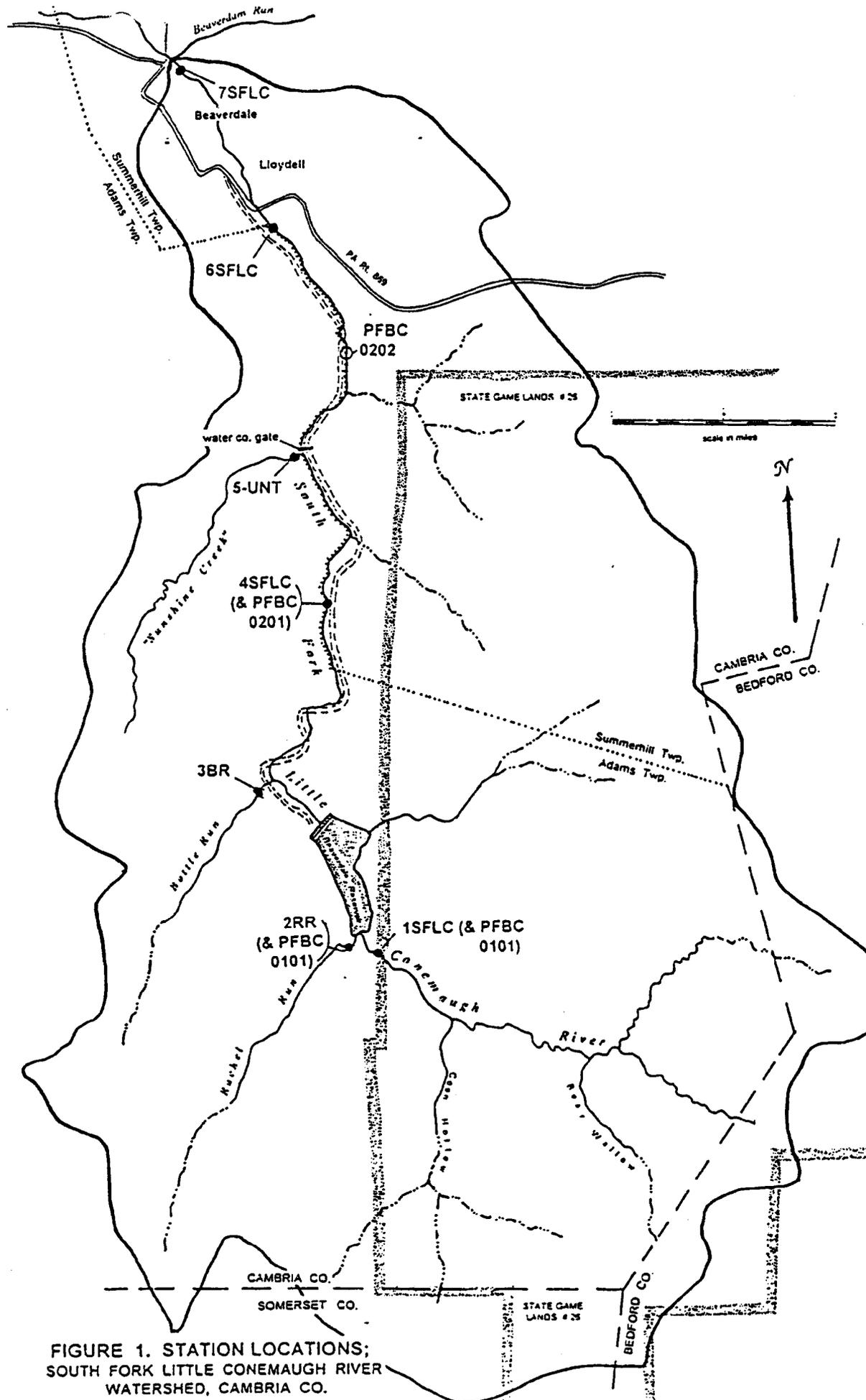


FIGURE 1. STATION LOCATIONS;  
SOUTH FORK LITTLE CONEMAUGH RIVER  
WATERSHED, CAMBRIA CO.

## GENERAL WATERSHED DESCRIPTION

The South Fork Little Conemaugh River is a tributary to the Little Conemaugh River located in Summerhill and Adams Townships, Cambria County (Figure 1). The study area addressed by this report is the basin upstream of its confluence with Beaverdam Run in the village of Beaverdale. This portion of the South Fork Little Conemaugh drains approximately 13.6 sq. mi. (8700+ acres) and is presently classified High Quality-Cold Water Fishes (HQ-CWF). The South Fork Little Conemaugh basin upstream of the Beaverdale Reservoir is managed by the Pennsylvania Fish & Boat Commission (PFBC) as Class A Wild Brook Trout Waters. This section has been designated as a "Wilderness Trout Stream" under the PFBC's stream management regulations. This upper watershed also is a public water supply source. The Department's Southwest Region requested that this upper basin be evaluated for redesignation to Exceptional Value Waters (EV).

Approximately 49% of the watershed (4300+ acres) is owned by the Pennsylvania Game Commission and is managed as part of State Game Lands #26. Another 14% (1230 acres) was recently acquired by the Department of Conservation & Natural Resources' (DCNR) Bureau of Forestry and added to the Gallitzin State Forest. The remainder is privately owned by the Highland Sewer & Water Authority (HSWA) and other landholders. Most of the South Fork Little Conemaugh watershed is forested. Residential uses are restricted to the lower portion of the study area in the community of Beaverdale. Adams Township has enacted zoning and sub-division ordinances but Summerhill Township has not.

The South Fork Little Conemaugh watershed is perched on the leading edge of the Allegheny Front; a geologic feature that traverses the Commonwealth trending in a southwesterly/northeasterly direction. The Allegheny Front represents a major change in surficial geologic structure from the eastern Ridge-and-Valley physiographic province to the bituminous coal fields of the Western Appalachian Plateaus physiographic province. The most important geologic exposure associated with the South Fork Little Conemaugh basin is the coal-bearing Allegheny Group. Several deep and surface mining related features that were developed on these Allegheny Group coals are located in the lower/middle portions of the study area and are presently inactive or abandoned. Old deep mines and related spoil piles are located along the South Fork Little Conemaugh in Beaverdale; immediately upstream of Beaverdam Run. While there are currently no active mining operations in the study area, coal is being surface-mined from a contiguous area along the western watershed divide.

This report is based on an evaluation applying the Special Protection Waters Selection Criteria (May 1993) to information gathered from various government agency files and field surveys conducted during November-December 1995 by the Department's Bureau of Water Quality Management (BWQM).

## WATER QUALITY AND USES

### Surface Water

The Department collected water quality and biological data from the South Fork Little Conemaugh study area during the November-December 1995 field surveys. Seven stations were sampled in the study area (Figure 1 & Table 1). The PFBC had recently surveyed the study area during June 1990 (Lorson 1990). In addition to BWQM's 1995 field water quality surveys, the Department's Bureaus of Mining & Reclamation (BMR) and Abandoned Mine Reclamation (BAMR) have accumulated a historical record of mine-related water quality data for the study area. Some of this historical information, along with recent BMR data, is presented in Table 2A.

Laboratory analysis results of South Fork Little Conemaugh River surface waters are presented in Table 2. The South Fork Little Conemaugh River is a softwater system with very low natural buffering capacity. The parameters associated with the stream's buffering system - pH, alkalinity, and acidity, reflect this softwater condition. The water quality conditions found at 7SFLC are significantly different than at the other stations and are discussed in a separate section below.

For most of the remaining stations (1SFLC, 2RR, 3BR, and 5UNT), alkalinities were all <20 mg/l and were exceeded by acidity. Except for Station 2RR, the pH values ranged from 4.2 to 5.5. These alkalinity and pH values do not meet Chapter 93 criteria. The hardness-based criteria for zinc were exceeded at stations 5UNT and 6SFLC. Concentrations of manganese were elevated at 5UNT and 6SFLC and aluminum was elevated at 5UNT.

With the exception of the parameters discussed above and station 7SFLC, the water quality of the study area is generally excellent. Most of the measured parameters exhibited concentrations that were below detection limits and better than applicable criteria. Copper, a parameter with a hardness-based criterion, had values below the laboratory reporting limit, thus precluding comparison.

**Station 7SFLC.** Degradation from mine drainage is evident at 7SFLC. Figure 2 illustrates some of the known locations of abandoned surface and deep mine discharges upstream of this station. The substrate was heavily embedded with the characteristic orange deposits of ferric hydroxide ( $\text{Fe}(\text{OH})_3$ ). Several parameters that characterize mine drainage; aluminum, manganese, and iron, were significantly elevated. Iron exceeded its Chapter 93 criterion (1500  $\mu\text{g}/\text{l}$ ). Nickel and zinc exceeded their hardness-based criteria. It is probable that these high concentrations are also related to mine drainage. Sulfate concentrations in mine-related discharges are usually very high. Though slightly elevated, the sulfate concentration found at 7SFLC during the Department's survey was lower than often found in surface waters that receive mine drainage. However, historical (1973) and other recent water chemistry results for 7SFLC (Table 2A) show wide concentration fluctuations for sulfates and most of the other mine drainage parameters (pH, acidity, iron, manganese, and aluminum). This is probably indicative of the variability in the deep mine discharge and receiving-stream flow volumes that normally occurs seasonally or in response to precipitation events.

In 1973, the South Fork Little Conemaugh River basin upstream of the State Route 2007 bridge (old Legislative Route 11009) including the AMD affected areas in Beaverdale, was recommended as a "conservation area" (forerunner to the Department's Special Protection Waters program). In the late 1970's, when Chapter 93's "conservation area" concept evolved into the present Special Protection format that defined HQ and EV waters, the study area became a HQ-CWF stream. The AMD discharges and conditions existed prior to November 25, 1975; the date that defines Chapter 93's "existing uses". Some of the operations responsible for the AMD date back to the late 1940s. It is apparent that the stream's condition and existing uses prior to the study area becoming HQ-CWF did not support that designation and, therefore, its designation as HQ waters was incorrect.

There are no active, NPDES permitted point-source discharges in the study area. Nonpoint sources include on-lot septic fields serving residences in the study area and the groundwater seeps and discharges emanating from old deep mines and surface operations.

There are three permitted water withdrawals in the study area; two reservoir intakes on the South Fork Little Conemaugh and one instream diversion on Bottle Run (upstream from 3BR). All are owned by the Highland Sewer & Water Authority (HSPA).

## Aquatic Biota

Habitat and benthic macroinvertebrate data were collected from seven locations in the study area. Since the PFBC had fish community data from June 1990, no electrofishing was conducted during the Department's survey. The results of the Department's November 1995 field survey and PFBC's June 1990 fish data are presented in Tables 4-6. Station locations for benthic and fish data collection are shown in Figure 1.

Instream habitat conditions were evaluated at each station where benthic macroinvertebrates were sampled. The habitat evaluation consists of rating twelve habitat parameters (Table 4) to derive a station habitat score. For the five upper stations, the habitat scores were generally excellent. Riffles were fairly well developed - exhibiting loosely compacted substrate materials that were lightly silted. There was very little evidence of channel alteration or other physical disturbances. Banks were very stable with excellent riparian vegetation. The two lower stations (6- & 7SFLC) exhibited noticeable habitat degradation, primarily as highly embedded substrates. The substrate at station 6SFLC was covered with a brown/gray semi-gelatinous coating of unknown origin. The substrate at 7SFLC reflects disruptive socio-economic pressures of mining and residential development. It is embedded with deposits of ferric hydroxide ( $\text{Fe}(\text{OH})_3$ ; "yellow-boy"). The stream reach immediately above this station flows through the Beaverdale residential area that also has old mine refuse piled along the stream banks.

Benthic macroinvertebrates (fish-food organisms) were collected at each station (Table 5). The benthos was sampled using techniques adapted from EPA's Rapid Bioassessment Protocols (RBPs; Plafkin, et al 1989). The benthic results for the upper watershed and much of the mainstem (1SFLC, 2RR, & 4SFLC) were excellent; indicative of its high water quality. The benthic populations at 5UNT were similar, except for fewer mayfly individuals. Benthic densities at these four stations were also good. While the three major environmentally sensitive taxa: mayflies (Ephemeroptera), stoneflies (Plecoptera), and caddisflies (Trichoptera) were fairly well

represented at most stations in the study area, negative impacts to the mayfly populations were noticeable. The most probable influences on the pollution sensitive mayflies are from parameters related to the stream's buffering capacity: pH, alkalinity, and acidity - whether the sources of impact are natural, acid precipitation, or acid mine drainage.

The benthic populations at 3BR and 6SFLC are distinctly different from those discussed above. There are fewer taxa represented and also lower densities. The pollution sensitive stoneflies and caddisflies are fairly well represented, but mayflies are not. There were no mayflies found at 3BR and only one mayfly taxon was collected at 6SFLC.

The benthic population at 7SFLC reflected water quality conditions that have been seriously impacted by past mining activities. Only two individuals, a stonefly and a true fly, were collected. Rust-colored ferric hydroxide stained the substrate and filled its interstices. From the condition of the substrate and water quality found at this station, it was very surprising to find any benthic organisms. These two organisms may have drifted with the current into the area from a less degraded segment upstream.

The PFBC manages the South Fork Little Conemaugh River in two sections (Figure 1). The upper section (01) is managed as a Class A Wild Brook Trout fishery. This section extends from the headwaters downstream to the Beaverdale Reservoir. The PFBC does not stock either section. The lower section (02) receives stockings of brook, rainbow, and brown trout from two local sportsmen's cooperative nurseries.

The PFBC conducted a trout population biomass estimate survey on the mainstem upstream of the Beaverdale Reservoir during June 1990 (Lorson 1990). The PFBC also surveyed Rachel Run; a tributary to the reservoir, and the South Fork Little Conemaugh mainstem below the reservoir. Natural brook trout reproduction was found at all PFBC stations in the study area (1SFLC, 2RR, 4SFLC, and upstream of 6SFLC). Brook trout was the only species found at 1SFLC and 2RR. Holdover rainbow trout, white sucker, and mottled sculpin were also found at the two lower PFBC stations.

Brook trout biomass was estimated for one station; 0101 (1SFLC; Table 6). Biomass estimates for the other three PFBC stations were not provided because not enough fish were collected for meaningful calculations. The brook trout biomass estimate at Station 0101 was 31.09 kilograms/hectare (kg/ha); which exceeds the requirement of  $\geq 30$  kg/ha for designation as a Class A Wild Brook Trout fishery. In addition, section 01 has been designated as a "Wilderness Trout Stream" in PFBC regulations.

The results of PFBC's survey indicates that South Fork Little Conemaugh River presently supports its designated use (HQ-CWF) upstream of PFBC Station 0202.

## **NATIONAL, STATE, OR LOCAL SIGNIFICANCE**

There are no attributes in the study area that meet the Department's current selection criteria for national or local significance.

The PFBC has designated the upper portion of South Fork Little Conemaugh River as a "Wilderness Trout Stream". Because of this PFBC regulation, the South Fork Little Conemaugh River from the headwaters to the Beaverdale Reservoir meets the Special Protection Criterion for Exceptional Value Waters as stated in EV Category II.3 - "Outstanding State Resource: Wilderness Trout Stream".

## **ECOLOGICAL OR RECREATIONAL SIGNIFICANCE**

The Pennsylvania Natural Diversity Inventory (PNDI) database was searched to identify any Species of Special Concern in the watershed. No aquatic elements were found in the study area.

This assessment of the South Fork Little Conemaugh River study area included an ecological significance evaluation. Benthic macroinvertebrate data from seven stations were analyzed using several different RBP metrics. The metric values from the candidate stream stations were compared to those from a reference station. The resulting comparisons are assigned a biological condition score (BCS) of 6,4,2 or 0. The BCSs are added to obtain a total score for each station. The candidate stream's scores are compared to the reference stream's total

score. The South Fork Little Conemaugh River's stations were compared to two reference stations located on Clear Shade Creek and its tributary Piney Run. These two reference stations are both Exceptional Value Waters in the same ecoregion and are located several miles south of the study area in Somerset County. The study area of South Fork Little Conemaugh River, Clear Shade Creek, and Piney Run are situated in the Central Appalachians Forested Hills & Mountains Sub-Ecoregion (69a) and were sampled during November and December 1995. The mainstem stations with larger drainage areas (1-, 4-, 6-, & 7SFLC) were compared to the Clear Shade Creek reference station (12.1 sq. mi. ) and the tributary stations with smaller drainage areas (2RR, 3BR, and 5UNT) were compared to the Piney Run reference station (3.4 sq. mi.). The metric evaluation results (Table 7) were quite varied.

The comparison of candidate/reference scores (BCSs) based on the RBP sub-samples ranged from 20 to 100%. The percent comparison values for Stations 2RR and 4SFLC were 100% which exceeded the Special Protection Criterion for Exceptional Value Waters as stated in EV Category IV.2 - "Other Waters of Substantial Recreational or Ecological Significance: Outstanding Ecology".

As a result of the ecological evaluation process and the PFBC's Wilderness Trout Stream classification, the Special Protection designation should be changed for portions of the South Fork Little Conemaugh River study area.

## RECOMMENDATIONS

Based on applicable regulatory definitions and the Department's Special Protection Waters Selection Criteria, the Department recommends that the protected use for portions of the South Fork Little Conemaugh River basin upstream of its confluence with Beaverdam Run be revised as follows:

- South Fork Little Conemaugh River; basin, source to the Beaverdale Reservoir dam ( 9.9 stream miles ):
  - change from HQ-CWF to EV.
  - based on EV Categories II.3 (Outstanding State Resource: Wilderness Trout Stream) and IV.2 (Other Waters of Substantial Recreational or Ecological Significance: Outstanding Ecology).
- South Fork Little Conemaugh River; mainstem, Beaverdale Reservoir dam to unnamed tributary 45928 locally known as "Sunshine Creek" ( 2.9 stream miles ):
  - change from HQ-CWF to EV.
  - based on EV Category IV.2 (Other Waters of Substantial Recreational or Ecological Significance: Outstanding Ecology).
- South Fork Little Conemaugh River; Bottle Run and unnamed tributaries from the Beaverdale Reservoir dam to unnamed tributary 45928:
  - retain current HQ-CWF designation.
- South Fork Little Conemaugh River; basin, from unnamed tributary 45928 to PA Rt 869 bridge:
  - retain current HQ-CWF designation.
- South Fork Little Conemaugh River; basin, PA Rt 869 bridge to Beaverdam Run (0.8 stream miles):
  - change from HQ-CWF to CWF.
  - based on degradation from acid mine drainage prior to November 25, 1975 (the date that defines Chapter 93's "existing uses") which indicates that the original HQ designation was incorrect.

In summary, of the total 21.6 HQ-CWF stream miles in the study area, 14.5 miles are recommended to be changed to EV and 0.8 miles to be changed to CWF, removing their Special Protection status. No change is recommended for 6.3 stream miles.

## REFERENCES

- Lorson, Rick. 1990. Trout biomass estimates for South Fork Little Conemaugh River, Cambria County: Section 01. File Information, Pennsylvania Fish & Boat Commission.
- Plafkin, JL, MT Barbour, KD Porter, SK Gross, & RM Hughes. 1989. Rapid Bioassessment Protocols for use in streams and rivers: Benthic Macroinvertebrates and Fish. United States Environmental Protection Agency. EPA/444/4-89-001.
- Bureau of Mining & Reclamation (BMR). Mylar map files - Harrisburg Central Office. Pennsylvania Department of Environmental Protection.
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- Bureau of Abandoned Mine Reclamation (BAMR). National Abandoned Lands Inventory System (Problem Area data base) - Ebensburg District Office. Pennsylvania Department of Environmental Protection.

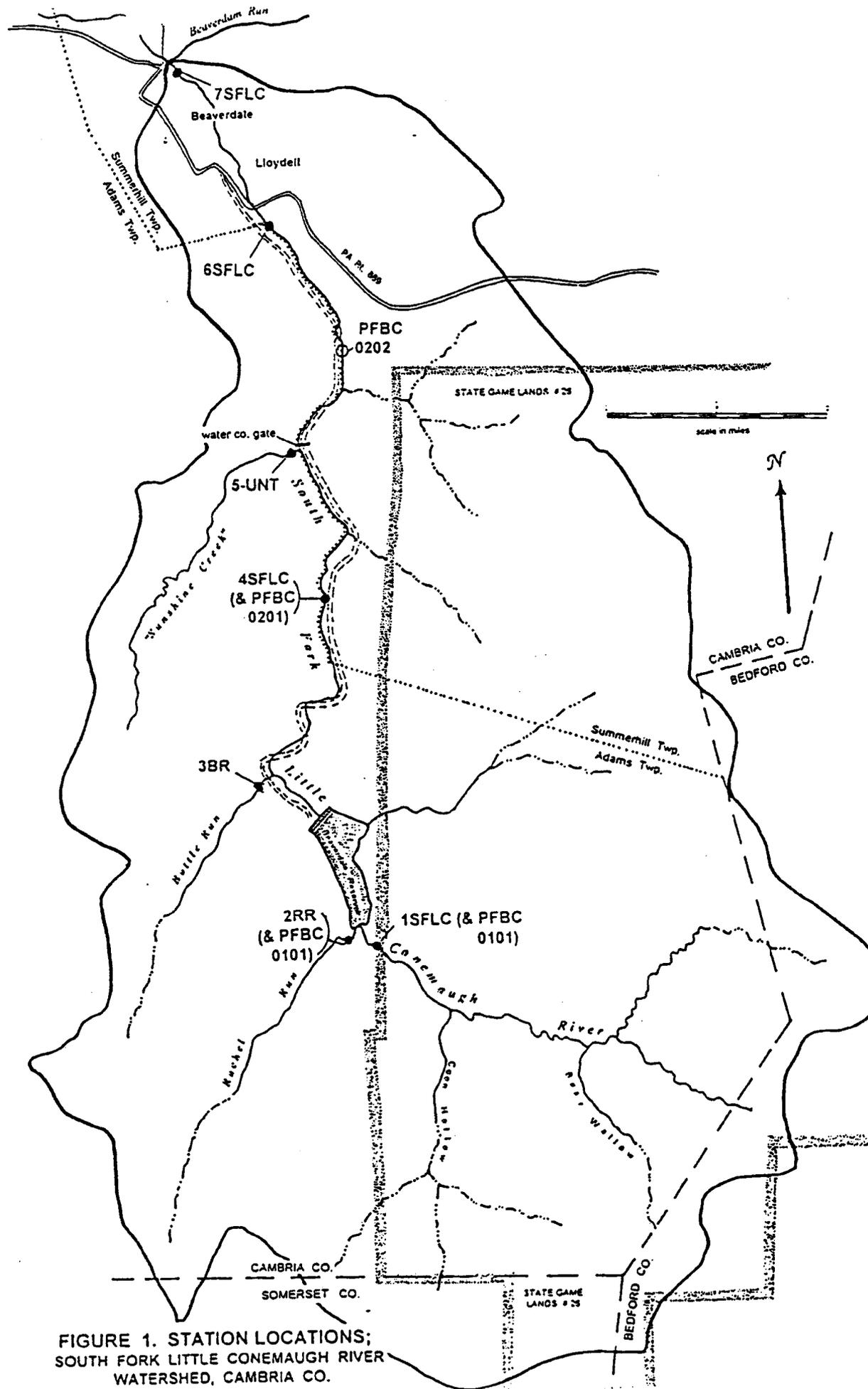


FIGURE 1. STATION LOCATIONS;  
 SOUTH FORK LITTLE CONEMAUGH RIVER  
 WATERSHED, CAMBRIA CO.

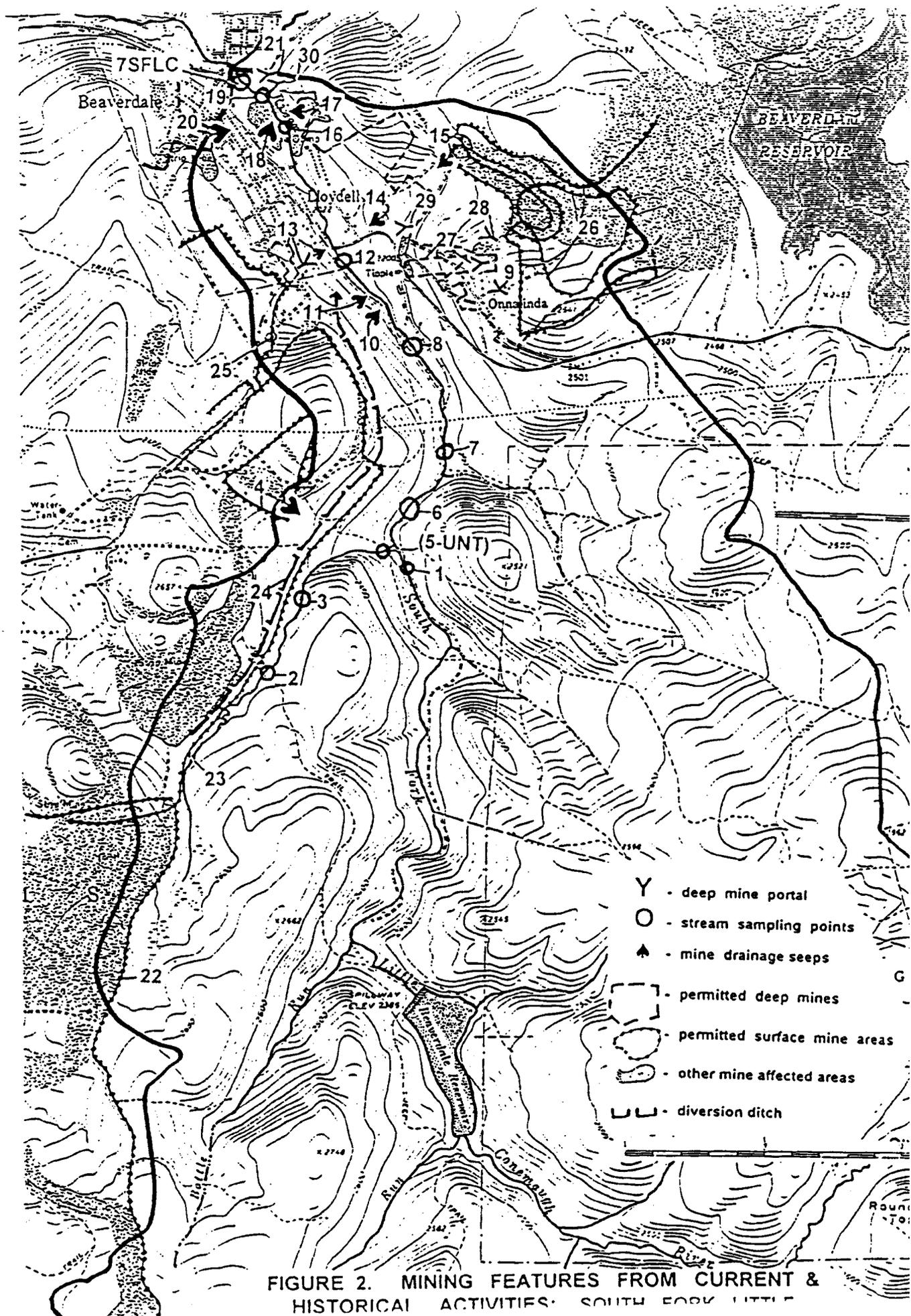


FIGURE 2. MINING FEATURES FROM CURRENT & HISTORICAL ACTIVITIES. SOUTH FORK LITTLE RIVER

**TABLE 1**  
**STATION LOCATIONS**  
**SOUTH FORK LITTLE CONEMAUGH RIVER - CAMBRIA COUNTY.**

STATION	STREAM CODE	RIVER MILE INDEX	LATITUDE/ LONGITUDE	
<b>PINEY RUN</b> <i>reference</i>	45295	3.35	40°08'40" 78°43'44"	immediately upstream from the lower limits of Piney Run's EV segment; along T-816; Shade Twp., Somerset Co.
<b>CLEAR SHADE CREEK</b> <i>reference</i>	45293	7.1	40°11'28" 78°44'36"	approx. 2.4 mi. downstream from PA Rt 56 at Ogletown at bend where the stream is closest to the state forest road; approx. 2.2 road miles south of PA Rt 56, Clear Shade Wild Area, Gallitzin State Forest; Ogle Twp., Somerset Co.
<b>1SFLC</b>	45848	12.8	40°48'52" 78°40'47"	South Fork Little Conemaugh River; approx. .01 mi. upstream from Beaverdale Reservoir; Adams Twp., Cambria Co.
<b>2RR</b>	45933	0.05	40°48'53" 78°40'55"	Rachel Run; immediately upstream of Beaverdale Reservoir; Adams Twp., Cambria Co.
<b>3BR</b>	45930	0.01	40°16'32" 78°41'20"	Bottle Run; immediately upstream water co. service road to Beaverdale Reservoir; Adams Twp., Cambria Co.
<b>4SFLC</b>	45848	10.65	40°17'13" 78°41'01"	South Fork Little Conemaugh; along water co. service road, approx..7 mi upstream from water co. access gate; Adams Twp, Cambria Co.
<b>5UNT</b> ( <i>"Sunshine Creek"</i> )	45928	0.012	40°17'47" 78°41'10"	unnamed tributary locally known as "Sunshine Creek"; entering South Fork Little Conemaugh immediately at water co. gate.
<b>6SFLC</b>	45848	8.6	40°18'41" 78°41'22"	South Fork Little Conemaugh; along water co. service road, approx. .1 mi. upstream from PA Rt 869; Summerhill Twp., Cambria Co.
<b>7SFLC</b>	45848	7.81	40°19'16" 78°41'48"	South Fork Little Conemaugh; immediately upstream of confluence with Beaverdam Run; Summerhill Twp., Cambria Co.

**TABLE 2**  
**WATER CHEMISTRY<sup>1</sup>**  
**SOUTH FORK LITTLE CONEMAUGH RIVER, CAMBRIA COUNTY**  
**NOVEMBER - DECEMBER, 1995**

Station / Sample ID/ Sample Date	1SFLC 717 12/19/95	2RR 718 12/19/95	3BR 719 12/19/95	4SFLC 716 12/18/95	5-UNT 714 12/18/95	6SFLC 712 11/15/95	7SFLC 711 11/15/95
<b>Parameters</b>	<b>Laboratory Results<sup>2</sup></b>						
pH	5.5	6.3	5.2	6.1	4.5	6.2	4.2
Alkalinity	3.2	4.8	3	5.8	0	5	0
Acidity	<b>7</b>	<b>7</b>	<b>6.4</b>	-	<b>12.8</b>	2.2	<b>20</b>
Hardness	< 10	< 10	14	14	22	22	54
T Diss. Sol.	60	36	14	-	58	32	92
Susp.Sol.	< 2	< 2	16	2	2	< 2	6
NH <sub>3</sub> -N	< .02	< .02	< .02	< .02	< .02	< .02	0.02
NO <sub>2</sub> -N	< .004	< .004	< .004	< .004	< .004	< .004	< .004
NO <sub>3</sub> -N	0.79	0.88	0.53	0.77	0.24	0.53	0.51
Kjeldahl-N	< .2	< .2	< .2	< .2	< .2	< .2	< .2
Total P	0.02	0.02	0.02	0.02	0.02	< .02	< .02
Ca	1.81	4.55	3.21	3.55	2.69	5.05	11
Mg	0.684	0.789	0.713	0.666	0.97	1.43	5.28
Cl	< 1	< 1	< 1	1	1	2	2
SO <sub>4</sub>	< 10	10	< 10	< 10	15	16	48
As*	< 4	< 4	< 4	< 4	< 4	< 4	< 4
Cd*	0.2	< .2	0.21	0.24	0.52	0.2	0.3
hex Cr*	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Cr*	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Cu*	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Fe*	23	30	< 10	50	108	182	<b>1530</b>
Pb*	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Mn*	68	50	76	72	222	262	921
Ni*	< 25	< 25	< 25	< 25	< 25	< 25	<b>1190</b>
Zn*	11	11	< 10	< 10	<b>44</b>	<b>49</b>	<b>116</b>
Al*	155	260	399	176	792	395	2000

\* - Total concentrations in µg/l

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

2 - shaded, bold results indicate Ch. 93 criteria exceedence

**TABLE 2A**  
**HISTORICAL MINING - RELATED WATER CHEMISTRY**  
**SOUTH FORK LITTLE CONEMAUGH RIVER, CAMBRIA COUNTY**

Map No. * / date	Lab pH	alkalinity (mg/l)	acidity (mg/l)	Fe (ug/l)	Mn (ug/l)	Al (ug/l)	SO <sub>4</sub> (mg/l)	Susp. sol. (mg/l)	comments **	
<b>In-stream sampling</b>										
1	7/12/73	6.5	24	0	180	-	-	15	-	instream - (4SFLC*); sample point #7 <sup>1</sup>
2	7/12/73	4.7	8	8	1720	-	-	15	-	instream - "Sunshine Creek"; sample point #9 <sup>1</sup>
3	7/12/73	4.8	8	6	680	-	-	15	-	instream - "Sunshine Creek"; sample point #9A <sup>1</sup>
4	10/78	3.1	-	-	9000	-	-	-	-	discharge - seep #1 <sup>2</sup> ; see description, Table 3
(5-UNT)	9/4/90	4.6	5	10	<300	1440	952	<40	4	instream - "Sunshine Creek" <sup>3</sup>
6	7/12/73	6.4	18	0	300	-	-	15	-	instream - SFLC; sample point #6 <sup>1</sup>
7	7/12/73	6.2	24	0	180	-	-	15	-	instream - SFLC; sample point #5 <sup>1</sup>
8	1/8/90	6.3	10	4	324	101	<500	<40	2	instream - "South Fork" #1 <sup>3</sup>
	2/8/96	6.4	12.2	1.4	<300	100	<500	<20	11	" - "
9	10/78	2.8	-	-	88000	-	-	-	-	discharge - seep #4 <sup>4</sup> ; see description, Table 3
10	10/78	4.5	-	-	0	-	-	-	-	discharge - mine seep #5 <sup>4</sup>
11	10/78	4.3	-	-	0	-	-	-	-	discharge - mine seep #6 <sup>4</sup>
12	7/12/73	6.1	22	0	360	-	-	20	-	instream - (6SFLC*); @ PA Rt 869; sample point #4 <sup>1</sup>
	1/8/90	5.9	8	6	1150	295	767	<40	<2	" - " ; "South Fork at Rt 869" <sup>3</sup>
13	10/78	4.4	-	-	0	-	-	-	-	discharge - mine seep #7 <sup>4</sup> ; see description, Table 3
14	10/78	3.2	-	-	19000	-	-	-	-	discharge - seep #8 <sup>4</sup>
15	10/78	3.1	-	-	27000	-	-	-	-	discharge - seep #3 <sup>4</sup> ; see description, Table 3
16	1/8/90	5.6	6	4	<300	37	683	67	<2	instream - SFLC; sample point #2 <sup>3</sup>
	2/8/96	6.2	10.4	3.4	<300	289	707	<20	<3	" - "
17	9/23/87	3.1	-	194	5350	-	-	544	-	discharge - Logan #2 deep mine; sample point #3 <sup>5</sup>
	1/8/90	3.1	0	170	5400	3670	15200	464	2	" - Logan #2 deep mine; Disch #1 <sup>5</sup>
	2/8/96	3.2	0	186	3340	3560	0	441	8	" - "
18	9/23/87	2.7	-	-	31600	-	-	-	-	discharge - sample point #10 - "Alton Mine" <sup>5</sup>
19	1/8/90	4.6	6	14	<300	544	1530	54	3	instream - "South Fork" #4 <sup>3</sup>
	2/8/96	4.5	7.2	20	432	639	2170	48	3	" - "
20	1/8/90	2.7	0	464	43700	9480	37500	414	7	discharge - Logan #4 deep mine "B" seam; Disch #3 <sup>5</sup>
	2/8/96	2.9	0	588	40800	24700	55900	1307	<3	" - "
21	10/78	3.9	-	-	25000	-	-	-	-	discharge - sample point #6 <sup>5</sup>
	9/23/87	3.6	-	-	32000	-	-	-	-	" - "
	1/8/90	4	2	90	30500	5360	33800	430	8	" - Logan #2 deep mine; Disch #2 <sup>5</sup>
	2/8/96	4.8	10.8	82	27400	4930	3200	469	4	" - "
(7SFLC)	7/12/73	3.4	0	140	5320	-	-	30	-	instream - sample point #3 <sup>1</sup>
	1/8/90	4.1	2	26	2150	594	1480	62	6	" - "South Fork" #5 <sup>3</sup>
	2/8/96	2.9	0	588	40800	24700	55900	1307	<3	" - "

\* - locations from Figure 2. Equivalent stations from Fig. 1 are parenthesized with nearest equivalent stations indicated with an \*

\*\* - shaded features represent nonpoint sources

1 - BMR files; permit #3369BSM16(A1); mine inspector James Wise

2 - BAMR problem area files; PA4109

3 - BMR files; mine inspector Wade Gallaher

4 - BAMR problem area files; PA2490

5 - BAMR problem area files; PA2491

**TABLE 3**  
**MINE -RELATED DISCHARGE SOURCES.**  
**SOUTH FORK LITTLE CONEMAUGH RIVER, CAMBRIA COUNTY.**

Map No.*	Feature	Description	Source**
4	Surface mine & seep	permit # 18117 <sup>1</sup> & related seep <sup>2</sup> ; MNV Coal Co.; issued 9/25/58; Lower Kittanning (B) seam.	BMR files <sup>1</sup> ; BAMR problem area files <sup>2</sup>
9	Surface mine & seep	probably permit # 9029 <sup>1</sup> & related seep <sup>2</sup> ; Friends Coal Co. issued 5/20/48; Lower Freeport (D) seam.	BMR files <sup>1</sup> ; BAMR problem area files <sup>3</sup>
13	Deep mine & seep	seep <sup>3</sup> from small deep mine ("Alton" - WPA maps <sup>1</sup> ) portal or associated spoil pile. Lower Kittanning (B) seam.	BMR files <sup>1</sup> ; BAMR problem area files <sup>3</sup>
15	Surface mine & seep	probably permit # 11426 <sup>1</sup> & related seep <sup>3</sup> ; CE Lauver; issued 2/20/51; Lower & Upper Freeport (D, E) seams.	BMR files <sup>1</sup> ; BAMR problem area files <sup>3</sup>
17	Deep mine discharge	Logan deep mine #2 (WPA maps <sup>1</sup> ) & sample point # 3 <sup>4</sup> ; Lower Kittanning (B) seam.	BMR files <sup>1</sup> ; BAMR problem area files <sup>4</sup>
18	Deep mine discharge	possibly permit # 1011 <sup>1</sup> , "Alton" <sup>5</sup> mine, "no seam" <sup>1</sup> ; sample # 10 <sup>4</sup> .	BMR files <sup>1</sup> ; BAMR problem area files <sup>4</sup>
20	Deep mine discharge	Logan deep mine #4 (WPA maps <sup>1</sup> ), discharge # 3 <sup>4</sup> ; Lower Kittanning (B) seam.	BMR files <sup>1</sup>
21	Deep mine discharge	Logan deep mine #2 (WPA maps <sup>1</sup> ), discharge #2 <sup>1</sup> & sample point # 6 <sup>4</sup> ; Lower Kittanning (B) seam.	BMR files <sup>1</sup> ; BAMR problem area files <sup>4</sup>
22	Surface/auger mine	permit # 11813039 <sup>1</sup> ; Cooney Bros.; issued 9/9/85; Mercer, Brookville (A), Clarion (A'), & Lower Kittanning (B) seams.	BMR files <sup>1</sup>
23	Surface/auger mine	permit # 11813039 <sup>1</sup> ; Cooney Bros.; issued 9/9/85; Mercer, Brookville (A), Clarion (A'), & Lower, Middle, & Upper Kittanning (B, C, C') seams.	BMR files <sup>1</sup>
24	Diversion ditch	parallels map feature #23 at edge of permit area and enters the South Fork Little Conemaugh upstream of Rt 869 (exact location undetermined).	Mine Inspector Gallaher <sup>1</sup>
25	Surface/auger mine	permit # 1181900101 <sup>1</sup> ; Cooney Bros.; issued 2/7/91; Upper Kittanning (C') & Upper Freeport (E) seams.	BMR files <sup>1</sup>
26	Surface mine	permit # 3367BSM15 <sup>1</sup> ; Cooney Bros.; issued 4/8/68; Upper Kittanning (C') & Lower Freeport (D) seams (reissued as #11673041 to include Upper Freeport (E) seam).	BMR files <sup>1</sup>
27	Deep mine	permit # 567M001 <sup>1</sup> ; L & R Coal Co.; Lower Kittanning (B)seam.	BMR files <sup>1</sup>
28	Deep mine	permit # 8999 <sup>1</sup> ; Mary Elizabeth Coal Co.; 5/20/48; Upper Freeport (E) seam.	BMR files <sup>1</sup>
29	Deep mine	permit # 1030 <sup>1</sup> ; Lick Run Coal Co.; issued 2/17/49; Lower Kittanning (B) & Upper Freeport (E) seams.	BMR files <sup>1</sup>
30	Deep mine	permit # 10659 <sup>1</sup> ; Louis Hrebar Coal Co.; issued 9/22/50; Lower Kittanning (B) seam.	BMR files <sup>1</sup>

\* - Map numbers are from Figure 2.

\*\* - 1: BMR - Bur. Mining & Reclamation; Central Office mylar map files, Ebensburg District Office files, and/or Mine Inspector Wade Gallaher(files & pers. comm.)

- 2: BAMR - Bur. Abandoned Mine Reclamation, Ebensburg District Office Problem Area #4109 map files;

- 3: BAMR Problem Area #2490 map files

- 4: BAMR Problem Area #2491 map files

- 5: not the same information that references the "Alton" mine for map feature # 13. These two mine features of differing locations may be interconnected but this could not be determined from Department files.

**TABLE 4**  
**HABITAT ASSESSMENT SUMMARY**  
**SOUTH FORK LITTLE CONEMAUGH RIVER, CAMBRIA COUNTY**  
**NOVEMBER - DECEMBER 1995**

HABITAT PARAMETER	STATIONS							REFERENCES	
	1SFLC	2RR	3BR	4SFLC	5-UNT	6SFLC	7SFLC	PR*	CLC*
1 . instream cover	18	15	16	12	19	18	16	18	10
2 . epifaunal substrate	15	15	16	19	15	18	18	17	10
3 . embeddedness	18	14	14	12	13	6	0	18	13
4 . velocity/depth	18	15	15	16	18	16	10	20	15
5 . channel alterations	18	18	18	18	18	18	13	20	19
6 . sediment deposition	18	18	18	14	13	16	16	18	19
7 . riffle frequency	20	19	19	15	18	18	18	18	14
8 . channel flow status	18	17	17	18	18	18	18	18	18
9 . bank condition	18	18	18	18	18	18	14	18	18
10 . bank vegetation protection	18	18	18	19	18	18	13	17	19
11 . grazing/disruptive pressures	18	15	15	18	18	15	5	19	19
12 . riparian vegetation zone width	20	15	15	19	18	10	3	20	20
Total Score	217	197	199	198	204	189	144	221	194

**TABLE 5**  
**BENTHIC MACROINVERTEBRATE TAXA LIST <sup>1</sup>**  
**SOUTH FORK LITTLE CONEMAUGH RIVER, CAMBRIA COUNTY**  
**NOVEMBER - DECEMBER, 1995**

Station / Date	1SFLC	2RR	3BR	4SFLC	5UNT	6SFLC	7SFLC
<b>TAXA</b>							
<b>MAYFLIES</b>							
Baetidae <i>Leucocruta</i>	-	-	-	R	-	-	-
EphemereIIDae <i>Ephemerella</i>	-	P	-	-	-	-	-
	P	P	-	C	R	R	-
Leptophlebiidae <i>Paraleptophlebia</i>	-	R	-	C	R	-	-
Heptageniidae <i>Epeorus</i>	R	P	-	-	-	-	-
	P	-	-	P	-	-	-
	C	A	-	A	-	-	-
<b>STONEFLIES</b>							
Capniidae <i>Allocaenia</i>	-	-	C	-	-	-	-
	VA	A	-	A	A	R	-
Chloroperlidae <i>Sweltsa</i>	P	P	-	-	-	-	-
Leuctridae <i>Leuctra</i>	A	A	-	A	VA	R	-
Nemouridae <i>Amphinemura</i>	A	C	-	-	P	-	-
	-	-	P	-	P	R	R
Peltoperlidae <i>Peltoperla</i>	-	R	-	-	R	-	-
Perlidae <i>Beloneuria</i>	-	-	-	R	-	-	-
Periodidae <i>Cultus</i>	P	-	-	R	-	-	-
	R	-	-	-	-	R	-
Taenioptergidae <i>Taeniopteryx</i>	P	P	-	-	C	-	-
<b>CADDISFLIES</b>							
Hydropsychidae <i>Dipterona</i>	-	A	P	A	C	A	-
	A	A	-	P	-	C	-
	R	P	-	-	-	-	-
Hydroptilidae <i>Hydroptilla</i>	-	-	R	-	-	-	-
	P	P	-	-	A	-	-
Lepidostomatidae <i>Lepidostoma</i>	-	-	-	R	-	R	-
Limnephilidae <i>Pycnopsyche</i>	-	-	-	R	-	-	-
Philopotamidae <i>Dolophilodes</i>	A	C	-	P	-	R	-
	-	-	-	R	-	-	-
Polycentropodidae <i>Polycentropus</i>	P	-	-	C	R	R	-
Rhyacophilidae <i>Rhyacophila</i>	A	C	P	C	C	R	-
<b>TRUE FLIES</b>							
Ceratopogonidae sp.	-	-	-	R	-	-	R
Chironomidae spp.	A	A	P	VA	C	P	-
Empididae <i>Clinocera</i>	-	-	-	-	R	-	-
	-	-	-	-	P	-	-
Tipulidae <i>Dicranota</i>	-	P	-	P	P	R	-
	C	C	-	P	-	-	-
	-	-	-	P	R	-	-
	-	R	R	-	P	-	-
<b>MISC. INSECTS</b>							
Curculionidae sp.	-	-	R	-	-	-	-
Elmidae <i>Optoservus</i>	-	-	-	-	R	-	-
	P	C	-	-	-	-	-
	C	R	-	-	-	-	-
	-	-	-	-	R	-	-
Hydrophilidae <i>Hydrochus</i>	-	-	R	-	-	-	-
Psephenidae <i>Psephenus</i>	-	-	-	-	P	-	-
Ptilodactylidae <i>Anchytarsus</i>	-	-	R	-	-	-	-
Pyralidae sp.	-	-	R	-	-	-	-
Sialidae <i>Sialis</i>	-	-	-	-	C	R	-
Gomphidae <i>Lanthus</i>	-	P	-	P	-	-	-
<b>OTHER TAXA</b>							
Oligochaeta spp.	C	P	A	P	R	-	-
Cambaridae sp.	R	P	-	P	-	-	-
Planorbidae sp.	-	-	R	-	-	-	-
Sphaeriidae sp.	-	-	-	P	-	-	-
<b>Total # of Taxa</b>	<b>23</b>	<b>26</b>	<b>13</b>	<b>23</b>	<b>26</b>	<b>14</b>	<b>2</b>

1: R - rare, <3; P - 3-9; C - 10-24; A - 25-99; VA - ≥ 100

**TABLE 6**  
**FISHES**  
**SOUTH FORK LITTLE CONEMAUGH RIVER,**  
**CAMBRIA COUNTY**

station (DEP/PFBC)  sample source <sup>1</sup>	1SFLC		2RR	4SFLC	near 6SFLC *
	DEP	0101 PFBC	0101 PFBC	0201 PFBC	0202 PFBC
<i>Salvelinus fontinalis</i> , brook trout <sup>2</sup>	X	81 / 13	52 / 0	60 / 10	30 / 6
Section Biomass Estimates	-	31.09 kg/ha	-	-	-
<i>Oncorhynchus mykiss</i> , rainbow trout <sup>2</sup>	-	-	-	0 / 9	0 / 1
<i>Catostomus commersoni</i> , white sucker	X	-	-	X	X
<i>Cottus sp.</i> , mottled sculpin	X	-	-	X	X
<b>TOTAL TAXA</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>4</b>

\* - 1.3 km upstream of PA Rt 869

1 - DEP Southwest Regional Office 1983 survey, PFBC survey was during June 1990.

2 - PFBC trout information: xx/yy = # of sublegal/legal sized (< 7"/≥ 7") trout marked on first pass. Biomass calculated only for 1SFLC brook trout. There were not enough trout collected at the other stations for biomass estimates.

X - occurrence

TABLE 7.  
SEMI-QUANTITATIVE BENTHIC MACROINVERTEBRATE DATA  
AND RBP METRIC COMPARISONS.  
S. FORK LITTLE CONEMAUGH RIVER, CAMBRIA COUNTY.  
NOVEMBER - DECEMBER, 1995

STATION / DATE:	Reference <sup>1</sup>		Candidate <sup>1</sup>						
	PR*	CSC*	1SFLC	2RR	3BR	4SFLC	5UNT	6SFLC	7SFLC
TAXA	951106	951106	951219	951219	951219	951218	951218	951115	951115
<b>MAYFLIES</b>									
Ephemereleidae <i>Ephemera</i>	4	9	-	1	-	-	-	-	-
<i>Eurytopheila</i>	1	4	1	2	-	3	-	1	-
Leptophlebiidae <i>Paraleptophlebia</i>	-	1	-	-	-	6	-	-	-
Heptageniidae <i>Epeorus</i>	3	7	-	-	-	-	-	-	-
<i>Stenacron</i>	-	-	1	-	-	2	-	-	-
<i>Stenonema</i>	13	10	4	20	-	16	-	-	-
<b>STONEFLIES</b>									
Capniidae <i>Allocaenia</i>	-	-	-	-	11	-	-	-	-
<i>Paracania</i>	-	2	52	9	-	12	36	2	-
Chloroperidae <i>Sweltsa</i>	-	-	1	-	-	-	-	-	-
Leuctridae <i>Leuctra</i>	3	-	10	14	-	7	63	2	-
Nemouridae <i>Amphinemura</i>	-	-	10	4	-	-	1	-	-
<i>Soyedina</i>	-	-	-	-	6	-	-	1	1
Pettoperidae <i>Tallaperla</i>	1	-	-	-	-	-	-	-	-
Perlidae <i>Beloneuria</i>	-	-	-	-	-	1	-	-	-
<i>Acroneuria</i>	-	1	-	-	-	-	-	-	-
Perlodidae <i>Cultus</i>	-	-	1	-	-	-	-	-	-
<i>Diploperla</i>	-	1	-	-	-	-	-	-	-
<i>Isoperla</i>	1	-	-	-	-	-	-	1	-
Taenioptergidae <i>Taeniopteryx</i>	10	1	1	2	-	-	-	-	-
<b>CADDISFLIES</b>									
Hydropsychidae <i>Cheumatopsyche</i>	12	14	-	-	-	-	-	-	-
<i>Diplectrona</i>	-	-	-	16	4	22	3	34	-
<i>Hydropsyche</i>	18	13	6	11	-	1	-	11	-
<i>Parapsyche</i>	-	-	-	1	-	-	-	-	-
Hydroptilidae <i>Hydroptila</i>	-	-	-	-	1	-	-	-	-
<i>Palaeagapetus</i>	-	-	1	1	-	-	8	-	-
Lepidostomatidae <i>Lepidostoma</i>	-	-	-	-	-	-	-	1	-
<i>Pycnopsyche</i>	-	-	-	-	-	1	-	-	-
Philopotamidae <i>Dolophilodes</i>	16	30	6	4	-	2	-	2	-
Polycentropodidae <i>Polycentropus</i>	-	-	1	-	-	6	-	1	-
Rhyacophilidae <i>Rhyacophila</i>	3	1	6	6	3	3	6	2	-
<b>DIPTERA</b>									
Ceratopogonidae sp.	-	-	-	-	-	-	-	-	1
Chironomidae spp.	14	7	7	11	6	28	4	8	-
Tipulidae <i>Dicranota</i>	1	5	-	1	-	1	1	1	-
<i>Hexatoma</i>	-	-	3	4	-	2	-	-	-
<i>Limnophila</i>	-	-	-	-	-	1	-	-	-
<i>Tipula</i>	-	1	-	-	1	-	2	-	-
<b>MISC. INSECT TAXA</b>									
Curculionidae sp.	-	-	-	-	2	-	-	-	-
Elmidae <i>Oulimnius</i>	2	1	1	6	-	-	-	-	-
<i>Promoresia</i>	9	1	2	-	-	-	-	-	-
Hydrophilidae <i>Hydrochus</i>	-	-	-	-	1	-	-	-	-
Psephenidae <i>Psephenus</i>	-	-	-	-	-	-	1	-	-
Ptilodactylidae <i>Anchyrtarsus</i>	-	-	-	-	1	-	-	-	-
Pyralidae sp.	-	-	-	-	1	-	-	-	-
Sialidae <i>Sialis</i>	-	-	-	-	-	-	4	1	-
Gomphidae <i>Lanthus</i>	-	1	-	1	-	1	-	-	-
<b>NON-INSECT TAXA</b>									
Cambaridae sp.	-	-	-	1	-	1	-	-	-
Oligochaeta	-	-	2	1	29	1	-	-	-
Planorbidae sp.	-	-	-	-	1	-	-	-	-
Sphaeriidae sp.	-	-	-	-	-	1	-	-	-
<b>METRIC</b>									
#1 - Taxa richness	16	19	19	20	13	21	11	14	2
C/R %			1	1.25	0.813	1.105	0.688	0.737	0.105
bcs**	6	6	6	6	6	6	4	4	0
#2 - modified EPT Index	10	11	12	12	4	11	6	9	1
C/R %			1.091	1.2	0.4	1	0.6	0.818	0.091
bcs**	6	6	6	6	0	6	4	6	0
#3 - modified Hiisenhoff	3	2.5	1.9	2.4	6	2.7	0.8	1.8	3
C-R *			-0.6	0.6	3	0.2	-2.2	-0.7	0.5
bcs**	6	6	6	6	0	6	6	6	6
#4 - % Dominant Taxon	16	27	45	17	44	24	50	50	50
C-R *			18	1	26	3	34	23	23
bcs**	6	6	6	6	0	6	6	6	0
#5 - % modified Mayfly	19	28	5	20	0	22	0	1	0
C-R *			23	-1	19	6	19	27	28
bcs**	6	6	2	6	0	6	0	2	0
BCS Total **	30	30	26	30	6	30	18	24	6
C/R %			86.7	100	20	100	60	80	20
Ch. 93 recommendation			HQ	EV	NC	EV	NC	NC	NC

1 - shaded reference column is comparison for shaded candidate columns

Original: 1874  
Copies: Smith  
Sandusky  
Wyatte

# BENS CREEK

CAMBRIA COUNTY

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## SPECIAL PROTECTION EVALUATION REPORT WATER QUALITY STANDARDS REVIEW

Segment: Basin  
Drainage List: T  
Stream Code: 46098

QUALITY ASSESSMENT UNIT (TES)  
DIVISION OF ASSESSMENT AND STANDARDS  
BUREAU OF WATER QUALITY MANAGEMENT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

AUGUST 1996

## INTRODUCTION

The Pennsylvania Department of Environmental Protection has developed water quality standards for all of the surface waters in the State. These standards, which are designed to safeguard Pennsylvania's streams, rivers, and lakes, consist of both use designations and the criteria necessary to protect those uses.

The Department's Special Protection program is a key element of a national and state program to prevent water pollution. Simply stated, the purpose of the program is to keep clean waters clean and provide Special Protection to exceptionally good quality waters and waters that represent outstanding environmental resources.

Special Protection is provided to streams designated as "High Quality Waters" or "Exceptional Value Waters." These classifications describe streams with excellent existing water quality and environmental features which are deserving of Special Protection. The water quality in a "High Quality Waters" stream can be lowered only if a discharge is the result of necessary social and economic development, the water quality criteria are met, and all existing uses of the stream are protected. "Exceptional Value Waters" are to be protected as existing quality. The water quality in "Exceptional Value Waters" shall not be degraded.

As part of its ongoing review of the water quality standards, the Department conducts evaluations of streams nominated for Special Protection designation. This report contains the results of such an evaluation.

## **EXECUTIVE SUMMARY**

### **Bens Creek - Cambria County Drainage List T**

#### **BACKGROUND**

Bens Creek is a tributary to the Little Conemaugh River located in Portage and Washington Townships, Cambria County (Figure 1). The Bens Creek basin drains approximately eight square miles. Bens Creek is presently classified for High Quality-Cold Water Fishes (HQ-CWF). The Pennsylvania Fish & Boat Commission (PFBC) manages the lower mainstem of Bens Creek under its trout stocking program and the upper portion of Bens Creek as Class A Wild Mixed Trout Waters. The PFBC requested that Bens Creek be considered for redesignation as Exceptional Value Waters (EV). Further, the PFBC has proposed the Class A section to be classified as a "Wilderness Trout Stream". This report is based on an evaluation applying the Special Protection Waters Selection Criteria (May 1993) to information gathered from various government agency files and field surveys conducted during November 1995.

Approximately 5% of the watershed is managed by the Pennsylvania Game as State Game Lands # 198. Most of the watershed is private forests. Residential uses are restricted primarily to the lower basin community of Bens Creek. Portage and Washington Townships have sub-division ordinances but no zoning ordinances in effect.

The Bens Creek watershed is perched on the leading edge of the Allegheny Front; a geologic feature that represents a major geologic change from the eastern non-bituminous coal regions to the western bituminous coal fields. The most important geologic exposure in the Bens Creek basin is the coal-bearing Allegheny Group that has supported several coal mining operations (deep and strip mines) in the past.

#### **FINDINGS**

**Water Quality and Uses.** Except for an unnamed tributary (Station 3-UNT), the water quality of Bens Creek is generally excellent for most of the measured parameters. Several parameters displayed cumulative impacts from mine-related land use and development. Hardness, total dissolved solids, sulfate, manganese, aluminum, and bacterial concentrations increased as the water flowed downstream. With the exception of alkalinity as noted above, all other parameter results were better than applicable criteria, however. Copper, a parameter with a hardness-based criterion, had values below the laboratory reporting limit, thus precluding comparison. Historical chemistry results indicate poorer water quality existed when some of the mines were operating. Some pre-1975 in-stream sample results had pH values of less than 5.0 with acidity often exceeding alkalinity.

Presently, there are no NPDES permitted point source discharges in the watershed. Previously active permits were mine drainage permits. Nonpoint sources include on-lot septic fields serving residences in the study area and groundwater seeps emanating from old deep mines and stripping operations.

There are four permitted water company withdrawals in the study area; two wells and one reservoir owned by the Highland Sewer & Water Authority (HSWA) and one stream diversion owned by the Portage Water & Sewer Authority (PWSA). A new well owned by PWSA is not yet in service.

Aquatic biota results were variable; reflecting each station's local water and habitat qualities. Pollution sensitive taxa and densities were excellent at the cleaner, unimpacted areas and poorer at the areas with noticeable impacts. The PFBC manages Bens Creek's upper section as a Class A Wild Mixed Trout fishery. The biomass for this stream section was 53.29 kilograms/hectare (kg/ha).

**National, State, or Local Significance.** Presently, there are no attributes that meet the selection criteria for national, state, or local significance. The PFBC's "Wilderness Trout Stream" proposal, once finalized, would meet the Special Protection Criterion for Exceptional Value Waters as stated in EV Category II.3 - "Wilderness Trout Stream". However, since this designation is yet to be adopted, this criterion has not been met.

**Ecological or Recreational Significance.** The Pennsylvania Natural Diversity Inventory (PNDI) database was searched to identify any aquatic habitat-based Species of Special Concern in the watershed. None were found.

The candidate/reference Biological Condition Scores ranged from 27 to 100%. Scores at stations 1-, 2-, and 4BC were 100% of the reference, and thus meet EV Category IV.2 - waterbodies with outstanding ecological attributes. The other two stations' samples scored 60% and 27% of the reference.

## **RECOMMENDATIONS**

Based on applicable regulatory definitions and the Department's Special Protection Waters Selection Criteria, the Department recommends that the protected use designation of the Bens Creek basin be revised as follows:

- Bens Creek basin - source to confluence of unnamed tributary 46099: change designation from High Quality - Cold Water Fishes (HQ-CWF) to Exceptional Value (EV). This recommendation is based on Exceptional Value category IV.2 - waters with outstanding ecological attributes and includes 11 stream miles;
- Bens Creek basin - downstream from (and including) unnamed tributary 46099: change designation from High Quality - Cold Water Fishes (HQ-CWF) to Cold Water Fishes (CWF). This recommendation is based on the historical deep mines, tippel refuse piles, and acid mine drainage that were present prior to November 25, 1975 (the date that defines Chapter 93's "existing uses") which indicates that the original HQ designation was incorrect. This recommendation affects 4.7 stream miles.

These proposed revisions differ from the original PFBC request in that the Department's EV recommendation includes one-half mile less of Bens Creek mainstem than requested. The portion of Bens Creek basin recommended for EV upgrade begins at a point further upstream at unnamed tributary 46099 (river mile 0.74) instead of PFBC's suggested starting point near PA 53 (river mile 0.2). Further, the action recommending downgrading the lower HQ-CWF portion of Bens Creek to CWF was not part of the PFBC's original request.

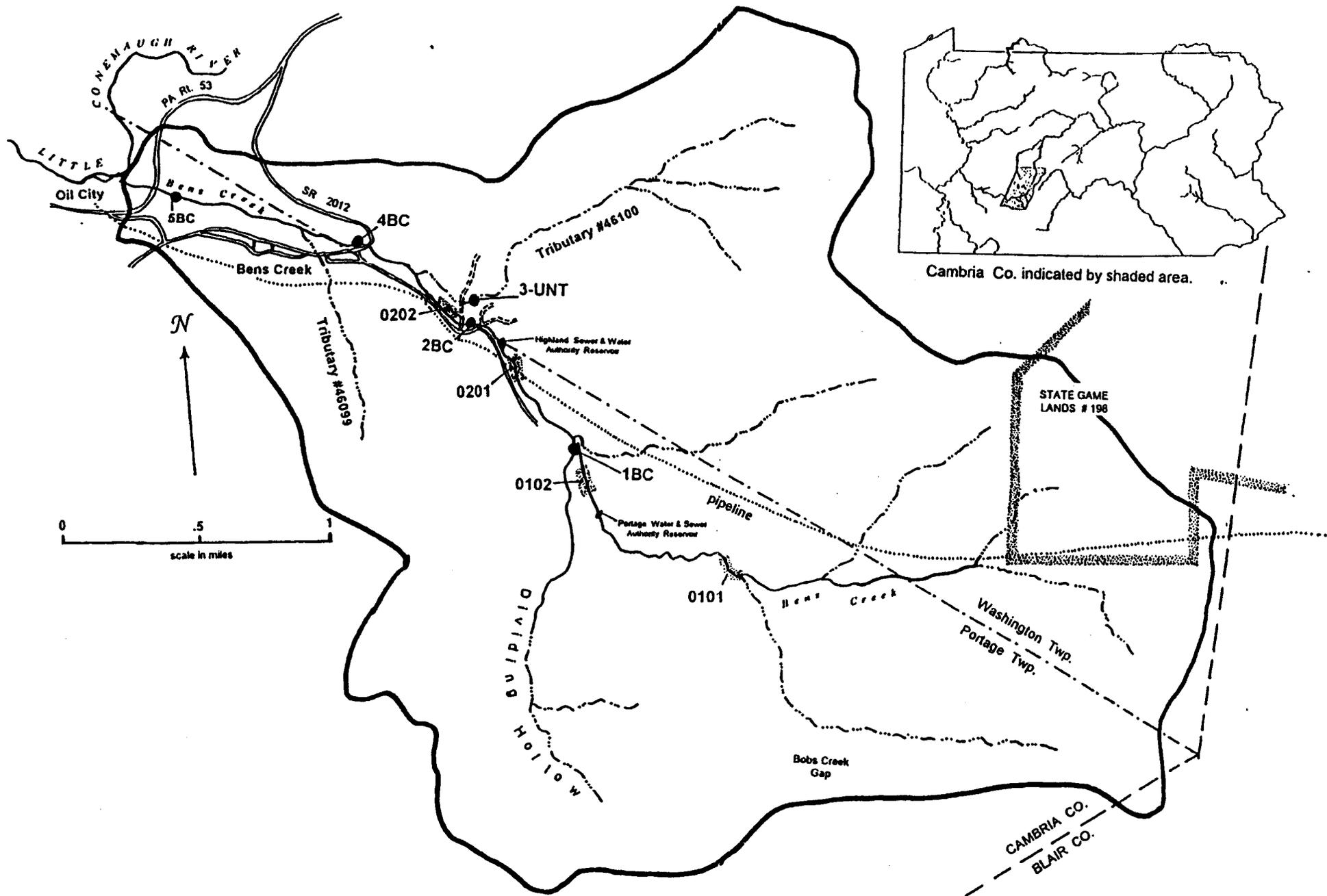


FIGURE 1. STATION LOCATIONS; BENS CREEK WATERSHED, CAMBRIA CO.

## GENERAL WATERSHED DESCRIPTION

Bens Creek is a tributary to the Little Conemaugh River located in Portage and Washington Townships, Cambria County (Figure 1). The Bens Creek basin drains approximately eight sq. mi. (5120 acres). Bens Creek is presently classified for High Quality-Cold Water Fishes (HQ-CWF). The lower mainstem of Bens Creek is managed by the Pennsylvania Fish & Boat Commission (PFBC) under its trout stocking program. The PFBC manages the upper portion of Bens Creek as Class A Wild Mixed Trout Waters. Based on this Class A classification, the PFBC requested that the basin be redesignated Exceptional Value and has proposed it be classified as a "Wilderness Trout Stream" under their stream management program.

Approximately 5% of the watershed (250+ acres) is owned by the Pennsylvania Game Commission and is managed as part of State Game Lands # 198. Most of the Bens Creek watershed is private forests. Almost all of the residential uses are restricted to the lower portion of the basin in the community of Bens Creek. Both Portage and Washington Townships have enacted sub-division ordinances, but neither township has zoning ordinances in effect.

The Bens Creek watershed is perched on the leading edge of the Allegheny Front; a geologic feature that traverses the Commonwealth trending in a southwesterly>northeasterly direction. The Allegheny Front represents a major change in surficial geologic structure from the eastern non-bituminous coal regions to the bituminous coal fields to the west. The most important geologic exposure associated with the Bens Creek basin is the coal-bearing Allegheny Group. There are several historic coal mining operations (inactive deep and strip mines) located in the lower/middle portions of the study area that were developed on Allegheny Group coals.

This report is based on an evaluation applying the Special Protection Waters Selection Criteria (May 1993) to information gathered from various government agency files and field surveys conducted during November 1995.

## WATER QUALITY AND USES

### Surface Water

The Department collected water quality and biological data from the study area during November 1995 field surveys. Five stations were sampled in the study area (Figure 1 & Table 1). The Pennsylvania Fish & Boat Commission (PFBC) conducted a trout population biomass estimate survey on the mainstem of Bens Creek during July 1995 (Lorson 1995).

Laboratory analysis results of Bens Creek surface waters are presented in Table 2. Except for an unnamed tributary (Station 3-UNT), the water quality of Bens Creek is generally excellent for most of the measured parameters. Bens Creek is a softwater system with naturally low buffering capacity. Excluding Station 3-UNT, pH values ranged from 6.2-6.4 with alkalinities ranging from 8.6-15.8 mg/l (below the alkalinity criterion of 20 mg/l). Other parameters associated with the natural buffering system (hardness, calcium, and magnesium) exhibited wider concentration variability. Several parameters displayed cumulative impacts from land use and development; primarily past mining activities. Hardness, total dissolved solids, sulfate, manganese, aluminum, and bacterial concentrations increased as the water flowed downstream. With the exception of alkalinity as noted above, all other parameter results were better than applicable criteria. Copper, a parameter with a hardness-based criterion, had values below the laboratory reporting limit, thus precluding comparison.

**Coal mining impacts.** Several measured parameters reflect water quality draining from surface and deep mined areas. The unnamed tributary (3-UNT) receives drainage from an area that has experienced disruption from several past mining operations. Station 3-UNT's pH was suppressed (4.3) and alkalinity (0 mg/l) was exceeded by acidity (19.6 mg/l). Manganese (1290 mg/l), zinc (157 mg/l), and aluminum (1770 mg/l) concentrations, metals that may be elevated by surface mining activities, were noticeably higher than background, headwater values. Despite the presence of these elevated parameters, this water is not completely characteristic of typical mine drainage. Surprisingly, sulfate and iron concentrations (35 & 40 mg/l, respectively) were much lower than one would expect to find in mine drainage - acidic or neutralized. The concentrations of pH, alkalinity, and zinc do not meet applicable surface water quality criteria. Near the mouth of Bens Creek, Station 5BC receives any drainage seeping from deep mine spoil piles located along Bens Creek in addition to any cumulative mine related drainage from the basin's other mined areas upstream. Hardness (54 mg/l) and total dissolved solids (102 mg/l) values measured at 5BC were the highest found during the Department's survey. Manganese and aluminum concentrations were also elevated when compared to background values at 1- & 2BC.

At the time of the survey, impacts from mine drainage at station 5BC were minimal. However, historical chemistry results (Table 2A) indicate poorer water quality existed when some of these old mining operations (Figure 2) were active. The pH values measured at locations 4 (near 3-UNT), 8, and 10 (5BC) for some pre-1975 samples ranged from 4.3 to 4.9.

**Permitted discharges.** Presently, there are no NPDES permitted point-source discharges in the watershed. Any NPDES permitted discharges that were previously active were issued by the Bureau of Mining & Reclamation (BMR) in their coal mine drainage permit process or the Bureau of Water Quality Management prior to the existence of BMR. These would include only some of the most recent mining operations because earlier mine permitting regulations did not require NPDES permits. Some of these operations date back to 1948. Table 2A & 3 provide water quality data and permit information regarding these old mining operations. Nonpoint-sources include on-lot septic fields serving residences in the study area and groundwater seeps emanating from mined areas.

There are four permitted water withdrawals in the study area; two wells and one reservoir owned by the Highland Sewer & Water Authority (HSWA) and one stream diversion owned by the Portage Water & Sewer Authority (PWSA). According to HSWA, their reservoir on Bens Creek is no longer in service. There is a new well in the watershed that is also owned by PWSA but it is not yet in service.

## Aquatic Biota

Habitat and benthic macroinvertebrate data were collected from five locations in the study area. Since the PFBC had sampled the fish community in July 1995, no electrofishing was conducted during the Department's survey. The results of the Department's November 1995 field survey and PFBC's July 1995 fish data are presented in Tables 4-6. Station locations for benthic and fish data collection are shown on Figure 1.

**Habitat.** Instream habitat conditions were evaluated at each station where benthic macroinvertebrates were sampled. The habitat evaluation consists of rating twelve habitat parameters (Table 4) to derive a station habitat score. For the two unimpacted stations (1- & 2BC), the habitat scores were excellent. Riffles were well developed - exhibiting clean, loosely compacted substrate materials. There was very little evidence of channel alteration or other physical disturbances. Banks were very stable with excellent riparian vegetation. The other three stations (3-UNT, 4- & 5BC) exhibited noticeable habitat degradation, due primarily to disruptive socio-economic pressures from mining and residential development.

**Benthos.** Benthic macroinvertebrates (fish-food organisms) were collected at each station (Table 5). The benthos was sampled using techniques adapted from EPA's Rapid Bioassessment Protocols (RBPs; Plafkin, et al 1989). The benthic results for the upper watershed (1- & 2BC) were excellent; indicative of its high water quality. The benthic populations at 4BC were similar but not as good as at 1- & 2BC. Benthic densities at this station were considerably lower. However, the three major environmentally sensitive taxa: mayflies (Ephemeroptera), stoneflies (Plecoptera), and caddisflies (Trichoptera) were well represented at all three stations.

The benthic populations at Stations 3-UNT & 5BC reflected water quality conditions that have been impacted by mining activities. There were noticeably fewer number of individuals and taxa found at these two stations. Except for one mayfly individual at 5BC, this acid sensitive group was virtually absent from 3-UNT and 5BC. Further, no stoneflies (another environmentally sensitive group) were collected from 5BC.

**Fish.** The PFBC manages Bens Creek in two sections (Figure 1). The upper section is managed as Class A Wild Mixed Trout Waters. This segment (PFBC Section # 01) extends from the headwaters downstream to the confluence of the unnamed tributary entering from Dividing Hollow. The lower section (02) is managed under PFBC's trout stocking program. This section receives stockings of brook trout; both from the PFBC and a local sportsmen group's cooperative nursery.

A PFBC trout population estimate survey was conducted on Bens Creek in July 1995. Trout biomass was estimated for three stations; 0101, 0102, and 0202 (Table 6). Estimates for station 0201 are not provided because not enough fish were collected for meaningful calculations. The biomass (mixed brook/brown trout) estimates calculated by the PFBC were 53.29 and 37.05 kilograms/hectare (kg/ha) for Sections 01 and 02, respectively. The criteria for a stream section to be classified as Class A Wild Mixed Trout Waters includes the requirement that the combined brook and brown trout biomass must be at least 40 kg/ha and that neither species exceed 75% of the total. PFBC Section 01 meets these Class A criteria. Section 02 did not meet any Class A Trout Waters criteria, therefore it was kept in the trout stocking program. The results of PFBC's survey indicates that Bens Creek presently supports designated uses.

## **NATIONAL, STATE, OR LOCAL SIGNIFICANCE**

Presently, there are no attributes in the study area that meet the Department's Special Protection Waters selection criteria for national, state, or local significance. The PFBC has proposed that the upper portion of Bens Creek be designated as a "Wilderness Trout Stream". Once finalized, this portion of Bens Creek would meet the Special Protection Criterion for Exceptional Value Waters as stated in EV Category II.3 - "Wilderness Trout Stream". However, since this designation is yet to be adopted, this criterion has not been met.

## **ECOLOGICAL OR RECREATIONAL SIGNIFICANCE**

The Pennsylvania Natural Diversity Inventory (PNDI) database was searched to identify any Species of Special Concern in the watershed. No aquatic habitat based elements were found in the study area.

Based on the trout population, the Special Protection Criterion for High Quality Waters (#3: "Class A Wild Trout Waters") is met in the PFBC's stream management Section 01. This is that portion of Bens Creek's mainstem upstream of the Dividing Hollow unnamed tributary (river mile index = 2.2). However, Bens Creek is already classified as HQ-CWF.

In order to review Bens Creek's present use designation, an ecological evaluation of the basin was conducted. Benthic macroinvertebrate data from five stations were analyzed using several different RBP metrics. The metric evaluation results (Table 7) were quite varied.

The metric values from candidate stream stations were compared to those from a reference station. Bens Creek's ecological evaluation process compares the benthic metrics values listed in Table 7 for Bens Creek stations to those for a reference station located on Piney Run; just several miles south of the study area. Bens Creek and the Piney Run reference station are situated in the Central Appalachians Forested Hills & Mountains Sub-Ecoregion (69a) and were sampled during November 6-9, 1995. Bens Creek and Piney Run fall in the <10 sq. mi. category. The resulting comparisons are assigned a biological condition score (BCS; 6,4,2 or 0). The BCSs are added to obtain a total score for each station. The candidate stream's scores are compared to the reference stream's total score.

The candidate/reference comparisons based on the RBP sub-samples ranged from 27 to 100%. The total BCS for Stations 1-, 2-, and 4BC exceeded the Special Protection Criterion for Exceptional Value Waters as stated in EV Category IV.2 - "Other Waters of Substantial Recreational or Ecological Significance: Outstanding Ecology". As a result of the ecological evaluation process, the Special Protection designation should be changed for portions of the South Fork Little Conemaugh River study area.

## **RECOMMENDATIONS**

Based on applicable regulatory definitions and the Department's Special Protection Waters Selection Criteria, the Department recommends that the protected use designation of the Bens Creek basin be revised as follows:

- Bens Creek basin - source to confluence of unnamed tributary 46099: change designation from High Quality - Cold Water Fishes (HQ-CWF) to Exceptional Value (EV). This recommendation is based on Exceptional Value category IV.2 - waters with outstanding ecological attributes and includes 11.0 stream miles;
- Bens Creek basin - downstream from (and including) unnamed tributary 46099: change designation from High Quality - Cold Water Fishes (HQ-CWF) to Cold Water Fishes (CWF). This recommendation is based on the historical deep mines, tippel refuse piles, and acid mine drainage that were present prior to November 25, 1975 (the date that defines Chapter 93's "existing uses") which indicates that the original HQ designation was incorrect. This would affect 4.7 stream miles.

## REFERENCES

- Lorson, R. 1995. Trout biomass estimates for Bens Creek, Cambria County: Section 01. File Information, Pennsylvania Fish & Boat Commission.
- Plafkin, JL, MT Barbour, KD Porter, SK Gross, & RM Hughes. 1989. Rapid Bioassessment Protocols for use in streams and rivers: Benthic Macroinvertebrates and Fish. United States Environmental Protection Agency. EPA/444/4-89-001
- Bureau of Mining & Reclamation (BMR). Mylar map files - Harrisburg Central Office. Pennsylvania Department of Environmental Protection.
- \_\_\_\_\_. Mine drainage permit file information - Ebensburg District Office. Pennsylvania Department of Environmental Protection.
- Bureau of Abandoned Mine Reclamation (BAMR). National Abandoned Lands Inventory System (Problem Area data base) - Ebensburg District Office. Pennsylvania Department of Environmental Protection.

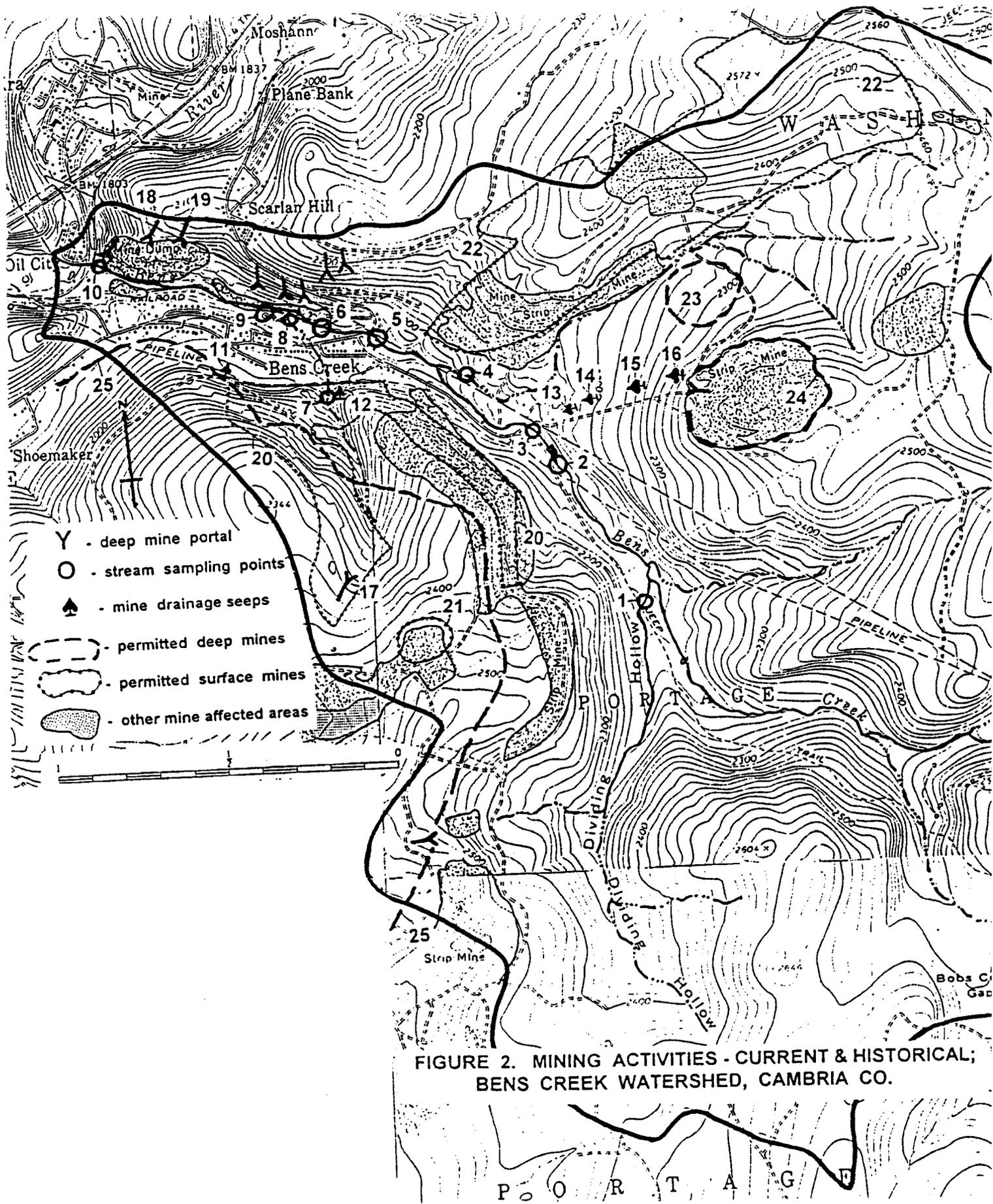


FIGURE 2. MINING ACTIVITIES - CURRENT & HISTORICAL; BENS CREEK WATERSHED, CAMBRIA CO.

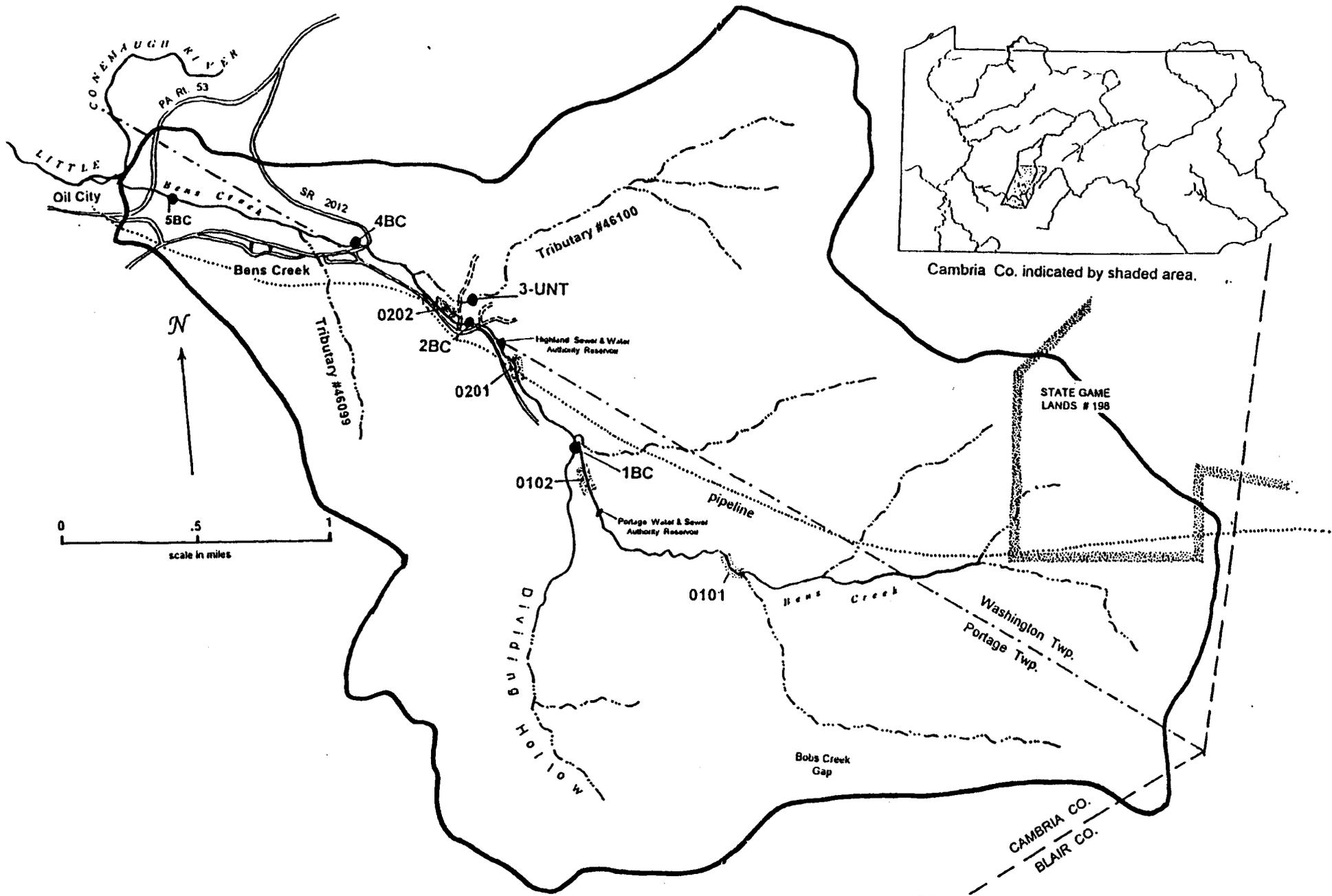


FIGURE 1. STATION LOCATIONS; BENS CREEK WATERSHED, CAMBRIA CO.

**TABLE 1**  
**STATION LOCATIONS**  
**BENS CREEK - CAMBRIA COUNTY**

STATION	STREAM CODE	RIVER MILE INDEX	LATITUDE/ LONGITUDE	LOCATION
PINEY RUN reference	45295	3.35	40°08'40" 78°43'44"	immediately upstream from the lower limits of Piney Run's EV segment; along T-816; Shade Twp., Somerset Co.
1BC	46098	2.2	40°23'17" 78°36'34"	Bens Creek; immediately upstream from power line clearing. Washington Twp., Cambria Co.
2BC	46098	1.5	40°23'40" 78°37'02"	Bens Creek; immediately upstream of lower strip mine road; approx. 0.15 mi downstream of water supply; Washington Twp., Cambria Co.
3UNT	46100	0.25	40°23'45" 78°37'02"	unnamed tributary that parallels strip mine; immediately upstream of road crossing (same road referenced for 2BC. Washington Twp., Cambria Co.
4BC	46098	1.00	40°23'56" 78°37'29"	at SR 2012 bridge; on the Portage/Washington Twp. boundary line, Cambria Co.
5BC	46098	0.2	40°24'06" 78°38'21"	approx. 100 m upstream of PA Rt 53 bridge; Portage Twp., Cambria Co.

**TABLE 2**  
**WATER CHEMISTRY<sup>1</sup>**  
**BEN'S CREEK, CAMBRIA COUNTY**  
**NOVEMBER 6-9, 1995**

Station / Sample ID/ Date	1BC 706 11/6/95	2BC 707 11/9/95	3UNT 708 11/9/95	4BC 709 11/9/95	5BC 705 11/6/95
<b>Field Parameters</b>					
Temp (°C)	4.4	4.6	5	-	5.4
pH	6.3	5.9	4.5	-	5.9
Cond (µmhos)	30	60	147	-	182
Diss. O <sub>2</sub>	11	11.5	10.5	-	3.7
<b>Laboratory Parameters</b>					
pH	6.3	6.3	4.3	6.4	6.2
Alkalinity	15.2	13.8	0	15.8	8.6
Acidity	0	0	19.6	0	0
Hardness	12	12	37	32	54
T Diss. Sol.	20	30	58	62	102
Susp. Sol.	< 2	< 2	< 2	< 2	< 2
NH <sub>3</sub> -N	<.02	<.02	<.02	<.02	0.13
NO <sub>2</sub> -N	<.004	<.004	<.004	<.004	<.004
NO <sub>3</sub> -N	0.57	0.44	<.04	0.37	0.35
Kjeldahl-N	<.2	<.2	<.2	<.2	<.2
Total P	0.02	0.02	0.02	0.02	0.02
Ca	5.8	5.84	4.77	10	13.7
Mg	0.87	1.1	4.82	3.31	4.75
Cl	2	2	2	2	3
SO <sub>4</sub>	< 10	< 10	35	33	53
As*	< 4	< 4	< 4	< 4	< 4
Cd*	<.2	<.2	0.59	0.14	<.2
hex Cr*	< 10	< 10	< 10	< 10	< 10
Cr*	< 50	< 50	< 50	< 50	< 50
Cu*	< 10	< 10	< 10	< 10	< 10
Fe*	17	201	40	192	100
Pb*	< 1	< 1	< 1	< 1	< 1
Mn*	24	75	<b>1290</b>	381	401
Ni*	< 25	< 25	53	< 25	< 25
Zn*	13	< 10	<b>157</b>	28	33
Al*	< 135	180	1770	549	596
fecal coliforms	< 10	-	-	430	70
fecal strep.	< 10	-	-	40	130

<sup>1</sup> - Except for pH & conductance and indicated otherwise, all values are total concentrations in mg/l

Shading: values that are of special concern

**Bold italicizing**: values that exceed Ch 93 criteria

\* - Total concentrations in µg/l

**TABLE 2A**  
**HISTORICAL MINING RELATED WATER CHEMISTRY**  
**BENS CREEK, CAMBRIA COUNTY**

Feature No. *	Date	pH	alkalinity (mg/l)	acidity (mg/l)	Fe (ug/l)	SO <sub>4</sub> (mg/l)
<b>in-stream sampling</b>						
1 (1BC*)	8/23/74	6.9	25	0	120	-
	8/26/76	6.8	16	0	<10	2
2	8/26/76	6.8	10	0	10	2
3 (2BC*)	11/14/67	6.6	+ 4 **		0	12
	8/23/74	6.7	20	0	460	-
4 (3-UNT*)	11/14/67	4.3	- 24 **		0	47
	8/26/76	6.6	9	0	30	6
5 (4BC)	11/14/67	6.3	- 2 **		0	12
	8/23/74	6.2	16	0	300	-
6	8/23/74	6.4	16	0	400	-
7	8/26/76	3.6	0	64	540	200
8	8/23/74	4.6	8	6	260	-
9	8/23/74	6.6	16	0	300	-
10 (5BC)	11/14/67	4.9	- 10 **		0	33
	8/26/76	4.8	5	14	180	22
<b>surface seeps</b>						
11	?	3	-	-	3000	-
12	?	2.7	-	-	5000	-
13	1968	4.6	25	36	0	15
14	1975-76	3.7-6.5	0-12	0-10	0-3000	32-275
15	1975	3.1-3.5	0	26-43	2900-5900	20-200
16	1975-76	3.5-4.4	0-6	14-32	0-6000	42-300

\* - locations from Figure 2. Equivalent stations from Fig. 1 are parenthesized with nearest equivalent stations indicated with an \*

\*\* - reported values appear to be net differences between alkalinity and acidity.

**TABLE 3**  
**MINE RELATED POINT & NON-POINT DISCHARGE**  
**SOURCES. BENS CREEK, CAMBRIA COUNTY**

Map No.*	Feature	Description	Source**
11 - 16	seeps	surface seeps; probably associated with coal seam outcrops and/or deep mine pools.	BAMR map files
17	Deep mine	permit # 898; Beck Bros.; issued 7/22/48; seam unknown	BMR map files
18	Deep mine	permit # 566M042; HWZ Coal (Hughes #2) issued 6/30/67; Lower Kittanning (B) seam	BMR map files
19	Deep mine	permit # 990; CA Hughes; issued 2/17/49; Lower Kittanning (B) seam	BMR map files
20	Surface mine (& coal refuse)	permit # 4274SM17; Clarion (A'), Lower & Upper Kittanning (B,C'), and Lower & Upper Freeport (D,E) seams. This area was later repermited as a coal refuse site (# 11743043; Cooney Bros.)	BMR map files
21	Surface mine	permit # 14399; CE Powell; issued 1/27/55; Lower, Middle, & Upper Kittanning (B,C,C'), and Lower & Upper Freeport (D,E) seams.	BMR map files
22	Surface mine	permit # 3367BSM29; Cooney Bros.; Clarion (A'), Lower & Upper Kittanning (B,C'), and & Upper Freeport (E) seams.	BMR map files
23	Deep mine	permit # 1117; JA Wilkenson; issued 2/17/49; Upper Freeport (E) seam.	BMR map files
24	Surface mine	permit # 1064BSM1; Cooney Bros.; Lower & Middle Kittanning seams.	BMR map files
25	Deep mine	permit # 1174302; Universal Minerals; issued 1/31/75	BMR map files

\* - Map numbers are from Figure 2.

\*\* - BAMR - Bur. Abandoned Mine Reclamation, Ebensburg District Office

- BMR - Bur. Mining & Reclamation, Central Office mylar map files.

**TABLE 4**  
**HABITAT ASSESSMENT SUMMARY**  
**BEN'S CREEK, CAMBRIA COUNTY**  
**NOVEMBER 9, 1995**

HABITAT PARAMETER	STATIONS					REFERENCE
	1BC	2BC	3UNT	4BC	5BC	PINEY RUN
1 . instream cover	19	18	18	18	18	18
2 . epifaunal substrate	18	18	16	18	18	17
3 . embeddedness	19	17	17	15	14	18
4 . velocity/depth	16	19	13	18	15	20
5 . channel alterations	15	18	16	10	13	20
6 . sediment deposition	18	18	16	16	15	18
7 . riffle frequency	20	18	16	18	18	18
8 . channel flow status	18	18	13	14	15	18
9 . bank condition	18	18	16	14	8	18
10 . bank vegetation protection	17	18	16	13	8	17
11 . grazing/disruptive pressures	18	18	3	13	6	19
12 . riparian vegetation zone width	19	18	6	9	7	20
Total Score	215	216	166	176	155	221

**TABLE 5**  
**BENTHIC MACROINVERTEBRATE TAXA LIST<sup>1</sup>**  
**BENS CREEK, CAMBRIA COUNTY**  
**NOVEMBER 6-9, 1995**

Station / Date :	1BC	2BC	3UNT	4BC	5BC
TAXA	11/6/95	11/9/95	11/9/95	11/9/95	11/6/95
<b><u>MAYFLIES</u></b>					
Baetidae <i>Baetis</i>	-	R	-	P	-
Ephemerellidae <i>Ephemerella</i>	C	-	-	R	-
	R	P	-	-	R
Heptageniidae <i>Epeorus</i>	C	P	-	P	-
	P	P	-	-	-
	A	VA	-	A	-
Leptophlebiidae <i>Paraleptophlebia</i>	-	R	-	-	-
<b><u>STONEFLIES</u></b>					
Capnidae <i>Paracapnia</i>	A	A	C	C	-
Chloroperlidae <i>Sweltsa</i>	A	R	-	-	-
Leuctridae <i>Leuctra</i>	C	A	C	-	-
Nemouridae <i>Amphinemura</i>	A	R	-	C	-
Perlodidae <i>Diploperla</i>	P	P	-	-	-
Pteronarcidae <i>Pteronarcys</i>	R	-	-	-	-
Taenioptergidae <i>Taeniopteryx</i>	-	-	-	R	-
<b><u>CADDISFLIES</u></b>					
Glossosomatidae <i>Glossosoma</i>	P	-	-	-	-
Hydropsychidae <i>Aphropsyche</i>	-	-	C	-	-
	-	P	R	-	-
	A	C	-	P	P
	P	P	R	A	P
	R	-	-	-	-
Hydroptilidae <i>Hydroptila</i>	P	-	-	-	-
	R	-	-	-	-
Lepidostomatidae <i>Lepidostoma</i>	-	R	-	-	-
Philopotamidae <i>Chimarra</i>	-	-	-	R	-
	A	A	R	P	-
Polycentropodidae <i>Polycentropus</i>	R	-	-	R	-
Psychomiidae <i>Lype</i>	-	-	-	P	-
Rhyacophilidae <i>Rhyacophila</i>	A	C	P	P	P
<b><u>DIPTERA</u></b>					
Chironomidae spp.	VA	A	C	C	C
Empididae <i>Chelifera</i>	R	-	-	R	-
	-	P	-	-	-
	-	-	P	R	-
Phoridae sp.	-	-	R	-	-
Simuliidae <i>Simulium</i>	C	-	-	R	-
Tipulidae <i>Antocha</i>	R	-	R	-	-
	A	P	P	P	-
	R	P	-	R	-
	-	P	-	-	-
	-	-	-	R	-
	-	-	R	-	-
<b><u>OTHER INSECT TAXA</u></b>					
Hydrophilidae sp.	-	-	R	-	-
Elmidae <i>Optioservus</i>	-	R	-	R	-
	A	A	R	C	-
	VA	R	R	P	-
Megaloptera <i>Sialis</i>	-	-	R	-	-
Odonata <i>Lanthus</i>	R	P	-	-	-
<b><u>NON-INSECT TAXA</u></b>					
Cambaridae <i>Cambarus</i>	R	P	-	-	-
Oligochaeta sp.	-	-	-	-	R
Planorbidae sp.	-	-	R	-	-
<b>Total # of Taxa</b>	<b>30</b>	<b>27</b>	<b>18</b>	<b>24</b>	<b>6</b>

<sup>1</sup> R - rare, <3; P - 3-9; C - 10-24; A - 25-99; VA - >=100

**TABLE 6**  
**FISHES**  
**BENS CREEK, CAMBRIA COUNTY**

station / sample source <sup>1</sup>	0101		0102		0201		0202	
TAXA	PFBC		PFBC		PFBC		PFBC	
<i>Salmo trutta</i> , brown trout <sup>2</sup>	0	0/0	28.42	13/9	X <sup>2</sup>	4/1	35.22	26/19
<i>Salvelinus fontinalis</i> , brook trout <sup>2</sup>	38.36	93/9	11.38	68/2	X <sup>2</sup>	69/1	1.83	36/1
totals	38.36	93/9	39.80	7.36	-	73/2	37.05	62/20
Section Biomass Estimates	53.29 Kg/ha *				37.05 Kg/ha			
<i>Cottus sp.</i> , mottled sculpin	-		X		X		X	
TOTAL TAXA	1		3		3		3	

1 - PFBC survey was during July 1995.

2 - PFBC fish population biomass in kg/ha followed by # of sublegal/legal sized trout marked (<7"/= >7"). There were not enough trout collected to calculate biomass for 0201.

\* - calculation = (0101 brook trout biomass + 0102 brook trout biomass)/2 + 0102 brown trout biomass = (38.36 + 11.38)/2 + 28.42

X - PFBC occurrence

**TABLE 7**  
**SEMI-QUANTITATIVE BENTHIC MACROINVERTEBRATE DATA**  
**AND RBP METRIC COMPARISONS.**  
**BENS CREEK, CAMBRIA COUNTY.**  
**NOVEMBER 6-9, 1995**

Station / Date:	1BC	2BC	3UNT	4BC	5BC	PR*
TAXA	951106	951109	951109	951109	951106	951106
<b>MAYFLIES</b>						
Baetidae <i>Baetis</i>	-	-	-	2	-	-
Ephemeroellidae <i>Ephemerella</i>	2	-	-	-	-	4
		2	-	-	1	1
Leptophlebiidae <i>Paraleptophlebia</i>	-	1	-	-	-	-
Heptageniidae <i>Epeorus</i>	2	2	-	2	-	3
	1	1	-	-	-	-
	6	33	-	16	-	13
<b>STONEFLIES</b>						
Capnidae <i>Paracapnia</i>	5	8	19	15	-	-
Chloroperlidae <i>Swetia</i>	5	-	-	-	-	-
Leuctridae <i>Leuctra</i>	3	6	20	-	-	3
Nemouridae <i>Amphinemura</i>	11	-	-	11	-	-
Peltoperlidae <i>Tallaperla</i>	-	-	-	-	-	1
Perlodidae <i>Acroneuria</i>	-	-	-	-	-	-
	1	1	-	-	-	-
	-	-	-	-	-	1
Taenioptergidae <i>Taeniopteryx</i>	-	-	-	1	-	10
<b>CADDISFLIES</b>						
Glossosomatidae <i>Glossosoma</i>	1	-	-	-	-	-
Hydropsychidae <i>Aphropsyche</i>	-	-	16	-	-	-
	-	1	1	-	-	12
	4	4	-	3	4	-
	1	2	1	16	5	18
Hydroptilidae <i>Hydroptila</i>	1	-	-	-	-	-
Philopotamidae <i>Chimarra</i>	-	-	-	1	-	-
	5	11	1	2	-	15
Psychomyiidae <i>Lype</i>	-	-	-	3	-	-
Rhyacophilidae <i>Rhyacophila</i>	4	3	4	6	5	3
<b>DIPTERA</b>						
Chironomidae spp.	23	21	14	15	17	14
Empididae <i>Hemerodromia</i>	-	1	-	-	-	-
	-	-	3	-	-	-
Phoridae sp.	-	-	1	-	-	-
Simuliidae <i>Simulium</i>	3	-	-	-	-	-
Tipulidae <i>Antocha</i>	-	-	1	-	-	-
	6	2	3	5	-	1
	-	1	-	-	-	-
	-	1	-	-	-	-
	-	-	2	-	-	-
<b>OTHER INSECT TAXA</b>						
Hydrophilidae sp.	-	-	2	-	-	-
Elmidae <i>Optioservus</i>	-	-	-	1	-	-
	12	15	1	9	-	2
	14	-	1	3	-	9
Odonata <i>Lanthus</i>	-	1	-	-	-	-
Megaloptera <i>Stalls</i>	-	-	1	-	-	-
<b>NON-INSECT TAXA</b>						
Cambaridae sp.	-	1	-	-	-	-
Oligochaeta sp.	-	-	-	-	1	-
Planorbidae sp.	-	-	1	-	-	-
<b>METRIC</b>						
#1 - Taxa richness	20	21	18	17	6	16
C/R %*	1.25	1.31	1.13	1.06	0.38	-
bcs**	6	6	6	6	0	6
#2 - modified EPT Index	13	11	4	10	3	10
C/R %*	1.3	1.1	0.4	1	0.3	-
bcs**	6	6	0	6	0	6
#3 - modified Hilsenhoff	2.9	3	2.8	3.2	3.9	3
C-R*	-0.1	0	-0.2	0.2	0.9	-
bcs**	6	6	6	6	4	6
#4 - % Dominant Taxon	21	28	22	14	52	16
C-R*	5	12	6	-2	36	-
bcs**	6	6	6	6	0	6
#5 - % modified Mayfly	10	33	0	16	3	19
R-C*	9	-14	19	3	16	-
bcs**	6	6	0	6	4	6
BCS Total**	30	30	18	30	8	30
C/R %	1.000	1.000	0.600	1.000	0.267	-
Ch. 93 recommendation	EV	EV	NC	EV	NC	-

\* Reference Stations: PR - Piney Run

Original: 1874  
Copies: Smith  
Sandusky  
Wyatte

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**SUGARCAMP RUN  
CLEARFIELD AND JEFFERSON COUNTIES**

**AQUATIC LIFE USE ATTAINABILITY  
WATER QUALITY STANDARDS REVIEW**

**SEGMENT: BASIN  
DRAINAGE LIST: S  
STREAM CODE: 47952**

**QUALITY ASSESSMENT UNIT (DSB)  
DIVISION OF ASSESSMENT AND STANDARDS  
BUREAU OF WATER QUALITY MANAGEMENT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**MAY 1996**

**EXECUTIVE SUMMARY REPORT  
SUGARCAMP RUN  
CLEARFIELD AND JEFFERSON COUNTIES  
DRAINAGE LIST 5**

**BACKGROUND**

Sugarcamp Run is a tributary to Stump Creek in the Allegheny River watershed. The basin has a drainage area of 3.5 square miles and contains 8.2 stream miles. This watershed is located in Sandy and Brady Townships, Clearfield County and Winslow Township and Sykesville Borough, Jefferson County. Sugarcamp Run is currently designated High Quality - Cold Water Fishes (HQ-CWF) from the source to the Helvetia deep mine discharge (RMI 0.44) and Cold Water Fishes (CWF) from the discharge to the mouth. In response to a request from the Northwest Regional Office this basin was evaluated for a possible downgrade because of indications that the stream above the discharge goes dry during periods of dry weather. This evaluation was based on field surveys conducted in December 1995 and March 1996.

**FINDINGS**

**Water Quality and Uses:**

Water quality at Station ISR, above the deep mine discharge, was generally very good (Table 2). The detection limit for copper was higher than the hardness based acute aquatic life criterion, thus precluding a comparison. Otherwise, water quality was better than established criteria at this station. At Station 2SR water quality was considerably degraded due to the mine discharge. The measured values for hardness and iron both violate Chapter 93 criteria. Also, aluminum at 822 mg/l is extremely high. Streams in the Sugarcamp Run basin above the mine discharge support designated uses. Below the discharge no fish are present (Table 5). The  $Q_{7-10}$  at Station 1SR was estimated to be 0.17 cubic feet/second. This indicates that Sugarcamp Run above the discharge probably does not go dry during most years.

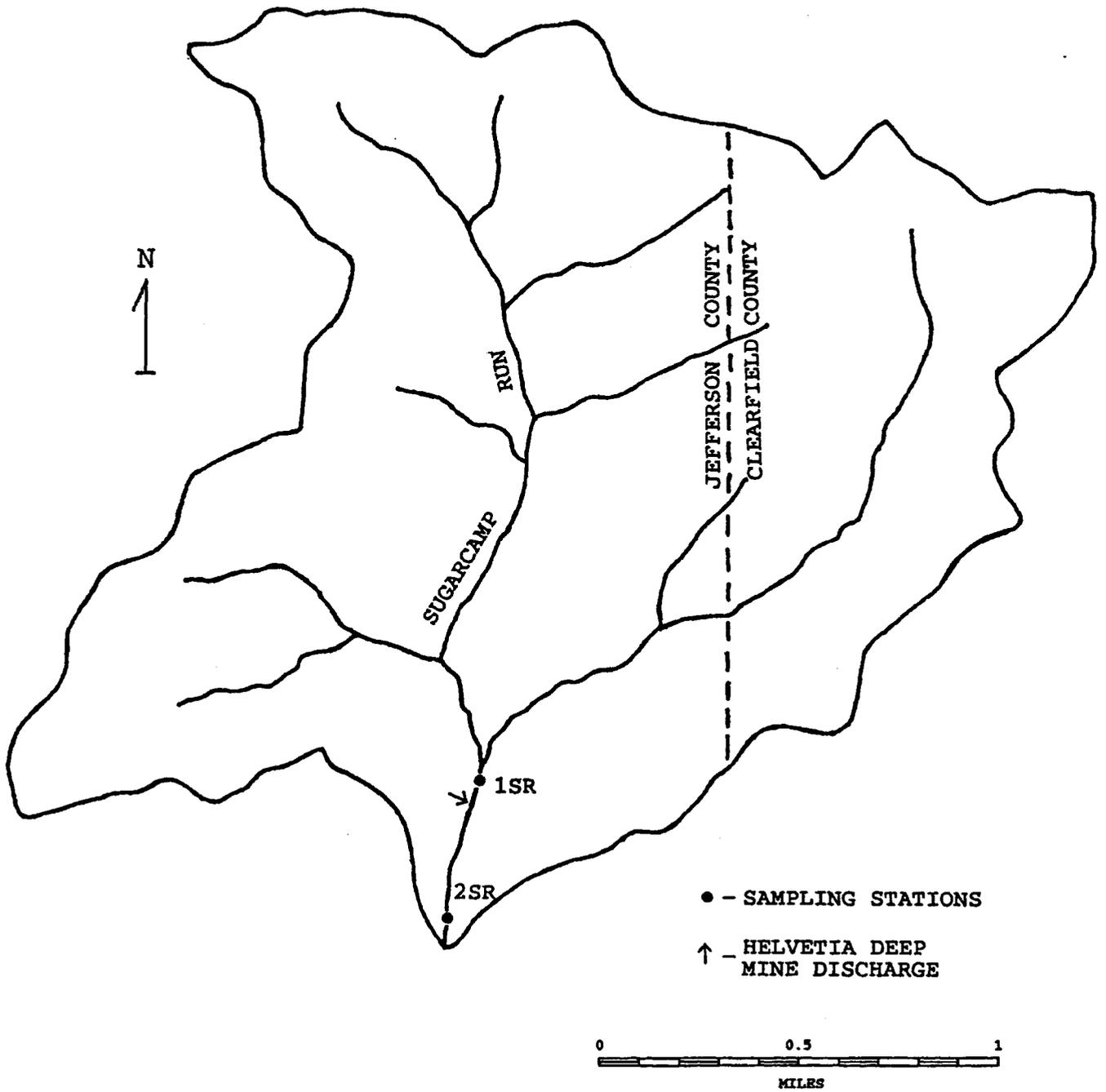
**Aquatic Biota:**

Benthic macroinvertebrate samples were collected at two stations during the December 1995 survey using sampling techniques adapted from the EPA Rapid Bioassessment Protocols (Table 3). Taxonomic diversity was good at Station ISR with 29 taxa in the total sample. Thirteen of these taxa were either Ephemeroptera, Plecoptera, or Trichoptera. One of the three genera listed as abundant (A) on Table 3, *Diplectrona*, has been given the lowest Hilsenhoff score which indicates that this genus is extremely sensitive to organic degradation. This diversity of benthic macroinvertebrates indicates that Sugarcamp Run is not an intermittent stream above the deep mine discharge. Sampling results from Station 2SR indicate a major degradation of water quality below the mine discharge with only two taxa and midges (Chironomidae) making up over 95% of the sample. Three species of fish were collected at Station 1SR with a healthy population of white sucker and small numbers of both creek chub and blacknose dace (Table 5). Two of these species are indicative of cold water conditions. No fish were present at Station 2SR.

**RECOMMENDATION**

Based on the benthic macroinvertebrate and fish data and the estimated  $Q_{7-10}$ , the Department concludes that the protected use designations of HQ-CWF above the Helvetia discharge and CWF from the discharge to the mouth are correct and recommends that they be retained.

FIGURE 1.  
SUGARCAMP RUN  
JEFFERSON AND CLEARFIELD COUNTIES



**TABLE 1.  
STATION LOCATIONS  
SUGARCAMP RUN  
CLEARFIELD AND JEFFERSON COUNTIES**

<u>STATION</u>	<u>LOCATION</u>
1SR	Sugarcamp Run approximately 20 meters upstream of T503 crossing Winslow Township Lat: 41 03 23    Long: 78 48 59    RMI: 0.47
2SR	Sugarcamp Run approximately 60 meters upstream from the mouth Borough of Sykesville Lat: 41 03 02    Long: 78 49 04    RMI: 0.02

**TABLE 2**  
**WATER CHEMISTRY<sup>1</sup>**  
**SUGARCAMP RUN, CLEARFIELD & JEFFERSON COUNTIES**  
**DECEMBER 6, 1995**

Station	1SR	2SR
<b>Field Parameters</b>		
Temp (°C)	3.5	7.1
pH	6.3	5.2
Cond (µmhos)	176	488
Diss. O <sub>2</sub>	NO DATA	
<b>Laboratory Parameters</b>		
pH	6.4	6.3
Alkalinity	26	62
Acidity	0	0
Hardness	49	176
T Diss. Sol.	88	310
Susp. Sol.	< 2	6
NH <sub>3</sub> -N	<.02	0.28
NO <sub>2</sub> -N	<.004	<.004
NO <sub>3</sub> -N	0.51	0.26
Kjeldahl-N	< 0.2	0.4
Total P	0.03	0.04
Ca	14.7	51.1
Mg	3.75	12
Cl	16	21
SO <sub>4</sub>	33	159
As*	<4	6.7
Cd*	0.27	<.2
hex Cr*	<10	<10
Cr*	<50	<50
Cu*	<10	<10
Fe*	112	14,000
Pb*	4.6	<1
Mn*	24	545
Ni*	<25	<25
Zn*	23	30
Al*	<135	822
fecal coliforms		140

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

\* - Total concentrations in µg/l

**TABLE 3**  
**BENTHIC MACROVERTEBRATE RESULTS**  
**SUGARCAMP RUN, CLEARFIELD & JEFFERSON COUNTIES**  
**DECEMBER 6, 1995**

TAXA	STATION	
	1SR	2SR
<b>Ephemeroptera (mayflies)</b>		
Ephemerellidae; <i>Eurylophella</i>	C	-
Heptageniidae; <i>Stenacron</i>	C	-
<i>Stenonema</i>	P	-
Leptophlebiidae; <i>Leptophlebia</i>	R	-
<b>Plecoptera (stoneflies)</b>		
Capniidae sp.	R	-
Chloroperlidae; <i>Sweltsa</i>	C	-
Leuctridae; <i>Leuctra</i>	P	-
Perlidae; <i>Acroneuria</i>	R	-
Perlodidae; <i>Diploperla</i>	R	-
<b>Tricoptera (caddisflies)</b>		
Hydropsychidae; <i>Diptertrona</i>	A	-
<i>Cheumatopsyche</i>	P	-
<i>Hydropsyche</i>	A	-
Rhyacophilidae; <i>Rhyacophila</i>	P	-
<b>Diptera (true flies)</b>		
Ceratopogonidae	R	-
Muscidae	R	-
Tabanidae; <i>Chrysops</i>	R	-
Tipulidae; <i>Dicranota</i>	P	-
<i>Limonia</i>	R	-
<i>Pseudolimnophila</i>	R	-
<i>Tipula</i>	C	-
Chironomidae	A	VA
<b>Other Insect Taxa</b>		
<b>Megaloptera</b>		
Corydalidae; <i>Nigronia</i>	R	-
Sialidae; <i>Sialis</i>	P	R
<b>Coleoptera (aquatic beetles)</b>		
Dytiscidae;	-	-
Elmidae; <i>Dubiraphia</i>	R	-
<i>Optioservus</i>	C	-
<b>Non-Insect Taxa</b>		
Oligochaeta Lumbricidae	R	-
Oligochaeta Tubificidae	C	-
Physidae	R	-
<b>TOTAL TAXA</b>	<b>29</b>	<b>2</b>

**TABLE 4  
HABITAT ASSESSMENT SUMMARY  
SUGARCAMP RUN  
CLEARFIELD & JEFFERSON COUNTIES**

HABITAT PARAMETER	STATIONS <sup>1</sup>	
	1SR	2SR
1. instream cover	15	6
2. epifaunal substrate	17	10
3. embeddedness	18	14
4. velocity/depth	14	9
5. channel alterations	16	12
6. sediment deposition	18	16
7. riffle frequency	14	7
8. channel flow status	17	18
9. bank condition	15	16
10. bank vegetation protection	17	17
11. grazing/disruptive pressures	12	7
12. riparian vegetation zone width	12	9
Total Score	185	141
Rating	SUB	SUB

<sup>1</sup> Refer to Figure 1. and Table 1. for station locations.

**TABLE 5**  
**FISHES**  
**SUGARCAMP RUN**  
**CLEARFIELD AND JEFFERSON COUNTIES**  
**APRIL 3,1996**

SPECIES	STATION	
	1SR	2SR
Blacknose dace, <i>Rhinichthys atratulus</i>	X	
Creek chub, <i>Semotilus atromaculatus</i>	X	
White sucker, <i>Catostomus commersoni</i>	X	