Regulatory Analysis Form

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INDEPENDENT REGULATORY REVIEW COMMISSION

(1) Agency

Department of Environmental Protection

(2) I.D. Number (Governor's Office Use)

7-380

IRRC Number: 2348

(3) Short Title

Stream Redesignations, Brushy Meadow, et al.

(4) PA Code Cite

25 Pa. Code, Chapter 93

(5) Agency Contacts & Telephone Numbers

Primary Contact: Michele Tate, 783 -8727

Secondary Contact: John Dernbach, 783-8727

(6) Type of Rulemaking (Check One)

_X_ Proposed Rulemaking
___ Final Order Adopting Regulation
___ Final Order, Proposed Rulemaking Omitted

(7) Is a 120-Day Emergency Certification Attached?

_X_ No
___ Yes: By the Attorney General
___ Yes: By the Governor

(8) Briefly explain the regulation in clear and nontechnical language.

This rulemaking modifies Chapter 93 to reflect the recommended redesignation of streams shown on the attached list. The changes involve streams being considered for redesignation as High Quality (HQ) or Exceptional Value (EV) Waters. The changes provide the appropriate designated use for these streams to protect existing uses. These changes may, upon implementation, result in more stringent treatment requirements for new and/or expanded wastewater discharges to the streams in order to protect the existing and designated water uses.

(9) State the statutory authority for the regulation and any relevant state or federal court decisions.

These proposed amendments are made under authority of the following acts:
The Pennsylvania Clean Streams Law, Act of June 22, 1937 (P.L. 1987, No. 394) as amended, 35 P.S. § 691.1 et seq.
Section 1920-A of The Administrative Code of 1929, as amended, 71 P.S. § 510-20.
40 CFR §131.32
Section 303 of the Federal Clean Water Act, 33 U.S.C. §1313.

Regulatory Analysis Form

(10) Is the regulation mandated by any federal or state law or court order, or federal regulation? If yes, cite the specific law, case, or regulation, and any deadlines for action.

Although this regulation is not specifically mandated by Federal or state law or regulations, Section 303 (c) of the federal Clean Water Act requires that states review their water quality standards and modify them, as appropriate, at least once every three years. This regulation is undertaken as part of the Department's ongoing review of Pennsylvania's water quality standards. There are no deadlines for action associated with the regulation. Until this regulation is adopted, however, it will be difficult to ensure that the Department is providing the appropriate designated uses of these streams.

(11) Explain the compelling public interest that justifies the regulation. What is the problem it addresses?

These regulations are needed to provide the appropriate designated use protection for the streams being revised to mirror the existing use. These amendments will minimize the potential for unwarranted additional treatment costs, or the risk of being under-protective, which could lead to jeopardizing the uses and continued availability of these aquatic resources.

(12) State the public health, safety, environmental, or general welfare risks associated with non-regulation.

Retaining the current designations in the stream listings promotes water quality standards that may be under- or over-protective of the existing uses of these aquatic resources. Being under-protective jeopardizes the continued health of these aquatic resources, while being over-protective promotes the potential for unwarranted higher treatment costs for individuals currently conducting or planning to conduct activities which result in wastewater discharges to these streams.

(13) Describe who will benefit from the regulation. (Quantify the benefits as completely as possible and approximate the number of people who will benefit.)

The citizens of the Commonwealth will benefit from these revisions to the designated uses, which will further promote the continued health of these aquatic resources. Maintenance of existing water quality in HQ or EV streams will ensure the continued preservation of these sensitive ecosystems.

Attachment to Question #8

PROPOSED REDESIGNATIONS
Brushy Meadow Creek, et al.

Stream	County	Reach	List	Present Designation*	Requested Designation*	Recommended Designation*
Brushy Meadow Creek	Northampton	Basin, Source to East Bangor Dam and tributaries below the dam	C	TSF, MF	CWF, MF	TSF, MF
Brushy Meadow Creek	Northampton	Main Stem, East Bangor Dam to mouth	C	TSF, MF	CWF, MF	CWF, MF
Crum Creek	Chester & Delaware	Basin, Source to Springton (Geist) Reservoir (except West Branch)	G	HQ-CWF & CWF	EV	HQ-CWF & CWF
Crum Creek, West Branch	Chester	Basin	G	HQ-CWF	EV	EV
Green Lick Run	Fayette	Basin, Source to Latta Run	V	WWF	EV	EV
Green Lick Run	Fayette	Basin, From, and including Latta Run to T-753 Bridge	V	WWF	EV	CWF
Little Juniata River	Blair & Huntingdon	Main Stem, Logan Spring Run to Spruce Creek	N	TSF	CWF	CWF
Pine Creek	Crawford & Warren	Basin, Source to Caldwell Creek	Q	CWF	HQ-CWF	HQ-CWF
Caldwell Creek	Warren	Basin, source to West Branch	Q	HQ-CWF	HQ-CWF	HQ-CWF
West Branch Caldwell Creek	Warren	Basin	Q	HQ-CWF	HQ-CWF	EV
Caldwell Creek	Crawford & Warren	Basin, West Branch to mouth	Q	HQ-CWF	HQ-CWF	EV
Pine Creek	Crawford	Basin, Caldwell Creek to mouth	Q	CWF	HQ-CWF	CWF
South Fork Beech Creek	Centre	Basin, Stinktown Run to mouth	L	None	- -	CWF
Spring Creek	Dauphin	Basin	O	WWF	CWF	CWF
Waltz Creek	Northampton	Basin	C	None	- -	CWF, MF

* WWF = Warm Water Fishes
TSF= Trout Stocking
CWF= Cold Water Fishes
HQ = High Quality
EV = Exceptional Value
MF = Migratory Fishes

(14) Describe who will be adversely affected by the regulation. (Quantify the adverse effect as completely as possible and approximate the number of people who will be adversely affected.)

The streams that are proposed for redesignation are already protected at their existing use, and therefore the designated use changes will have no impact on existing wastewater discharges. Persons proposing new or expanded activities or projects which result in discharges to these and/or other waters of the Commonwealth are required to provide effluent treatment according to the water quality criteria and designated and existing uses. This regulation will be implemented through the National Pollutant Discharge Elimination System (NPDES) since the stream use designation is a major basis for determining allowable stream discharge effluent limitations.

(15) List the persons, groups, or entities that will be required to comply with the regulation. (Approximate the number of people who will be required to comply.)

See Question #14. Persons proposing new or expanded activities or projects which result in discharges to these waters of the Commonwealth must comply with this regulation by providing the appropriate level of wastewater treatment for discharges to these waters.

(16) Describe the communications with and inputs from the public in the development and drafting of the regulation. List the persons and/or groups who where involved, if applicable.

Potentially affected municipalities were notified by letter of the stream evaluations and asked to provide any readily available data. In addition, data was requested from the public through a notice in the *Pennsylvania Bulletin* and newspaper notices. Pennsylvania Fish and Boat Commission (PFBC) and DEP staff reviewed the draft evaluation reports and concurred with the recommendations. The affected municipalities were sent a draft evaluation report for review and comment. The draft reports were posted on the Division of Water Quality Assessment and Standards web page. There will be a public comment period of at least 45 days to receive comments, suggestions, or objections to this proposal. Public meetings and/or hearings will be scheduled if needed to receive additional comments or suggestions on specific recommendations in this proposal.

(17) Provide a specific estimate of the costs and/or savings to the regulated community associated with compliance, including any legal, accounting, or consulting procedures which may be required.

The streams proposed for redesignation are already protected at their existing use, and therefore the designated use revision will have no impact on existing waste discharges. This regulation may, upon implementation, affect new and expanded discharges of wastewater to these streams. Dischargers planning to add new, or expand existing, discharges to streams upgraded may experience higher treatment costs. The increased costs may take the form of higher engineering, construction, or operating costs for wastewater treatment facilities. It is not possible to precisely predict the actual change in costs since these are site-specific and depend upon the size of the receiving stream and many other factors.

(18) Provide a specific estimate of the costs and/or savings to local governments associated with compliance, including any legal, accounting, or consulting procedures which may be required.

See Question 17.

No costs will be imposed directly upon local government by this regulation. However, there may, upon implementation, be additional indirect costs incurred by local governments that may take the form of engineering and consulting fees needed to review and possibly revise existing Act 537 sewage Facilities Plans and local ordinances.

(19) Provide a specific estimate of the costs and/or savings to state government associated with the implementation of the regulation, including any legal, accounting, or consulting procedures which may be required.

See Questions 17 and 18.

This proposal is based on and will be implemented through existing Department programs, procedures, and policies. There are no additional implementation costs associated with this regulation.

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(20) In the table below, provide an estimate of the fiscal savings and costs associated with implementation and compliance for the regulated community, local government, and state government for the current year and five subsequent years.

	Current FY Year	FY +1 Year	FY +2 Year	FY +3 Year	FY +4 Year	FY +5 Year
SAVINGS:	**$**	**$**	**$**	**$**	**$**	**$**
Regulated Community	Not Measurable					
Local Government	"					
State Governments	"					
Total Savings	"					
COSTS:						
Regulated Community	Not Measurable					
Local Government	"					
State Governments	"					
Total Costs	"					
REVENUE LOSSES:						
Regulated Community	Not Measurable					
Local Government	"					
State Governments	"					
Total Revenue Losses	"					

(20a) Explain how the cost estimates listed above were derived.

Not Applicable.

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(20b) Provide the past three-year expenditure history for programs affected by the regulation.

Program	FY-3	FY-2	FY-1	Current FY
Water Quality Management	$18,049,025	$22,625,883	$21,600,840	$21,657,146

(21) Using the cost-benefit information provided above, explain how the benefits of the regulation outweigh the adverse effects and costs.

Although it is not possible to approximate the change in costs, the Department believes that the benefits of providing the appropriate level of designated use protection and continued maintenance and availability of the Commonwealth's aquatic resources outweigh the potential costs or adverse effects of this proposal.

(22) Describe the non-regulatory alternatives considered and the costs associated with those alternatives. Provide the reasons for their dismissal.

There were no non-regulatory alternatives available to consider in this case.

(23) Describe alternative regulatory schemes considered and the costs associated with those schemes. Provide the reasons for their dismissal.

There were no alternative regulatory schemes to consider in order to apply the appropriate designated use in 25 Pa. Code, Chapter 93, Water Quality Standards, to mirror the existing uses of these aquatic resources.

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(24) Are there any provisions that are more stringent than federal standards? If yes, identify the specific provisions and the compelling Pennsylvania interest that demands stronger regulations.

No. The proposed regulations are not more stringent than the companion federal standards allow.

(25) How does the regulation compare with those of other states? Will the regulation put Pennsylvania at a competitive disadvantage with other states?

Other states are also required to maintain water quality standards that include similar minimum antidegradation requirements, and to provide additional protection for surface waters that are considered ecologically significant and/or outstanding local resource waters.

These regulations should not put Pennsylvania at a competitive disadvantage with other states. These amendments are intended to provide the appropriate level of designated use protection for the streams listed.

(26) Will the regulation affect existing or proposed regulations of the promulgating agency or other state agencies? If yes, explain and provide specific citations.

No other regulations or State Agencies are affected by this proposal.

(27) Will any public hearings or informational meetings be scheduled? Please provide the dates, times, and locations, if available.

See Question 16. Public hearings and/or meetings will be scheduled if sufficient interest is generated during the public comment period.

Regulatory Analysis Form

(28) Will the regulation change existing reporting, record keeping, or other paperwork requirements? Describe the changes and attach copies of forms or reports which will be required as a result of implementation, if available.

No additional reporting, record keeping, or other paperwork will be required.

(29) Please list any special provisions which have been developed to meet the particular needs of affected groups or persons including, but not limited to, minorities, elderly, small businesses, and farmers.

There are no such provisions in this proposed regulation. However, any future dischargers to High Quality waters will be given an opportunity to: (1) justify discharges which will degrade the stream based on social/economic considerations, and (2) demonstrate that application of advanced treatment technology or alternate wastewater handling/disposal techniques will allow the discharge to occur without degrading the stream.

(30) What is the anticipated effective date of the regulation; the date by which compliance with the regulation will be required; and the date by which any required permits, licenses or other approvals must be obtained?

The regulation will become final after review and approval by the Environmental Quality Board and publication in the *Pennsylvania Bulletin* as final-form rulemaking. New or renewed NPDES permits reflecting the regulation changes would be issued according to current timelines that apply to permit applications.

(31) Provide the schedule for continual review of the regulation.

This regulation will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.

CDL-1

FACE SHEET
FOR FILING DOCUMENTS
WITH THE LEGISLATIVE REFERENCE BUREAU

(Pursuant to Commonwealth Documents Law)

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REVIEW COMMISSION

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Copy below is hereby approved as to form and legality.
Attorney General

By: _____
(Deputy Attorney General)

AUG 01 2003
DATE OF APPROVAL

☐ Check if applicable
Copy not approved. Objections attached.

Copy below is hereby certified to be true and correct copy of a document issued, prescribed or promulgated by:

DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD
(AGENCY)

DOCUMENT/FISCAL NOTE NO. 7-380

DATE OF ADOPTION 12/17/02

BY _____

TITLE KATHLEEN A MCGINTY
CHAIRPERSON

EXECUTIVE OFFICER CHAIRMAN OR SECRETARY

Copy below is hereby approved as to form and legality
Executive or Independent Agencies

BY _____

7/30/03
DATE OF APPROVAL
Executive
(Deputy General Counsel)
~~(Chief Counsel - Independent Agency)~~
(Strike inapplicable title)

☐ Check if applicable. No Attorney General Approval or objection within 30 days after submission.

NOTICE OF PROPOSED RULEMAKING

DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD

Stream Redesignations, Brushy Meadow Creek, et al.

25 *Pa. Code*, Chapter 93

NOTICE OF PROPOSED RULEMAKING
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD
25 Pa. Code, Chapter 93
Stream Redesignations (Brushy Meadow Creek, *et al.*)

Preamble

The Environmental Quality Board (Board) proposes to amend 25 Pa. Code §§93.9c, 93.9g, 93.9l, 93.9n, 93.9o, 93.9q, and 93.9v to read as set forth in Annex A.

This proposal was adopted by the Board at its meeting of December 17, 2002.

A. Effective Date

These amendments are effective upon publication in the *Pennsylvania Bulletin* as final rulemaking.

B. Contact Persons

For further information, contact Edward R. Brezina, Chief, Division of Water Quality Assessment and Standards, Bureau of Water Supply and Wastewater Management, 11th Floor, Rachel Carson State Office Building, P.O. Box 8467, 400 Market Street, Harrisburg, PA 17105-8467, 717-787-9637 or Michelle Moses, Assistant Counsel, Bureau of Regulatory Counsel, 9th Floor, Rachel Carson State Office Building, P.O. Box 8464, Harrisburg, PA 17105-8464, 717-787-7060. Persons with a disability may use the AT&T Relay Service by calling 1-800-654-5984 (TDD-users) or 1-800-654-5988 (voice users). This proposal is available electronically through the Department of Environmental Protection's (Department) Web site (http://www.dep.state.pa.us).

C. Statutory and Regulatory Authority

This proposed rulemaking is being made under the authority of Sections 5(b)(1) and 402 of The Clean Streams Law (35 P.S. §§691.5 (b)(1) and 691.402), which authorize the Environmental Quality Board to develop and adopt rules and regulations to implement the provisions of the Clean Streams Law, and Section 1920-A of the Administrative Code of 1929 (71 P.S. §510-20), which grants to the Board the power and duty to formulate, adopt, and promulgate rules and regulations for the proper performance of the work of the Department. In addition, Section 303 of the Federal Clean Water Act (33 U.S.C. §1313) sets forth requirements for water quality standards and the federal regulation at 40 CFR § 131.32 sets forth certain requirements for portions of the Commonwealth's antidegradation program.

D. Background of the Amendments

Water quality standards are in-stream water quality goals that are implemented by imposing specific regulatory requirements (such as treatment requirements and effluent limits) on individual sources of pollution.
The Department considers candidates for High Quality (HQ) or Exceptional Value (EV) Waters and all other designations in its ongoing review of water quality standards. In general, HQ and EV waters must be maintained at their existing quality and permitted activities, such as

wastewater treatment requirements, shall ensure the attainment of designated and existing uses for all waters.

The Department may identify candidates during routine waterbody investigations. Requests for consideration may also be initiated by other agencies, such as the Pennsylvania Fish and Boat Commission (PFBC). Organizations, businesses, or individuals may submit a rulemaking petition to the Board.

These streams were evaluated in response to two petitions, as well as requests from the Pennsylvania Fish and Boat Commission (PFBC) and the Department's Southcentral Regional Office (SCRO), Northeast Regional Office (NERO) and Bureau of Water Supply and Wastewater Management (BWSWM) as follows:

Petitions: Crum Creek and Green Lick Run
PFBC: Pine Creek
SCRO: Little Juniata River and Spring Creek
NERO: Brushy Meadow Creek and Waltz Creek
BWSWM: South Fork Beech Creek

These regulatory changes were developed as a result of aquatic studies conducted by BWSWM and PFBC. The physical, chemical, and biological characteristics and other information on these waterbodies were evaluated in order to determine the appropriateness of the current and requested designations using applicable regulatory criteria and definitions. Based upon the data collected in these surveys, the Board recommends the designations described in this Preamble and set forth in Annex A.

Copies of the Department's stream evaluation reports for these waterbodies are available from Edward R. Brezina whose address and telephone number are listed in Section B.

The following is a brief explanation of the recommendations for each waterbody:

Brushy Meadow Creek – Brushy Meadow Creek is a tributary to Martins Creek at the Borough of Bangor in Northampton County. This basin is currently designated Trout Stocking – Migratory Fishes (TSF-MF). The Department's Northeast Regional Office collected fishery data that suggested that the lower portion of the stream supported trout, and requested that it be redesignated Cold Water Fishes (CWF). In order to confirm the year-round presence of cold water species, the Department and the PFBC studied the stream in August. Various year classes of brown trout were found, indicating year-round presence and natural reproduction of trout. In addition, the migratory American eel was found in the lower portion of the creek. As a result of these findings, it is recommended that the main stem of Brushy Meadow Creek from the East Bangor dam to the mouth be redesignated CWF, MF. Any unnamed tributaries in this reach will retain the TSF, MF designation.

Waltz Creek – Waltz Creek is a tributary to Martins Creek near Bangor, Northampton County. This basin was surveyed to determine the correct aquatic life use designation because Waltz Creek was inadvertently omitted from Chapter 93. Fishery data collected by the Department and PFBC showed the presence of trout during both cold and warm weather months. The finding of trout below the legal length suggests natural reproduction. American eels were found during both field studies. Based on these data, it is recommended that the Waltz Creek basin be designated CWF, MF.

Crum Creek – The Willistown Conservation Trust petitioned the Board to redesignate the Crum Creek basin upstream from the Springton (Geist) Reservoir to EV. The study area is located in Chester and Delaware Counties. The Crum Creek basin is currently designated HQ-CWF from its source to the junction of Newtown, Edgmont, and Willistown Townships, and CWF from there to the reservoir. Only one portion of the basin, the West Branch Crum Creek, scored more than 92% in comparison to the appropriate EV reference station, thus satisfying the regulatory criterion for redesignation as EV. It is recommended that the West Branch Crum Creek basin be redesignated as EV, and that the other sections of the study area retain their current use designations.

South Fork Beech Creek – The South Fork Beech Creek is a tributary to Beech Creek in the West Branch Susquehanna River basin in Centre County. The lower reach of the South Fork, from the confluence of Stinktown Run to the confluence with the North Fork Beech Creek was inadvertently omitted from Chapter 93. This portion of the basin was assessed to determine the proper aquatic life use designation. Fishery data collected by the Department revealed the presence of naturally reproducing brook and brown trout as well as the presence of other cold water species. It is recommended that the South Fork Beech Creek basin from Stinktown Run to the mouth be designated CWF.

While this evaluation was being conducted, the Department noticed that the unnamed tributaries to Beech Creek had also been omitted from the drainage list. This rulemaking proposes to add them with a CWF designation, which is the same designation as the main stem of Beech Creek.

Little Juniata River – The Department's Southcentral Regional Office requested evaluation of a portion of the Little Juniata River for redesignation from TSF to CWF. The study area consists of the main stem from the confluence of Logan Spring Run to the confluence of Spruce Creek. This river section is located in Tyrone and Snyder Townships in Blair County and Warriors Mark and Spruce Creek Townships in Huntingdon County. Brown trout were found at all four sampling stations in the study reach. The trout from the upper two stations appeared to be the result of fingerling stocking by PFBC. The presence of young-of-the-year trout at the two lower stations confirms natural reproduction. Due to the maintenance and propagation of trout in this reach, it is recommended that the designated use be changed from TSF to CWF.

Spring Creek – Spring Creek is a tributary of the Susquehanna River in Dauphin County. It arises near the Harrisburg East Mall, flows under Interstate 83 and flows through the urbanized Harrisburg area. It joins the Susquehanna River between Harrisburg and Steelton. Despite the urban setting for much of its length, Spring Creek supports a naturally reproducing population of brown trout. Blacknose dace, another cold water species, is also present. As a result of these findings, it is recommended that the Spring Creek basin be redesignated from Warm Water Fishes (WWF) to CWF.

Pine Creek – Pine Creek is a tributary to Oil Creek near Titusville. The watershed is located in Crawford and Warren Counties, and was evaluated at the request of PFBC. Pine Creek is currently designated CWF, except for Caldwell Creek which is designated HQ-CWF. Based on biological comparisons to EV reference stations, a number of use designation changes are recommended. The upper Pine Creek basin, from the source to Caldwell Creek, is recommended for redesignation fom CWF to HQ-CWF based on biological condition score comparisons between 83% and 92% of reference. The upper portion of the Caldwell Creek basin, from the source to West Branch Caldwell Creek, is to retain the current HQ-CWF designation. The

remainder of the Caldwell Creek basin, which includes the West Branch Caldwell Creek basin and the Caldwell Creek basin below the West Branch, is recommended for EV designation based on scoring more than 92% in comparison to reference conditions. It is recommended that the Pine Creek basin from Caldwell Creek to the mouth retain its CWF designation.

Green Lick Run – Green Lick Run is tributary to Jacobs Creek in Bullskin Township, Fayette County. This basin is currently designated WWF, and was evaluated for redesignation to EV in response to a rulemaking petition submitted by the Rural Area Concerned Citizens. As a result of biological sampling and 100% comparison to an EV reference, the upper portion of Green Lick Run, from the source to Latta Run, is recommended for redesignation to EV. A cold water fish community was found in the lower portion of the basin studied during this evaluation. As a result, Latta Run and the Green Lick Run basin from Latta Run to the T-753 bridge should be redesignated CWF.

In addition to these regulatory revisions, the Department discovered an error that occurred during rulemaking for the Class A Wild Trout Streams package. The entire main stem of Moshannon Creek was designated TSF. While redesignating the upper part of the Moshannon Creek basin, an entry for the remainder of the main stem was inadvertently deleted. An entry for the main stem from Roup Run to the mouth needs to be replaced to complete the Moshannon Creek listing. This entry, which shows that the lower main stem retains its TSF designation, is shown in Annex A, Drainage List L.

E. Benefits, Costs, and Compliance

Executive Order 1996-1 requires a cost /benefit analysis of the amendments.

1. **Benefits** - Overall, the citizens of the Commonwealth will benefit from these recommended changes because they will reflect the appropriate designated use and maintain the most appropriate degree of protection for each stream in accordance with the existing use of the stream.

2. **Compliance Costs** - Generally, the changes should have no fiscal impact on, or create additional compliance costs for the Commonwealth or its political subdivisions. The streams are already protected at their existing use, and therefore the designated use changes will have no impact on treatment requirements. No costs will be imposed directly upon local governments by this recommendation. Political subdivisions that add a new sewage treatment plant or expand an existing plant in these basins may experience changes in cost as noted below in the discussion of impacts on the private sector.

   Persons conducting or proposing activities or projects that result in new or expanded discharges to streams must comply with the regulatory requirements relating to designated and existing uses. These persons could be adversely affected if they expand a discharge or add a new discharge point since they may need to provide a higher level of treatment to meet the designated and existing uses of the stream. These increased costs may take the form of higher engineering, construction, or operating costs for wastewater treatment facilities. Treatment costs are site-specific and depend upon the size of the discharge in relation to the size of the stream and many other factors. It is therefore not possible to precisely predict the actual change

in costs. Economic impacts would primarily involve the potential for higher treatment costs for new or expanded discharges to streams that are upgraded.

3. **Compliance Assistance Plan** - The regulatory revisions have been developed as part of an established program that has been implemented by the Department since the early 1980s. The revisions are consistent with and based on existing Department regulations. The revisions extend additional protection to selected waterbodies that exhibit exceptional water quality and are consistent with antidegradation requirements established by the Federal Clean Water Act and Pennsylvania Clean Streams Law. All surface waters in the Commonwealth are afforded a minimum level of protection through compliance with the water quality standards, which prevent pollution and protect existing water uses.

   The proposed amendments will be implemented through the Department's permit and approval actions. For example, the National Pollutant Discharge Elimination System (NPDES) permitting program bases effluent limitations on the use designation of the stream. These permit conditions are established to assure water quality criteria are achieved and designated and existing uses are protected. New and expanded dischargers with water quality based effluent limitations are required to provide effluent treatment according to the water quality criteria associated with existing uses and revised designated water uses.

4. **Paperwork Requirements** - The regulatory revisions should have no direct paperwork impact on the Commonwealth, local governments, and political subdivisions, or the private sector. These regulatory revisions are based on existing Department regulations and simply mirror the existing use protection that is already in place for these streams. There may be some indirect paperwork requirements for new or expanding dischargers to streams upgraded to HQ or EV. For example, NPDES general permits are not currently available for new or expanded discharges to these streams. Thus an individual permit, and its associated additional paperwork, would be required. Additionally, paperwork associated with demonstrating social and economic justification (SEJ), and the non-feasibility of nondischarge alternatives, may be required for new or expanded discharges to certain HQ Waters.

F. Pollution Prevention

The antidegradation program is a major pollution prevention tool because its objective is to prevent degradation by maintaining and protecting existing water quality and existing uses. Although the antidegradation program does not prohibit new or expanded wastewater discharges, nondischarge alternatives are encouraged, and required when environmentally sound and cost effective. Nondischarge alternatives, when implemented, remove impacts to surface water and reduce the overall level of pollution to the environment by remediation of the effluent through the soil.

G. Sunset Review

These proposed amendments will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.

H. Regulatory Review

Under Section 5(a) of the Regulatory Review Act (71 P.S. §745.5(a)), on August 13, 2003, the Department submitted a copy of the proposed rulemaking to the Independent Regulatory Review Commission (IRRC) and to the Chairpersons of the Senate and House Environmental Resources and Energy Committees for review and comment. In addition to submitting the proposed amendments, IRRC and the Committees have been provided a detailed regulatory analysis form prepared by the Department. A copy of this material is available to the public upon request.

Under Section 5(g) of the Regulatory Review Act, IRRC may convey any comments, recommendations or objections to the proposed regulations within 30 days of the close of the public comment period. The comments, recommendations or objections shall specify the regulatory review criteria that have not been met. The Act specifies detailed procedures for review of these issues by the Department, the General Assembly and the Governor prior to final publication of the regulations.

I. Public Comments

Written Comments – Interested persons are invited to submit comments, suggestions, or objections regarding the proposed amendments to the Environmental Quality Board, P.O. Box 8477, Harrisburg, PA 17105-8477 (express mail: Rachel Carson State Office Building, 15th Floor, 400 Market Street, Harrisburg, PA 17101-2301). Comments submitted by facsimile will not be accepted. Comments must be received by the Board by October 3, 2003. Interested persons may also submit a summary of their comments to the Board. The summary may not exceed one page in length and must also be received by October 3, 2003. The one-page summary will be provided to each member of the Board in the agenda packet distributed prior to the meeting at which the proposed amendments will be considered. If sufficient interest is generated as a result of this publication, a public hearing will be scheduled at an appropriate location to receive additional comments.

Electronic Comments – Comments may be submitted electronically to the Board at RegComments@state.pa.us . A subject heading of the proposal and return name and address must be included in each transmission. Comments submitted electronically must also be received by the Board by Ocotber 3, 2003.

BY:

Kathleen A. McGinty
Chairperson
Environmental Quality Board

ANNEX A

TITLE 25. ENVIRONMENTAL PROTECTION
PART I. DEPARTMENT OF ENVIRONMENTAL PROTECTION
Subpart C. PROTECTION OF NATURAL RESOURCES
ARTICLE II. WATER RESOURCES

CHAPTER 93. WATER QUALITY STANDARDS

* * * * *

§93.9c. Drainage List C

Delaware River Basin in Pennsylvania
Delaware River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
2 – Martins Creek	Main Stem, Confluence of East and West Forks to Mouth	Northampton	TSF, MF	None
	* * * * *			
3 – Brushy Meadow Creek **(UNT 64106)**	Basin**, Source to East Bangor Dam**	Northampton	TSF, MF	None
3 – Brushy Meadow Creek	**Main Stem, East Bangor Dam to Mouth**	**Northampton**	**CWF, MF**	**None**
4 – Unnamed Tributaries to Brushy Meadow Creek	**Basins, East Bangor Dam To Mouth**	**Northampton**	**TSF, MF**	**None**
3 – Waltz Creek	**Basin**	**Northampton**	**CWF, MF**	**None**

* * * * *

§93.9g. Drainage List G

Delaware River Basin in Pennsylvania
Delaware River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
	* * * * *			
2 – Crum Creek	Basin, Source to **[Junction of Newtown, Edgemont, and Willistown Township Borders] West Branch Crum Creek**	Chester **[& Delaware]**	HQ-CWF	None
2 – West Branch Crum Creek	**Basin**	**Chester**	**EV**	**None**
2 – Crum Creek	**Basin, West Branch Crum Creek to Junction of Newtown, Edgemont, and Willistown Township Borders**	**Chester - Delaware**	**HQ-CWF**	**None**

* * * * *

§93.9l. Drainage List L

Susquehanna River Basin in Pennsylvania
West Branch Susquehanna River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
	* * * * *			
3 – Moshannon Creek	Basin, Source to Roup Run	Clearfield – Centre	HQ-CWF	None
3 – Moshannon Creek	**Main Stem, Roup Run To Mouth**	**Clearfield - Centre**	**TSF**	**None**
	* * * * *			
4 – Beech Creek	**[Basins**	**Clinton-Centre**	**CWF**	**None]**
5 – South Fork Beech Creek	Basin, Source to Stinktown Run	Centre	CWF	None
6 – Stinktown Run	Basin	Centre	HQ-CWF	None
5 – South Fork Beech Creek	**Basin, Stinktown Run to Mouth**	**Centre**	**CWF**	**None**
5 – North Fork Beech Creek	Basin, Source to Confluence with South Fork	Centre	CWF	None
4 – Beech Creek	Main Stem, Confluence of South and North Branches to Mouth	Clinton-Centre	CWF	None
5 – Unnamed Tributaries to Beech Creek	**Basins**	**Clinton-Centre**	**CWF**	**None**

* * * * *

§93.9n. Drainage List N

Susquehanna River Basin in Pennsylvania
Juniata River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
	* * * * *			
3 – Little Juniata River	Main Stem, Source to **[South Bald Eagle Creek]** **Logan Spring Run**	Blair **- Huntingdon**	TSF	None
4 – Unnamed Tributaries to Little Juniata River	Basins, Source to **[South Bald Eagle Creek]** **Logan Spring Run**	Blair	WWF	None
	* * * * *			
5 – Sink Run	Basin	Blair	TSF	None
4 – Logan Spring Run	**Basin**	**Huntingdon**	**WWF**	**None**
3 – Little Juniata River	Main Stem, **[South Bald Eagle Creek to Spruce Creek]** **Logan Spring Run to Confluence with Frankstown Branch**	Huntingdon	**[TSF]** **CWF**	None

4 – Unnamed Tributaries to Little Juniata River	Basins, **[South Bald Eagle Creek to Spruce Creek]** **Logan Spring Run to Confluence with Frankstown Branch**	Huntingdon - Blair	WWF	None
[4 – Logan Spring Run	**Basin**	**Huntingdon**	**WWF**	**None]**
4 – Elk Run	Basin	Blair	WWF	None
4 – Gensimore Run	Basin	Huntingdon	WWF	None
4 – Sinking Run	Basin	Huntingdon	CWF	None
4 – Spruce Creek	Basin	Huntingdon	HQ-CWF	None
[3 – Little Juniata River	**Main Stem, Spruce to Confluence with Frankstown Branch**	**Huntingdon**	**CWF**	**None]**
[4 – Unnamed Tributaries to Little Juniata River	**Basins, Spruce Creek to Confluence with Frankstown Branch**	**Huntingdon**	**WWF**	**None]**
4 – McLain Run	Basin	Huntingdon	WWF	None

* * * * *

§93.9o. Drainage List O

Susquehanna River Basin in Pennsylvania
Susquehanna River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
	* * * * *			
2 – Paxton Creek	Basin	Dauphin	WWF	None
2 – Spring Creek	Basin	Dauphin	**[WWF]** **CWF**	None

* * * * *

§93.9q. Drainage List Q

Ohio River Basin in Pennsylvania
Allegheny River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
4 – Pine Creek	**[Main Stem]** **Basin, Source to Caldwell Creek**	Crawford	[CWF] **HQ-CWF**	None
[5 – Unnamed Tributaries to Pine Creek	**Basins**	**Warren - Crawford**	**CWF**	**None**
5 – Campbell Creek	**Basin**	**Crawford**	**CWF**	**None**
5 – Dunham Run	**Basin**	**Crawford**	**CWF**	**None]**

5 – Caldwell Creek	Basin, **Source to West Branch Caldwell Creek**	**[Crawford] Warren**	HQ-CWF	None
6 – West Branch Caldwell Creek	**Basin**	**Crawford**	**EV**	**None**
5 – Caldwell Creek	**Basin, West Branch Caldwell Creek to Mouth**	**Crawford**	**EV**	**None**
4 – Pine Creek	**Basin, Caldwell Creek to Mouth**	**Crawford**	**CWF**	**None**
[5 - Henderson Run	**Basin**	**Crawford**	**CWF**	**None]**

* * * * *

§93.9v. Drainage List V

Ohio River Basin in Pennsylvania
Monongahela River

4 – Jacobs Creek	Basin, **[from]** Bridgeport Reservoir Dam to **[Mouth]** **Green Lick Run**	Fayette - **Westmoreland**	WWF	None
5 – Green Lick Run	**Basin, Source to Latta Run**	**Fayette**	**EV**	**None**
6 – Latta Run	**Basin**	**Fayette**	**CWF**	**None**
5 – Green Lick Run	**Basin, Latta Run to T-753 Bridge**	**Fayette**	**CWF**	**None**
5 – Green Lick Run	**Basin, T-753 Bridge to Mouth**	**Fayette**	**WWF**	**None**
4 – Jacobs Creek	**Basin, Green Lick Run to Mouth**	**Fayette - Westmoreland**	**WWF**	**None**

* * * * *

BRUSHY MEADOW CREEK

NORTHAMPTON COUNTY

WATER QUALITY STANDARDS REVIEW

STREAM REDESIGNATION EVALUATION

Segment: Basin;
East Bangor Dam to mouth
Stream Code: 64106
Drainage List C

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

JANUARY 2001

INTRODUCTION

The designated uses listed for Brushy Meadow Creek in Chapter 93 are Trout Stocking, Migratory Fishes (TSF, MF). In December 1998, the Department's Northeast Regional Office (NERO) staff conducted a stream survey of Brushy Meadow in order to determine if the stream's TSF classification should be upgraded to Cold Water Fishes (CWF).

Based on their findings, the NERO requested that the TSF, MF use for Brushy Meadow Creek basin be changed to Cold Water Fishes, MF (CWF, MF) because of the presence of well-established cold water fauna (brown trout) and American eel. The Department's Central Office staff concurred with NERO's findings, but since no information related to temperature-critical summer months was included, concerns were raised that trout observed in December may be transients. Therefore, it was recommended that additional fish data be collected during the summer to make sure Brushy Meadow's fishery was not just a reflection of seasonal and local migratory responses from colder areas of Martins Creek (Brushy Meadow's receiving stream). In response, NERO requested Pennsylvania Fish & Boat Commission (PFBC) assistance in collecting detailed summer fish data from Brushy Meadow Creek.

Brushy Meadow Creek is officially listed as an unnamed tributary to Martins Creek and is locally known as Brushy Meadow Run. The USGS 7.5' Bangor topographic quadrangle map does not indicate a stream channel at Brushy Meadow's location, but there are upstream segments with no attributed name. The Department's last published Pennsylvania Gazetteer of Streams does not include a Brushy Meadow Creek or Run. The Department's hierarchical stream listing (which includes unnamed tributaries) does not list any Brushy Meadow Creek or Run but refers to it as "unnamed thru quarry" (Martins Creek river mile = 7.2) and assigns it a stream code (64106).

The purpose of this report is to review the information and data gathered during these investigations and determine the proper Ch. 93 designated use for Brushy Meadow Creek.

GENERAL WATERSHED DESCRIPTION

Brushy Meadow Creek is a tributary to Martins Creek in the Delaware River drainage. The basin is predominantly located south of Stroudsburg in Washington and Upper Mount Bethel Townships and the Borough of Bangor in Northampton County (Figure 1).

Brushy Meadow Creek is a small drainage system (about 4 mi^2) with the upper section draining headwater wetlands and a lower section that flows through a quarry complex. The stream's midsection (upstream of Broad Street) is impounded, and known as "East Bangor Dam". This impoundment is considered a "*highly eutrophic warm water fishery with a history of temperature/dissolved oxygen related fishkills*" (DEP 1999). In addition to this impounded area, relatively flat rural lands with some gently rolling hills of low relief, quarries, and urbanized areas of Bangor characterize the surrounding area.

WATER QUALITY AND USES

Surface Water

No long-term water quality data were available to allow a direct comparison to water quality criteria. However, chemical "grab" samples and biological data were collected from two Brushy Meadow Creek stations in December 1998 by NERO staff. PFBC, with NERO assistance, collected fish data from one station in August 1999. Figure 1 shows sampling station locations.

Laboratory analysis results (DEP 1999) of Brushy Meadow Creek surface waters are presented in Table 1. Despite the limitations of grab samples, observations can be made that provide a generalized overview of Brushy Meadow's water quality. The grab sample results were generally better than criteria and, from DEP 1999, "within the ranges optimal for aquatic life". Based on conductance, hardness, alkalinity, calcium, and magnesium concentrations, grab sample analysis results suggest that Brushy Meadow Creek is a moderately hard system with good buffering capacity.

There is one active NPDES permitted point source discharge in the study area - a municipal sewage treatment plant discharge located in Washington Township and permitted to East Bangor Municipal Authority.

Aquatic Biota

The indigenous aquatic community is an excellent indicator of long-term conditions and is used as a measure of both water quality and ecological significance. NERO collected habitat, benthic macroinvertebrate, and fish data in 1998. In order to consider warm weather influences on Brushy Meadow's fishery, PFBC and Department staff collected detailed, quantitative fish data in August 1999.

Habitat data is reported in Table 2. The overall habitat scores for the two Brushy Meadow Creek stations were 134 and 127 – in the low sub-optimal range. Individual habitat criterion scores indicate poor "embeddedness" conditions and riparian zone impacts. Many other habitat parameters also scored marginally poor. These stations reflect the quarry land-uses in the immediate area.

Benthos. NERO staff collected benthic macroinvertebrate samples using the Department's PA-DEP RBPIII benthic sampling methodology. These data are presented in Table 3. The PA-DEP RBPIII method is a modification of EPA's Rapid Bioassessment Protocols (RBPs; Plafkin, et al 1989).

Considering the fact that both Brushy Meadow stations are downstream of the East Bangor Dam, there are minimal impacts to the biota. This stream section supports good populations of pollution sensitive biota as indicated by benthic macroinvertebrate sampling results and benthic metric indices (Table 3). There was reasonably good representation of sensitive mayflies, stoneflies, and caddisflies in both kick-screen and D-frame samples from each station (mEPT score range of 7-10).

Fish. NERO staff sampled Brushy Meadow fish populations in 1998 and in August 1999 with the assistance of PFBC. The presence of cold-water fishes, particularly brown trout, was the main basis for their 1999 CWF recommendation.

Seven species of fish were captured in Brushy Meadow Creek during the Department's December 1998 survey (Table 4). The PFBC quantitative IBI survey found only three species in August 1999 – including various year classes of brown trout (63 individuals with a size range of 50-231mm). These data demonstrate that well-established populations of brown trout are present year-round. Fish scale and size-class data from December 1998 indicates that four age classes were present (including "young-of-year" fingerlings). These results, including PFBC summer collections of trout in the lower size range, are evidence of trout natural reproduction.

PUBLIC RESPONSE AND PARTICIPATION SUMMARY

The Department provided public notice of this redesignation evaluation and requested any technical data from the general public through publication in the Pennsylvania Bulletin on April 22, 2000 (30 Pa.B 2071). A similar notice was also published in The Express Times newspaper (Easton, PA) on April 21, 2000. In addition, Washington Township, Bangor Borough, and the Lehigh Valley Planning Commission were notified of the evaluation in a letter dated April 19, 2000. No data on water chemistry, in-stream habitat, or the aquatic community were received in response to these notices.

A draft of this report was submitted to the above stakeholders, along with a request for comments, on September 20,2002. No comments were received in response to this request.

RECOMMENDATIONS

The biological data indicate that Brushy Meadow Creek supports Cold Water Fishes (CWF) and Migratory Fishes (MF) uses downstream of the East Bangor Dam. Brown trout species and migratory American eel were collected from Brushy Meadow Creek during both cold and warm months.

Based on applicable regulatory criteria, the Department recommends that the Brushy Meadow Creek mainstem from the East Bangor Dam (at Broad Street) to the mouth be designated Cold Water Fishes (CWF), Migratory Fishes (MF). This will provide a level of Chapter 93 protection consistent with Brushy Meadow Creek's aquatic biota.

Due to the presence of impounded conditions (East Bangor Dam), the remaining portions of Brushy Meadow Creek (upstream of Broad Street) should remain unchanged (TSF, MF).

The recommended CWF change affects approximately 1.5 stream miles of Brushy Meadow Creek.

REFERENCES

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.

Department of Environmental Protection. 1999. *Recommendation for Stream Class Upgrade; Brushy Meadow Run, Northampton County*. Northeast Regional Office Memorandum; February 26, 1999.

Pennsylvania Fish & Boat Commission (1999). File information, 8/25/99 IBI Survey of Martins Creek basin.

FIGURE 1.
BRUSHY MEADOW CREEK

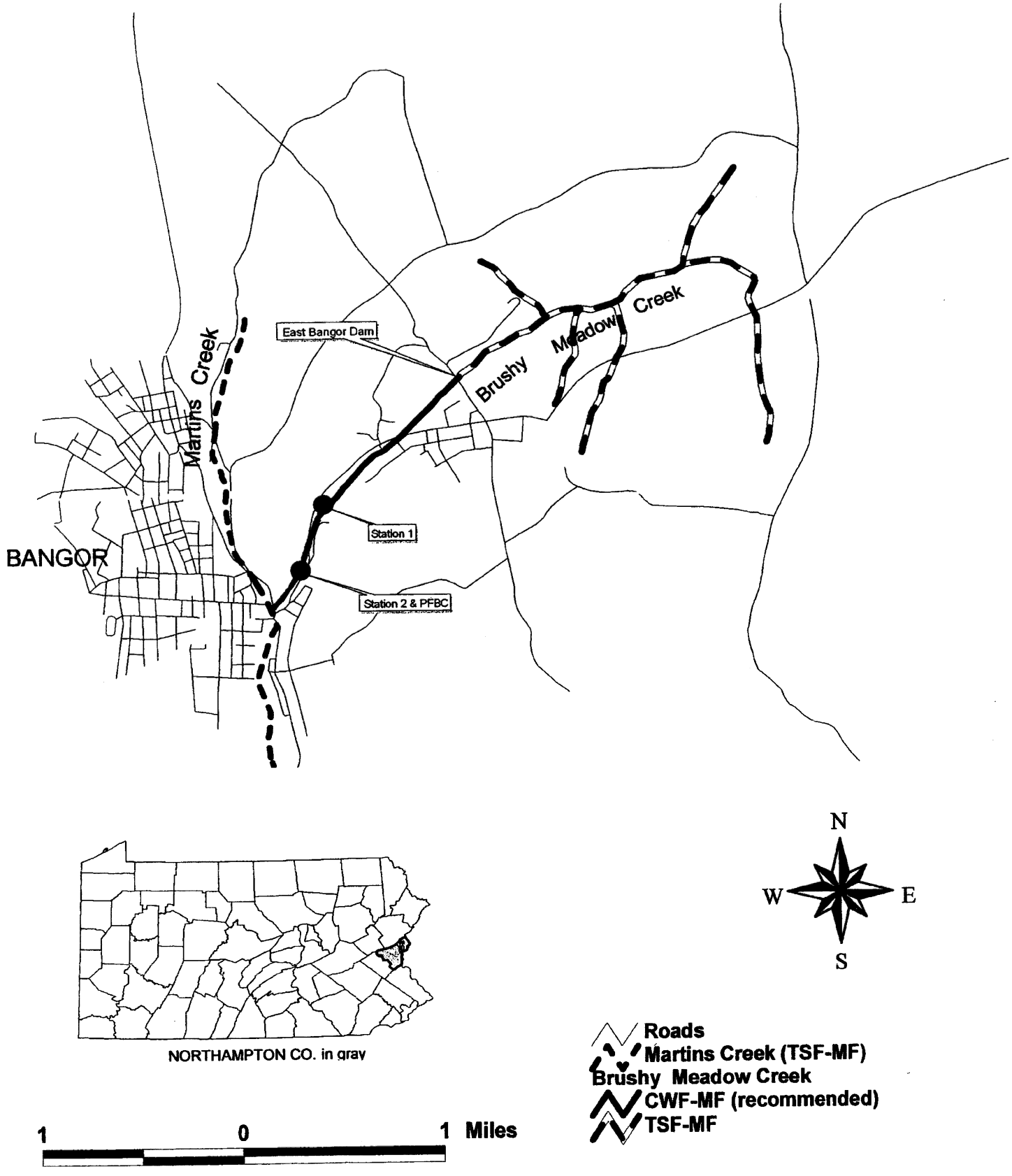

TABLE 1
WATER CHEMISTRY
BRUSHY MEADOW CREEK, NORTHAMPTON COUNTY
December 1999

STATIONS	1	2
DATES	12/22/99	12/22/99
field Temp	8.9	8.7
field DO	10.4	10.8
pH	6.9	7
ALK	82	86
COND	488	642
BOD	0.71	0.62
Susp Sol	26	28
NH_3	<0.02	0.02
NO_2	<0.01	<.01
NO_3	0.58	0.54
HARD	220	297
CA	59	82
MG	18	22
CU*	<10	<10
PB*	<1	<1
NI*	<50	<50
ZN*	<10	<10
AL*	<200	<200
MN*	71	44
FE*	109	110
CD*	<10	<10

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

TABLE 2

HABITAT ASSESSMENT SUMMARY [1]

BRUSHY MEADOW CREEK, NORTHAMPTON COUNTY

December 1999

HABITAT PARAMETER	scoring range	STATIONS [1]	
		1	2
1 . instream cover	0 - 20	17	13
2 . epifaunal substrate	0 - 20	10	9
3 . embeddedness	0 - 20	5	5
4 . velocity/depth	0 - 20	14	11
5 . channel alterations	0 - 20	12	13
6 . sediment deposition	0 - 20	10	11
7 . riffle frequency	0 - 20	7	10
8 . channel flow status	0 - 20	17	16
9 . bank condition	0 - 20	11	16
10 . bank vegetation protection	0 - 20	11	9
11 . grazing/disruptive pressures	0 - 20	15	12
12 . riparian vagetation zone width	0 - 20	5	2
Total Score	0 - 240	134	127

1- from DEP 1999

TABLE 3
BENTHIC MACROINVERTEBRATES
Kick-Screen & D-frame Results [1]
BRUSHY MEADOW CREEK
December 1998

STATIONS		1		2	
		kick screen	D-frame	kick screen	D-frame
TAXA					
Mayflies					
Baetidae	***Baetis***	X	1	X	1
Ephemerellidae	***Ephemerella***	X	-	X	-
	Eurylophella	-	-	-	1
	Serratella	X	10	X	3
Stoneflies					
Perlidae	***Acroneuria***	X	-	-	-
	Eccoptura*	-	1	X	-
	Phasganophora **	X	-	-	-
Capnidae	***Paracapnia***	-	-	-	1
Nemouridae	***Oemopteryx***	X	22	X	28
	Strophopteryx	X	10	X	28
Taenioptergidae	***Taeniopteryx***	X	15	X	5
Caddisflies					
Bracycentridae	***Brachycentrus***	-	-	X	-
Hydropsychidae	***Cheumatopsyche***	X	5	-	-
	Diplectrona	X	3	-	-
	Hydropsyche	-	5	X	2
Philopotamidae	***Chimarra***	X	10	X	32
	Dolophilodes	-	-	-	2
Rhyacophilidae	***Rhyacophila***	X	-	X	1
True Flies					
Chironomidae		-	5	-	5
Simulidae	***Prosimulium***	-	1	-	-
	Simulium	X	-	-	6
Tipulidae	***Tipula***	X	-	X	-
Misc. Insect Taxa					
Elmidae	***Optioservus***	X	3	-	-
Corydalidae	***Nigronia***	X	1	X	-
Sialidae	***Sialis***	-	-	-	1
Gomphidae	***Arigomphus***	-	1	-	-
Non-Insect Taxa					
Amphipoda	***Crangonyx***	X	18	X	15
Isopoda	***Caecidotea***	X	-		-
Oligochaeta		X	10	X	1
total # individals		-	121	-	132
taxa richness		19	17	15	16
mEPT* **		10	7	9	9
Hilsenhoff		-	4.02	-	3.82
% Dom		-	18.18	-	24.24
total # mMayflies* **		-	10	-	4
Shannon		-	3.81	-	2.99

1 - from DEP 1999; bold entries = taxa with Hils score <5

* initially reported as Classenia. Subsequent sampling of later instars revealed them as Eccoptura

** - = *Agnetina*

*** - includes only taxa with Hils score <5

TABLE 4
FISHES [1]
BRUSHY MEADOW CREEK

TAXA	STATION 1	PFBC	2
Salmo trutta , **brown trout**	23 [2]	63 (50-231 mm)	16 [2]
Oncorhynchus mykiss , **rainbow trout**	-	-	-
Rhinichythys atratulus , **blacknose dace**	-	-	-
Rhinichythys cataractae , **longnose dace**	-	1	1
Semotilus corporalis , **fallfish**	-	-	-
Catastomus commersoni , **white sucker**	1	-	2
Noturus insignis , **margined madtom**	-	-	-
Etheostoma olmstedi , **tessellated darter**	-	-	-
Percina peltata , **shield darter**	-	-	-
Lepomis macrochirus , **bluegill**	1	-	-
Micropterus salmoides , **largemouth bass**	1	-	-
Esox niger , **chain pickerel**	1	-	-
Anguilla rostrata , **American eel**	3	13 (142-521mm)	5
TOTAL TAXA	6	3	4

1 - DEP: 12/22/98; PFBC: 8/25/99
2 - Young-of-year, juvenile, and adult stages represented

CRUM CREEK
CHESTER AND DELAWARE COUNTIES

WATER QUALITY STANDARDS REVIEW
STREAM REDESIGNATION EVALUATION REPORT

SEGMENT: BASIN, FROM SOURCE TO SPRINGTON RESERVOIR

DRAINAGE LIST: G

STREAM CODE: 00692

WATER QUALITY MONITORING AND ASSESSMENT SECTION (DSB)

DIVISION OF WATER QUALITY ASSESSMENT AND STANDARDS

BUREAU OF WATER SUPPLY AND WASTEWATER MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL PROTECTION

JANUARY 2001

REVISED OCTOBER 2002

GENERAL WATERSHED DESCRIPTION

Crum Creek flows through Chester and Delaware Counties and is a tributary to the Delaware River (Figure 1). Only the portion of the basin upstream of the Springton (Geist) Reservoir was the subject of this evaluation. This candidate basin covers an area of 11.6 square miles and contains 35.5 stream miles. It is located in Easttown and Willistown Townships and Malvern Borough in Chester County and Edgemont and Newtown Townships in Delaware County. The Crum Creek basin currently has the protected water use designation of High Quality-Cold Water Fishes (HQ-CWF) from the source to the junction of the Newtown, Edgemont, and Willistown Township borders and Cold Water Fishes (CWF) from there to the Springton Reservoir. As a result of a petition submitted by the Willistown Conservation Trust, the candidate basin was evaluated for redesignation as Exceptional Value Waters (EV). This report is based on field surveys conducted in May and December of 2000.

Land use in the candidate basin is mostly a mixture of low density residential and pasture with a limited amount of second growth hardwood forest. The northern portion of the basin contains the boroughs of Green Tree and Malvern. State Route 3 traverses the lower portion of the watershed.

WATER QUALITY AND USES

Surface Water:
No long-term water quality data were available to allow a direct comparison to water quality criteria. Grab samples were collected at 6 stations in the Crum Creek basin during the December 2000 survey (Tables 1 & 2). These samples indicated that water quality was generally good; however, the instantaneous nature of grab samples precludes a direct comparison to applicable water quality criteria. The indigenous aquatic community is a better indicator of long-term conditions than one-time grab samples and is used as a measure of ecological significance.

There are no surface water withdrawals for public water supply in the candidate basin. Four NPDES permitted discharges are located in this watershed (#'s: PA00 – 51667, 51659, 55051, and 55034). These are all single-family residences with permitted discharges under 400 gallons/day (gpd). In addition a permit has been issued to Joyfor Joint Venture (PA0057924) for a discharge into Unnamed Tributary 00716 (Figure 1) with a permitted flow of 50,000 gpd. This facility had not been constructed at the time the field survey was conducted and this report was written.

Aquatic Biota:
Habitat assessment and biological sampling was conducted at 6 locations during the May 2000 survey. An evaluation of physical habitat assessments revealed that Station 2CC and reference Station R2 scored in the Optimal category while the rest of the stations received Suboptimal habitat scores for benthic macroinvertebrates and fish (Table 3). Habitat scores ranged from 167 to 198 for the Crum Creek stations. Low scoring parameters included lack of an adequate riparian zone, vegetative cover and disruptive pressure on the banks, and limited velocity/depth

regimes. Station R2 scored somewhat higher than Station R1 mainly because of better bank and riparian zone conditions.

Benthic macroinvertebrate samples were collected at 6 stations (Table 4) using sampling techniques adapted from the EPA Rapid Bioassessment Protocols. Taxonomic diversity was good with a mean of nearly 28 total taxa per station. Individuals from several genera that are sensitive to water quality degradation were common. In June 1999 the Pennsylvania Fish and Boat Commission (PFBC) collected a total of 21 species of fish at 4 stations (Figure 1 & Table 5). Wild brown trout were present at all stations including a biomass of 34 kg/ha at Station 104. The other species collected were a mixture of cold, cool, and warm water species. Waters in all portions of the candidate basin were found to support their designated uses.

BIOLOGICAL USE QUALIFICATIONS

The biological use qualifying criterion applied to Crum Creek was the integrated benthic macroinvertebrate score test described at § 93.4b(a)(2)(i)(A). This score is calculated from a subsample of approximately 100 individuals which were randomly selected from each total sample and enumerated following EPA's RBP III protocols (Table 6). Selected benthic macroinvertebrate community metrics generated from these subsamples were compared to a reference station with a comparable drainage area (Table 7). Both reference stations are located in the French Creek (01548) basin, one on the main stem and the other on Birch Run (01563), a small tributary. Both stations are located on EV waters. All sampling was conducted over a two-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, Station 3WB, located on the West Branch Crum Creek (a small tributary) had a biological condition score greater than 92% of the reference station score that qualifies for an EV designation under the Department's regulatory criterion found at § 93.4b(b)(1)(v). The remaining stations all had scores less than 83% of the reference station score which does not meet the threshold required for designation as High Quality Waters (§ 93.4b(a)(2)(i)(A)).

None of the other antidegradation qualifying requirements listed in § 93.4b applies to this watershed.

PUBLIC RESPONSE AND PARTICIPATION SUMMARY

The Department provided public notice of this redesignation evaluation and requested any technical data from the general public through publication in the Pennsylvania Bulletin on April 22, 2000 (30 Pa.B 2071). A similar notice was also published in the Philadelphia Inquirer on April 21, 2000. In addition, Easttown, Edgemont, Newtown, and Willistown Townships along

with Malvern Borough were all notified of the evaluation in a letter dated April 19, 2000. The Delaware County Planning Department and the Chester County Planning Commission were also notified at the same time. No data on water chemistry, instream habitat, or the aquatic community were received in response to these notifications.

A draft of this report was submitted to the above stakeholders including the petitioner, along with a request for comments, on September 20, 2002. Comments were received from the Chester County Planning Commission and Chester County Water Resources Authority in letters dated October 10 and 4, 2002, respectively. Both agencies were in strong support of the recommendation to upgrade the designated use of the West Branch Crum Creek to EV.

RECOMMENDATIONS

Based on applicable regulatory criteria, the Department recommends that the use designation of the West Branch Crum Creek (00728) basin be changed from HQ-CWF to EV based on biological condition scores greater than 92% of the reference station score. This upgrade would affect 5.88 stream miles. The remainder of the candidate basin should retain the current use designations. This recommendation provides less protection for the majority of the basin than the EV designation requested by the petitioner.

FIGURE 1.
CRUM CREEK
CHESTER AND DELAWARE COUNTIES

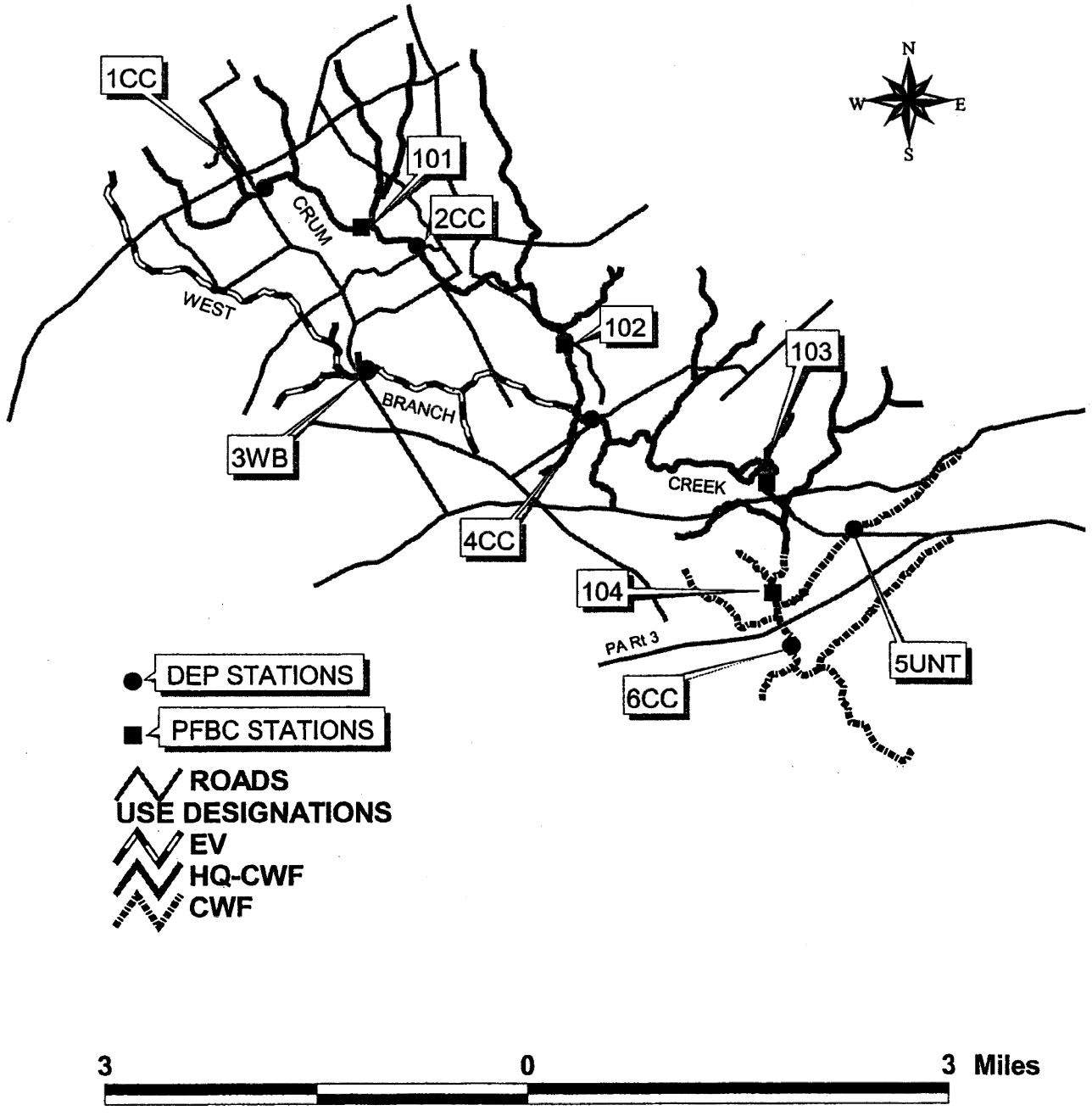

TABLE 1
STATION LOCATIONS
CRUM CREEK
CHESTER AND DELAWARE COUNTIES

STATION	LOCATION
1CC	Crum Creek (00692) approximately 80 meters downstream from the SR2015 crossing. Willistown Township, Chester County Lat: 40 01 25 Long: 75 30 19 RMI: 23.06
2CC	Crum Creek approximately 50 meters upstream of the Jaffrey Road (T382) crossing. Willistown Township, Chester County Lat: 40 01 03 Long: 75 29 04 RMI: 21.58
3WB	West Branch Crum Creek (00728) approximately 30 meters downstream of SR2015 crossing. Willistown Township, Chester County Lat: 40 00 15 Long: 75 29 34 RMI: 1.94
4CC	Crum Creek approximately 20 meters upstream of the Barr Road (T367) bridge. Willistown Township, Chester County Lat: 39 59 55 Long: 75 27 41 RMI: 19.21
5UNT	Unnamed Tributary to Crum Creek (00617) approximately 15 meters upstream of the Boot Road (T337) crossing. Newtown Township, Delaware County Lat: 39 59 09 Long: 75 25 41 RMI: 0.79
6CC	Crum Creek approximately 300 meters downstream of the SR 3 bridge Edgemont and Newtown Township boundary, Delaware County Lat: 39 58 23 Long: 75 26 09 RMI: 15.51
R1	Birch Run (01563) approximately 30 meters upstream of the mouth. West Vincent Township, Chester County Lat: 40 08 51 Long: 75 37 17 RMI: 0.1
R2	French Creek (01548) approximately 30 meters downstream of the T517 crossing. South Coventry Township, Chester County Lat: 40 10 17 Long: 75 41 26 RMI: 14.55

TABLE 2
WATER CHEMISTRY[1]
CRUM CREEK, CHESTER AND DELAWARE COUNTIES
DECEMBER 8, 2000

STATION	1CC	2CC	3WB	4CC	5UNT	6CC
Field Parameters						
Temp (°C)	5.0	4.3	3.7	3.5	2.3	2.3
pH	7.3	7.8	7.2	7.3	7.3	7.0
Cond (µmhos)	200	234	203	195	343	219
Diss. O_2	9.2	11.3	10.9	12.0	11.2	12.7
Laboratory Parameters						
pH	6.8	7.1	6.9	7.0	7.1	6.9
Alkalinity	46	54	44	48	52	48
Acidity	0	0	0	0	0	0
Hardness	72	92	82	77	138	84
T Diss. Sol.	90	118	92	86	190	134
Susp.Sol.	<2	8	14	10	26	<2
NH3 N	<.02	<.02	<.02	<.02	<.02	<.02
NO2 N	0.03	<.01	<.01	<.01	<.01	<.01
NO3 N	2.21	2.20	1.94	1.92	1.26	2.19
Total P	0.03	0.01	0.01	<0.01	<0.01	<0.01
Ca	14.3	15.1	16.5	15.6	31.4	18.4
Mg	8.8	13.1	10.0	9.17	14.4	9.12
Cl	21	25	27	20	61	23
SO_4	<20	<20	<20	<20	26	24
As*	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
As Diss	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Cd*	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Cd Diss	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Cr*	<50	<50	<50	<50	<50	<50
Cu*	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Cu Diss	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Fe*	254	193	197	194	55	165
Pb*	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Pb Diss	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Mn*	61	30	28	18	<10	19
Ni*	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Ni Diss	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Zn*	18.1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Zn Diss	16.4	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Al*	35.2	55.7	32.7	32.5	29.7	60.2

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

* Total concentrations in ug/l

TABLE 3
HABITAT ASSESSMENT SUMMARY
CRUM CREEK, CHESTER AND DELAWARE COUNTIES
MAY 9-10, 2000

HABITAT PARAMETER	STATIONS[1]							
	1CC	2CC	3WB	4CC	5UNT	6CC	R1	R2
1. instream cover	15	16	17	17	15	12	16	15
2. epifaunal substrate	14	15	18	16	16	14	17	17
3. embeddedness	16	17	16	15	17	11	15	18
4. velocity/depth	13	15	14	15	12	14	14	14
5. channel alterations	12	18	13	16	13	17	17	17
6. sediment deposition	17	16	17	17	17	13	17	18
7. riffle frequency	15	14	16	14	15	15	18	13
8. channel flow status	14	15	14	16	16	17	18	16
9. bank condition	16	17	14	16	17	15	12	16
10. bank vegetation protection	15	18	15	17	18	16	14	18
11. grazing/disruptive pressures	12	18	12	14	14	18	11	18
12. riparian vegetation zone width	8	19	10	12	10	17	9	13
Total Score	167	198	176	185	180	179	178	193
Rating[2]	SUB	OPT	SUB	SUB	SUB	SUB	SUB	OPT

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

[2] OPT = Optimal; SUB = Suboptimal

TABLE 4
BENTHIC MACROINVERTEBRATE TAXA LIST
CRUM CREEK, CHESTER AND DELAWARE COUNTIES
MAY 9-10, 2000

TAXA	STATION							
	1CC	2CC	3WB	4CC	5UNT	6CC	R1	R2
Ephemeroptera (mayflies)								
Ameletidae; *Ameletus*					R			
Baetidae; *Acentrella*							C	C
Baetis	P	C	P	C		R	A	P
Caenidae; *Caenis*		P				P		
Ephemerellidae; *Drunella*							A	A
Ephemerella	P	A	VA	VA	VA	VA	VA	VA
Eurylophella	P	C			R	C		
Serratella		P		P		A		
Timpanoga				P		C		P
Heptageniidae; *Epeorus*							P	P
Stenacron			R					R
Stenonema	P	A	C		A	P	P	P
Isonychiidae; *Isonychia*		P		P		P	P	P
Leptophlebiidae; *Paraleptophlebia*			R	C			P	
Plecoptera (stoneflies)								
Chloroperlidae; *Alloperla*				R				
Leuctridae; *Leuctra*		P	P	C		R	R	
Nemouridae; *Amphinemura*	VA	P	A	A	VA	R		
Perlidae; *Acroneuria*			P	P			C	C
Eccoptura					R			
Perlesta	C	A	R		R		R	
Perlodidae; *Isoperla*			R		P			
Tricoptera (caddisflies)								
Glossosomatidae; *Agapetus*	P				P			R
Glossosoma				R				
Hydropsychidae; *Cheumatopsyche*	P	C	A	A	P	C		A
Diplectrona	R	P	C	P	P	R		
Hydropsyche	P	C	A	A	C	A	P	A
Limnephilidae; *Apatania*			R					
Philopotamidae; *Chimarra*	P	P	P	C	R			R
Dolophilodes			P	P	C		C	R
Polycentropodidae; *Polycentropus*	R	R	R	P				
Rhyacophilidae; *Rhyacophila*			P	R	P			P
Uenoidae; *Neophylax*	R						R	R
Lepidoptera (moths)								
Pyralidae; *Petrophila*							R	
Diptera (true flies)								
Dolichopodidae sp.					R			
Simuliidae; *Simulium*	C	P	P	P			P	
Tabanidae; *Chrysops*			R					
Tipulidae; *Antocha*		P				P	P	P
Tipula		R	P		R			
Chironomidae	VA	A	A	VA	C	A	C	C

TAXA	STATION							
	1CC	2CC	3WB	4CC	5UNT	6CC	R1	R2
Megaloptera (dobson-, fishflies)								
Corydalidae; *Nigronia*		P	P					R
Corydalus				P				P
Sialidae; *Sialis*	R	P		R				
Odonata (dragon-, damselflies)								
Aeshnidae; *Boyeria*		R			R			
Cordulegastridae; *Cordulegaster*					R			
Gomphidae; *Ophiogomphus*								R
Stylogomphus		C	C	R	P		R	P
Calopterygidae; *Calopteryx*					R			
Coenagrionidae; *Argia*		P						
Coleoptera (aquatic beetles)								
Dytiscidae; *Agabus*	P							
Dryopidae; *Helichus*						R		
Elmidae; *Optioservus*	C	A	C	A	P	P	R	C
Dubiraphia		R						
Macronychus						R		
Oulimnius		P	P	R		R		
Stenelmis	A	A	A	VA	A	C	R	C
Hydrophilidae; *Berosus*		R			R			
Psephenidae; *Psephenus*	A	A	P	A	P	P	A	P
Ectopria				R				
Ptilodactylidae; *Anchytarsus*	R		P					
Non-Insect Taxa								
Oligochaeta	P	P		P		P		P
Isopoda (aquatic sowbugs)								
Asellidae; *Caecidotea*	P							
Decapoda (crayfish)								
Cambaridae; *Cambarus*	P	R					R	
Gastropoda (univalves, snails)								
Physidae	P							
Pleuroceridae								P
Pelecypoda (bivalve clams)								
Corbiculidae; *Corbicula*						P		
Sphaeriidae		P		P		P		
Unionidae								R
Number of taxa in total sample	25	33	29	30	26	24	23	29

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

TABLE 5
FISHES[1]
CRUM CREEK
CHESTER AND DELAWARE COUNTIES

SPECIES NAME	STATION			
	101	102	103	104
American eel, *Anguilla rostrata*			P	P
Rainbow trout, *Oncorhynchus mykiss*[3]			R	
Brown trout, *Salmo trutta*[2]	P	P	A	C
Brook trout, *Salvelinus fontinalis*[3]			R	
Cutlips minnow, *Exoglossum maxillingua*	X	C	X	X
Common shiner, *Luxillus cornutus*	X	C		C
Spottail shiner, *Notropis hudsonius*			R	X
Blacknose dace, *Rhinichthys atratulus*	X	A	A	X
Creek chub, *Semotilis atromaculatus*	X	P	P	X
Fallfish, *Semotilis corporalis*	X	P	C	X
White sucker, *Catostomus commersoni*	X	A	A	X
Yellow bullhead, *Ameiurus natalis*	X		P	X
Brown bullhead, *Ameiurus nebulosus*				X
Margined madtom, *Noturus insignis*		P	C	X
Green sunfish, *Lepomis cyanellus*		R	X	X
Redbreast sunfish, *Lepomis auritus*		R	P	P
Pumpkinseed, *Lepomis gibbosus*		R	P	P
Bluegill, *Lepomis macrochirus*	P	R	R	
Largemouth bass, *Micropterus salmoides*				X
Tessellated darter, *Etheostoma olmstedi*	X	C	C	X
Yellow perch, *Perca flavescens*			R	

1 - Data collected by the Pennsylvania Fish and Boat Commission (June 1999)

2 - Mostly wild with a few stocked individuals

3 - Only stocked individuals

A = Abundant (>100); C = Common (26-100); P = Present (3-25); R = Rare (<3)

X = present but no relative abundance determined

TABLE 6
SEMI-QUANTITATIVE BENTHIC MACROINVERTEBRATE DATA
CRUM CREEK, CHESTER AND DELAWARE COUNTIES
MAY 9-10, 2000

TAXA	STATION							
	1CC	2CC	3WB	4CC	5UNT	6CC	R1	R2
Ephemeroptera (mayflies)								
Baetidae; *Acentrella*							6	5
Baetis	3	7	2	2			8	1
Caenidae; *Caenis*		5				2		
Ephemerellidae; *Drunella*							32	27
Ephemerella	1	10	65	26	53	27	48	53
Eurylophella	2					5		
Serratella		1		1		3		1
Timpanoga						8		1
Heptageniidae; *Epeorus*							3	
Stenonema	3	2	5		8	1	1	1
Isonychiidae; *Isonychia*				1		3	1	2
Leptophlebiidae; *Paraleptophlebia*			1	3				
Plecoptera (stoneflies)								
Leuctridae; *Leuctra*		4	2	3				
Nemouridae; *Amphinemura*	24	4	9	4	26			
Perlidae; *Acroneuria*				1			4	1
Perlesta		23						1
Perlodidae; *Isoperla*			1					
Tricoptera (caddisflies)								
Hydropsychidae; *Cheumatopsyche*	2	4	5	5		1		10
Diplectrona	1		2		2			
Hydropsyche	1	1	4	4	3	7	1	1
Hydroptilidae; *Hydroptila*		1						
Philopotamidae; *Chimarra*	2				1			
Dolophilodes					2		5	
Polycentropodidae; *Polycentropus*		1		1				
Rhyacophilidae; *Rhyacophila*				1				1
Uenoidae; *Neophylax*	1							
Diptera (true flies)								
Simuliidae; *Simulium*	3	4	1	1		1		
Tipulidae; *Antocha*						1	1	
Tipula		1						
Chironomidae	41	13	8	20	3	42	6	2
Megaloptera (dobson-, fishflies)								
Corydalidae; *Nigronia*		1	1					
Corydalus				1				
Sialidae; *Sialis*	1							
Odonata (dragon-, damselflies)								
Gomphidae; *Stylogomphus*			1		1			1
Coenagrionidae; *Argia*		1						

TAXA	STATION							
	1CC	2CC	3WB	4CC	5UNT	6CC	R1	R2
Coleoptera (aquatic beetles)								
Dytiscidae; *Agabus*	1							
Elmidae; *Optioservus*	5	7	6	9	1	1		
Oulimnius		2						
Stenelmis	18	12	9	76	15	7		5
Psephenidae; *Psephenus*	11	8	1	8	9	4	12	1
Ptilodactylidae; *Anchytarsus*	1		2					
Non-Insect Taxa								
Oligochaeta	1	1		1		1		
Gastropoda (univalves, snails)								
Physidae	1							
Pleuroceridae								1
Pelecypoda (bivalve clams)								
Corbiculidae; *Corbicula*						2		

TABLE 7
RBP METRIC COMPARISON
CRUM CREEK, CHESTER COUNTY
MAY 9-10, 2000

METRIC[1]	STATION							
	1CC	2CC	3WB	4CC	5UNT	6CC	R1	R2
1. TAXA RICHNESS	20	22	18	19	12	17	13	18
Cand/Ref (%)	154	169	138	105	92	94	xxx	xxx
Biol. Cond. Score	6	6	6	6	6	6	6	6
2. MOD. EPT INDEX	7	6	7	8	6	6	8	10
Cand/Ref (%)	87	75	87	80	75	60	xxx	xxx
Biol. Cond. Score	6	4	6	6	4	4	6	6
3. MOD. HBI	4.8	4.4	2.5	4.2	2.5	4.1	2.0	2.1
Cand-Ref	2.8	2.4	0.5	2.1	0.5	2.0	xxx	xxx
Biol. Cond. Score	0	0	6	0	6	0	6	6
4. % DOMINANT TAXA	34	20	52	45	43	36	38	46
Cand-Ref	<0	<0	14	<0	5	<0	xxx	xxx
Biol. Cond. Score	6	6	6*	6	6	6	6	6
5. % MOD. MAYFLIES	3	11	57	18	49	40	71	78
Ref-Cand	68	60	14	60	22	38	xxx	xxx
Biol. Cond. Score	0	0	4	0	2	2	6	6
TOTAL BIOLOGICAL CONDITION SCORE	18	16	28	18	24	18	30	30
% COMPARABILITY TO REFERENCE	60	53	93	60	80	60		

[1] - Stations 1CC, 2CC, 3WB, and 5UNT compared to R1
Stations 4CC and 6CC compared to R2

* - Dominant taxon with a Hilsenhoff score < 3

GREEN LICK RUN

FAYETTE COUNTY

WATER QUALITY STANDARDS REVIEW
STREAM REDESIGNATION EVALUATION REPORT

SEGMENT BASIN

DRAINAGE LIST: V

STREAM CODE: 37946

WATER QUALITY MONITORING AND ASSESSMENT SECTION (DSB)

DIVISION OF WATER QUALITY ASSESSMENT AND STANDARDS

BUREAU OF WATER SUPPLY AND WASTEWATER MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL PROTECTION

JANUARY 2001

REVISED OCTOBER 2002

GENERAL WATERSHED DESCRIPTION

Green Lick Run is a tributary to Jacobs Creek in the Youghiogheny River watershed (Figure 1). This basin covers an area of 7.2 square miles and contains 14.9 stream miles. It is located in Bullskin Township, Fayette County. The Green Lick Run basin currently has the protected water use designation Warm Water Fishes (WWF) and was evaluated for redesignation as Exceptional Value Waters (EV) as a result of a petition submitted by the Rural Area Concerned Citizens. This report is based on a field survey conducted in October of 2000.

The upper half of the watershed is covered by mostly second growth hardwood forest with little human disturbance. A mining company has applied for a permit to operate a large limestone quarry in this area. Land use in the lower half of the basin is mostly a mixture of low density residential and agriculture, including cropland and pasture. Green Lick Reservoir used to be located upstream of State Route 982, but the dam washed out over 20 years ago and the stream has reverted back to its natural condition. The National Resources Conservation Service (NRCS) built a replacement reservoir downstream of SR 982 in 1971. The new dam runs underneath T810 and the impoundment stretches back almost to the T753 bridge.

WATER QUALITY AND USES

Surface Water:
No long term water quality data were available to allow a direct comparison to water quality criteria. Grab samples were collected at 3 stations in the Green Lick Run basin during the October 2000 survey (Tables 1 & 2). These samples indicated that water quality was generally good. The indigenous aquatic community is a better indicator of long-term conditions than one-time grab samples and is used as a measure of ecological significance.

No surface water withdrawals for public water supply and only one NPDES permitted discharge to surface waters are located in this watershed. The Bullskin Swimming Pool Club has a discharge on Latta Run (PA0090450). This facility has a seasonal discharge with a limit of 4,500 gallons/day. This business went bankrupt in 2000 and did not discharge.

Aquatic Biota:
Habitat assessments and biological samplings were conducted at 4 stations (3 candidate and a reference station) during the October 2000 survey. An evaluation of physical habitat assessments revealed that Stations 1GLR and 2GLR and reference station R1 scored in the Optimal category and Station 3LR scored in the Suboptimal category for benthic macroinvertebrates and fish (Table 3). Habitat scores ranged from 168 to 213 for the Green Lick Run stations. Low scoring parameters included lack of an adequate riparian zone, vegetative disruptive pressure, and limited velocity/depth regimes. The reference station habitat score was 214.

Benthic macroinvertebrate samples were collected at 3 candidate stations and a reference station (Table 4). Sampling techniques adapted from the EPA Rapid Bioassessment Protocols were used during this survey. Taxonomic diversity was average with a mean of 23.3 total taxa per

candidate station. Individuals from several genera that are sensitive to water quality degradation such as *Ephemerella, Aconeuria*, and *Diplectrona*, were common at Stations 1GLR and 2GLR. The total number of individuals/station was unusually low at Stations 1GLR, 2GLR, and R1. This probably results from acid precipitation and the lack of a natural buffering capacity in these basins.

Between both Pennsylvania Fish and Boat Commision (PFBC) and Ecosolutions, a private consulting firm, a total of 4 species of fish were collected at three stations (Figure 1 & Table 5). Wild rainbow trout were present at Stations 101 and 1ECO and wild brook trout were present at Station 2ECO. The other species collected were also cold-water species. Waters in all portions of the basin were found to support their designated uses.

BIOLOGICAL USE QUALIFICATIONS

The biological use qualifying criterion applied to Green Lick Run was the integrated benthic macroinvertebrate score test described at § 93.4b(a)(2)(i)(A). This score is calculated from the macroinvertebrate samples referenced above. Because total numbers were low at Stations 1GLR, 2GLR and R1 the total sample was enumerated following the EPA's RBP III protocol (Table 6). A 100-count subsample was used for Station 3LR. Selected benthic macroinvertebrate community metrics were compared to a reference station with a comparable drainage area (Table 7). Both Green Lick Run and the reference stream, Bear Run (38455) are located in the Forested Hills and Mountains subecoregion (69a). Bear Run is a cold water fishery with an Exceptional Value (EV) designation in Chapter 93. All sampling was conducted on the same day to minimize the effects of seasonal variation. This comparison was done using the following metrics which were selected as being indicative of community health: taxa richness; modified EPT index (total number of intolerant Ephemeroptera, Plecoptera, and Trichoptera taxa); modified Hilsenhoff Biotic Index; percent dominant taxon; and percent modified mayflies.

Based on these five metrics, Stations 1GLR and 2GLR had biological condition scores greater than 92% of the reference station score which qualifies for an EV designation under the Department's regulatory criterion (§ 93.4b(b)(1)(v)). Station 3LR had a score of 40% of the reference station score. This score does not meet the 83% threshold required for designation as High Quality Waters (§ 93.4b(a)(2)(i)(A)).

None of the other antidegradation qualifying requirements listed in § 93.4b applies to this watershed.

PUBLIC RESPONSE AND PARTICIPATION SUMMARY

The Department provided public notice of this redesignation evaluation and requested any technical data from the general public through publication in the Pennsylvania Bulletin on April 22, 2000 (30 Pa.B 2071). A similar notice was also published in the The Daily Courier, Connellsville on April 21, 2000. In addition, Bullskin Township was notified of the evaluation

in a letter dated April 19, 2000. No data on water chemistry, instream habitat, or the aquatic community were received in response to these notifications.

A draft of this report was submitted to the above stakeholders including the petitioner, along with a request for comments, on September 20, 2002. No comments were received in response to this request.

RECOMMENDATIONS

Based on applicable regulatory criteria, the Department recommends that the use designation of the Green Lick Run basin from the source to Latta Run be changed from WWF to EV based on biological condition scores greater than 92% of the reference station score. Also the use designation of the Latta Run basin and Green Lick Run from Latta Run to the T753 Bridge should be changed from the current WWF to CWF based on the presence of reproducing cold-water fish species. These recommendations affect 7.5 stream miles and satisfy the original request by the petitioner since the petition only covered the upper part of the basin.

FIGURE 1.
GREEN LICK RUN
FAYETTE COUNTY

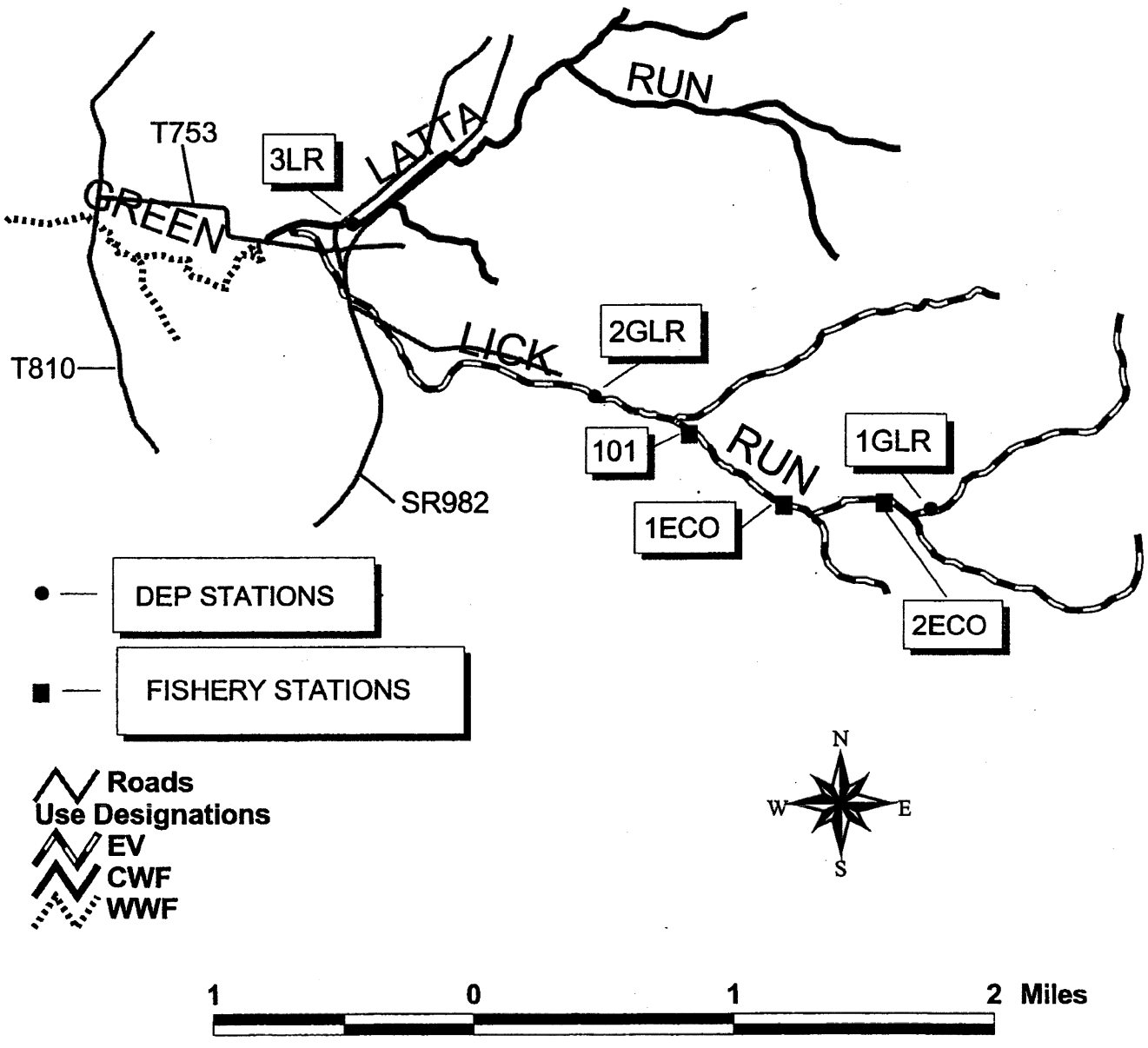

TABLE 1
STATION LOCATIONS
GREEN LICK RUN
FAYETTE COUNTY

STATION	LOCATION
1GLR	Unnamed tributary to Green Lick Run (37957) approximately 100 meters upstream of the mouth. Bullskin Township, Fayette County Lat: 40 05 54 Long: 79 28 25 RMI: 0.07
2GLR	Green Lick Run (37946) approximately 600 meters downstream of the confluence with UNT 37955. Bullskin Township, Fayette County Lat: 40 06 19 Long: 79 29 54 RMI: 3.00
3LR	Latta Run (37949) approximately 30 meters upstream of the T733 crossing. Bullskin Township, Fayette County Lat: 40 06 52 Long: 79 30 57 RMI: 0.23
R1	Bear Run (38455) approximately 100 meters upstream from the confluence with UNT 38459. Stewart Township, Fayette County. Lat: 39 53 56 Long: 79 27 27 RMI: 1.67

TABLE 2
WATER CHEMISTRY[1]
GREEN LICK RUN, FAYETTE COUNTY
OCTOBER 19, 2000

STATION	1GLR	2GLR	3LR
Field Parameters			
Temp (°C)	11.3	11.0	12.3
pH	6.8	6.9	6.7
Cond (µmhos)	71	88	176
Diss. O_2	9.8	9.8	9.0
Laboratory Parameters			
pH	6.5	6.7	6.8
Alkalinity	7.6	14.2	32
Acidity	0	0	0
Hardness	22	31	59
T Diss. Sol.	60	66	116
Susp.Sol.	<2	<2	14
NH_3-N	<.02	<.02	0.04
NO_2-N	<.01	<.01	0.04
NO_3-N	0.32	0.54	2.02
Total P	0.01	<0.01	0.06
Ca	6.23	9.28	16.9
Mg	1.47	1.88	4.1
Cl	4	3	13
SO_4	<20	<20	<20
As*	< 4.0	< 4.0	< 4.0
As Diss	< 4.0	< 4.0	< 4.0
Cd*	< 0.2	< 0.2	< 0.2
Cd Diss	< 0.2	< 0.2	< 0.2
hex Cr*	<10	<10	<10
Cu*	< 4.0	< 4.0	< 4.0
Cu Diss	< 4.0	< 4.0	< 4.0
Fe*	191	165	731
Pb*	< 1.0	< 1.0	< 1.0
Pb Diss	< 1.0	< 1.0	< 1.0
Mn*	32	15	132
Ni*	< 4.0	< 4.0	< 4.0
Ni Diss	< 4.0	< 4.0	< 4.0
Zn*	11.4	6.7	< 5.0
Zn Diss	9.5	< 5.0	< 5.0
Al*	147	111	390

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

TABLE 3
HABITAT ASSESSMENT SUMMARY
GREEN LICK RUN
FAYETTE COUNTY
OCTOBER 19, 2000

HABITAT PARAMETER	STATIONS[1]			
	1GLR	2GLR	3LR	R1
1. instream cover	18	18	14	18
2. epifaunal substrate	17	18	15	18
3. embeddedness	18	17	13	17
4. velocity/depth	12	15	14	16
5. channel alterations	19	19	17	17
6. sediment deposition	18	18	16	18
7. riffle frequency	18	19	15	19
8. channel flow status	15	13	17	17
9. bank condition	18	18	14	18
10. bank vegetation protection	19	19	15	18
11. grazing/disruptive pressures	20	20	12	18
12. riparian vegetation zone width	20	19	6	20
Total Score	212	213	168	214
Rating[2]	OPT	OPT	SUB	OPT

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

[2] OPT=Optimal; SUB=Suboptimal

TABLE 4
BENTHIC MACROINVERTEBRATE TAXA LIST
GREEN LICK RUN, FAYETTE COUNTY
OCTOBER 19, 2000

TAXA	STATION			
	1GLR	2GLR	3LR	R1
Ephemeroptera (mayflies)				
Baetidae; *Baetis*	R	R		P
Caenidae; *Caenis*			R	
Ephemerellidae; *Ephemerella*	C	R		R
Eurylophella			P	R
Ephemeridae; *Ephemera*		P		
Heptageniidae; *Epeorus*				R
Stenonema	R	P		
Leptophlebiidae; *Paraleptophlebia*	R	P		
Plecoptera (stoneflies)				
Capniidae; *Paracapnia*	R			
Chloroperlidae; *Alloperla*	R			
Sweltsa	R	R		
Leuctridae; *Leuctra*		R		
Peltoperlidae; *Pelto/Tallaperla*	P	R	R	P
Perlidae; *Acroneuria*	P	C		P
Perlodidae; *Diploperla*				R
Isoperla	R			
Pteronarcyidae; *Pteronarcys*				R
Taeniopterygidae; *Taeniopteryx*		R		
Tricoptera (caddisflies)				
Hydropsychidae; *Cheumatopsyche*			VA	R
Diplectrona	A	C		A
Hydropsyche	C	C	A	R
Philopotamidae; *Chimarra*			R	
Dolophilodes	C	C		P
Polycentropodidae; *Polycentropus*		R		R
Psychomiidae; *Lype*	P			
Rhyacophilidae; *Rhyacophila*	P	P		P
Diptera (true flies)				
Empididae; *Hemerodromia*			P	
Simuliidae; *Simulium*		R	P	
Tabanidae; *Chrysops*			R	
Tipulidae; *Hexatoma*		P	R	P
Limnophila	R	R		
Pilaria			R	
Tipula	R	R	R	
Chironomidae	P	P	VA	P
Megaloptera (dobson-, fishflies)				
Corydalidae; *Nigronia*	R	R	R	
Sialidae; *Sialis*			R	

TAXA	STATION			
	1GLR	2GLR	3LR	R1
Odonata (dragon-, damselflies)				
Aeshnidae; *Boyeria*			R	
Gomphidae; *Lanthus*				R
Coleoptera (aquatic beetles)				
Dytiscidae			R	
Dryopidae; *Helichus*			P	
Elmidae; *Dubiraphia*			P	
Optioservus		P	P	
Oulimnius		P		P
Promoresia				R
Stenelmis			C	
Psephenidae; *Psephenus*			R	
Ectopria				R
Ptilodactylidae; *Anchytarsus*			P	
Non-Insect Taxa				
Oligochaeta		R	A	P
Isopoda (aquatic sowbugs)				
Asellidae; *Caecidotea*	R		P	R
Gastropoda (univalves, snails)				
Physidae			C	
Pelecypoda (bivalve clams)				
Sphaeriidae			R	
Number of taxa in total sample	20	24	27	22

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

TABLE 5
FISHES
GREEN LICK RUN
FAYETTE COUNTY

SPECIES NAME	STATION		
	101[1]	1ECO[2]	2ECO[2]
Brook trout, *Salvelinus fontinalis*			X
Rainbow trout, *Oncorhynchus mykiss*	X	X	
Blacknose dace, *Rhinichthys atratulus*	X	X	
Mottled sculpin, *Cottus bairdi*	X	X	

1 - Data collected by the Pennsylvania Fish and Boat Commission (Jun 1996)

2 - Data collected by Ecosolutions (Nov 1998)

TABLE 6
SEMI-QUANTITATIVE BENTHIC MACROINVERTEBRATE DATA
GREEN LICK RUN, FAYETTE COUNTY
OCTOBER 19, 2000

TAXA	STATION			
	1GLR	2GLR	3LR	R1
Ephemeroptera (mayflies)				
Baetidae; *Baetis*	1	2		3
Ephemerellidae; *Ephemerella*	10	1		1
Eurylophella			1	1
Ephemeridae; *Ephemera*		3		
Heptageniidae; *Epeorus*				1
Stenonema	2	3		
Leptophlebiidae; *Paraleptophlebia*	1	5		
Plecoptera (stoneflies)				
Capniidae; *Paracapnia*	1			
Chloroperlidae; *Alloperla*	1			
Sweltsa	1	2		
Leuctridae; *Leuctra*		1		
Peltoperlidae; *Pelto/Tallaperla*	8	1		7
Perlidae; *Acroneuria*	5	18		8
Perlodidae; *Diploperla*				1
Isoperla	2			
Pteronarcyidae; *Pteronarcys*				2
Taeniopterygidae; *Taeniopteryx*		1		
Tricoptera (caddisflies)				
Hydropsychidae; *Cheumatopsyche*			28	1
Diplectrona	25	20		30
Hydropsyche	10	21	7	1
Philopotamidae; *Dolophilodes*	10	16		8
Polycentropodidae; *Polycentropus*		1		1
Psychomiidae; *Lype*	7			
Rhyacophilidae; *Rhyacophila*	4	4		4
Diptera (true flies)				
Simuliidae; *Simulium*		1	1	
Tipulidae; *Hexatoma*		3	1	3
Limnophila	1	1		
Tipula	2	1		
Chironomidae	3	4	43	4
Megaloptera (dobson-, fishflies)				
Corydalidae; *Nigronia*	2	2		
Odonata (dragon-, damselflies)				
Gomphidae; *Lanthus*				2

TAXA	STATION			
	1GLR	2GLR	3LR	R1
Coleoptera (aquatic beetles)				
Elmidae; *Optioservus*		3	1	
Oulimnius		5		3
Promoresia				1
Stenelmis			5	
Psephenidae; *Psephenus*			1	
Ectopria				1
Non-Insect Taxa				
Oligochaeta		2	11	3
Isopoda (aquatic sowbugs)				
Asellidae; *Caecidotea*	1		1	1
Gastropoda (univalves, snails)				
Physidae			7	

TABLE 7
RBP METRIC COMPARISON
GREEN LICK RUN, FAYETE COUNTY
OCTOBER 19, 2000

METRIC	STATION			
	1GRL	2GLR	3LR	R1
1. TAXA RICHNESS	20	24	12	22
Cand/Ref (%)	91	109	54	xxx
Biol. Cond. Score	6	6	0	6
2. MOD. EPT INDEX	13	12	1	10
Cand/Ref (%)	130	120	10	xxx
Biol. Cond. Score	6	6	0	6
3. MOD. HBI	1.4	2.1	6.3	1.7
Cand-Ref	<0	0.4	4.6	xxx
Biol. Cond. Score	6	6	0	6
4. % DOMINANT TAXA	26	17	40	34
Cand-Ref	<0	<0	6	xxx
Biol. Cond. Score	6	6	6	6
5. % MOD. MAYFLIES	13	10	1	3
Ref-Cand	<0	<0	2	xxx
Biol. Cond. Score	6	6	6	6
TOTAL BIOLOGICAL CONDITION SCORE	30	30	12	30
% COMPARABILITY TO REFERENCE	100	100	40	

LITTLE JUNIATA RIVER
BLAIR AND HUNTINGDON COUNTIES

WATER QUALITY STANDARDS REVIEW
STREAM REDESIGNATION EVALUATION SUMMARY REPORT

SEGMENT: MAIN STEM, FROM LOGAN SPRING RUN
TO SPRUCE CREEK
DRAINAGE LIST: N
STREAM CODE: 15664

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

JANUARY 2001
REVISED OCTOBER 2002

LITTLE JUNIATA RIVER
BLAIR AND HUNTINGDON COUNTIES
DRAINAGE LIST N

BACKGROUND

Little Juniata River is a tributary of the Juniata River in the Susquehanna River watershed. The section of the stream being evaluated in this report is located in Tyrone and Snyder Townships, Blair County, and Warriors Mark and Spruce Creek Townships, Huntingdon County. It runs from the confluence of Logan Spring Run at river mile 14.14 to the confluence of Spruce Creek at river mile 6.57. This 7.6 mile section of the Little Juniata River is currently designated Trout Stocking (TSF). The Pennsylvania Fish and Boat Commission (PFBC) currently has a trout stocking program on this segment of the river. They stock fingerling trout in the late summer or fall every year. In response to a request from staff in the South Central Regional Office, this section of the Little Juniata River was evaluated to determine the proper use designation. This evaluation was based on a field survey conducted on August 29, 2000.

FINDINGS

AQUATIC BIOTA: Fish were collected at 4 stations during the August 2000 survey (Figure 1 and Table 1). An assessment of the instream and riparian zone habitat parameters was also made (Table 2). The two upstream stations (1LJR and 2LJR) had habitat scores in the Optimal range while the downstream stations (3LJR and 4LJR) were in the Suboptimal range. This degradation in habitat quality was due to a variety of factors including a decrease in epifaunal substrate and an increased amount of embeddedness. A total of 15 species of fish were collected during this survey (Table 3). Brown trout were collected at all four stations, but the trout from Stations 1LJR and 2LJR probably resulted from the stocked fingerlings from previous years while the presence of young of the year at Stations 3LJR and 4LJR confirmed natural reproduction at these locations. While trout reproduction could not be confirmed at the two upstream stations, the presence of a healthy trout population during the summer months indicates that instream conditions support the maintenance of cold-water fish species. Typically warm water species such as river chub and smallmouth bass were more common at the two upstream stations.

No special conditions were found during the survey that would qualify this area of the Little Juniata River as a "surface water of exceptional ecological significance" or any other attribute listed in §93.4b.

PUBLIC RESPONSE AND PARTICIPATION SUMMARY

The Department provided public notice of this redesignation evaluation and requested any technical data from the general public through publication in the Pennsylvania Bulletin on April 22, 2000 (30 Pa.B 2071). A similar notice was also published in the Altoona Mirror on April

21, 2000. In addition, Antis, Snyder, Tyrone and Spruce Creek Townships were all notified of the evaluation in a letter dated April 19, 2000. The Blair County Planning Commission and the Huntingdon County Planning and Development Department were also notified at the same time. No data on water chemistry, instream habitat, or the aquatic community were received in response to these notifications.

A draft of this report was submitted to the above stakeholders, along with a request for comments, on September 20, 2002. No comments were received in response to this request.

RECOMMENDATIONS

Based on applicable regulatory definitions, the Department recommends that the designated use of the Little Juniata River main stem from the confluence of Logan Spring Run at RMI 14.14 to the confluence of Spruce Creek (15674) at RMI 6.57 be changed from the current Trout Stocking (TSF) to Cold Water Fishes (CWF). This recommendation is based on the propagation and/or maintenance of brown trout and other cold-water fish species (e.g. sculpin). This change affects 7.6 stream miles.

FIGURE 1.
LITTLE JUNIATA RIVER
BLAIR AND HUNTINGDON COUNTIES

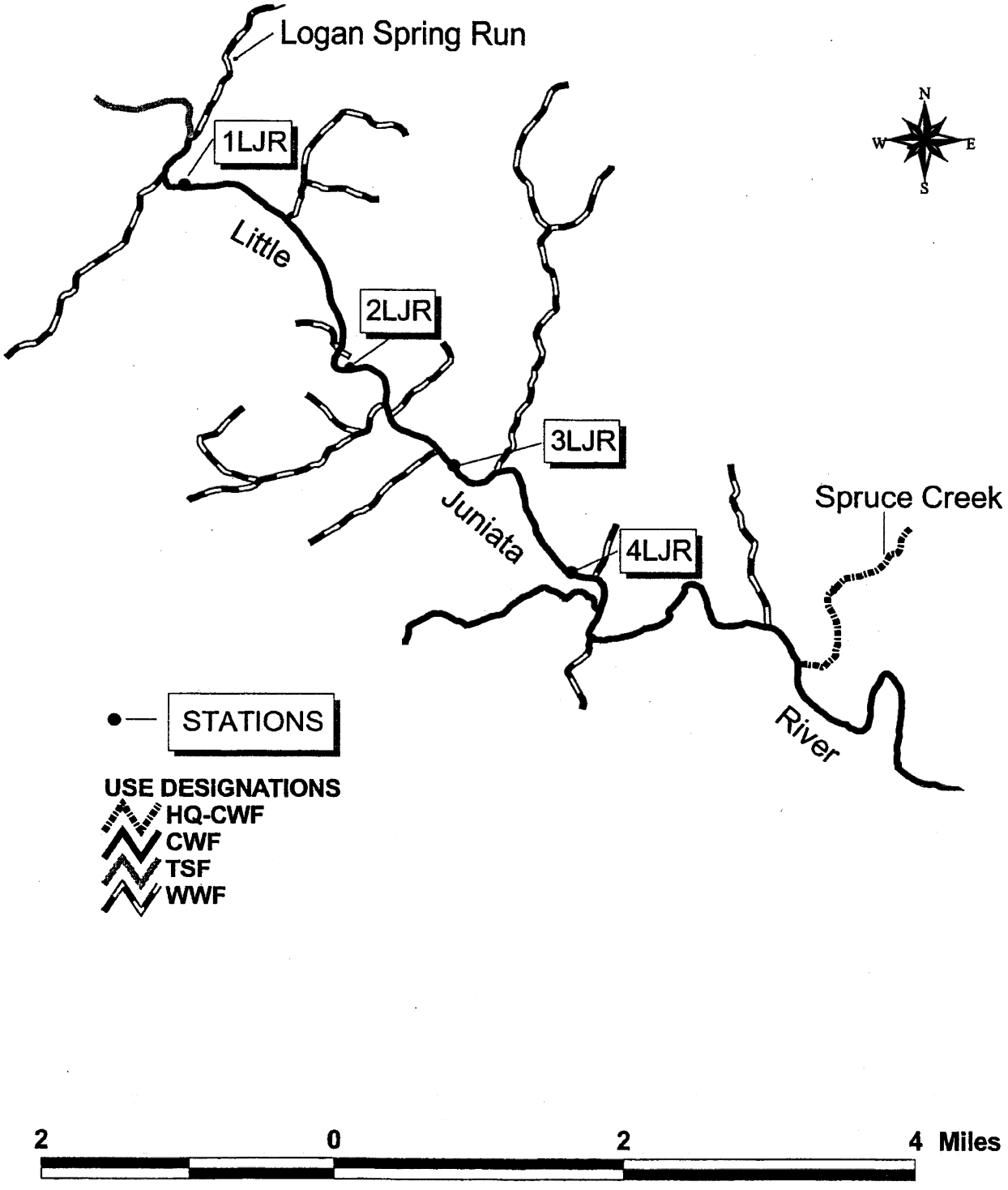

TABLE 1
STATION LOCATIONS
LITTLE JUNIATA RIVER
BLAIR AND HUNTINGDON COUNTIES

STATION	LOCATION
1LJR	Little Juniata River approximately 500 meters downstream from the SR 1014 bridge. Snyder Township, Blair County Lat: 40 39 25 Long: 78 13 05 RMI: 13.7
2LJR	Little Juniata River approximately 20 meters upstream from the RR bridge (#9) located 0.8 mile upstream from the T 506 bridge. Warriors Mark Township, Huntingdon County Lat: 40 38 20 Long: 78 11 41 RMI: 11.6
3LJR	Little Juniata River approximately 350 meters downstream from the T 506 bridge. Tyrone Township, Blair County Lat: 40 37 46 Long: 78 10 59 RMI: 10.6
4LJR	Little Juniata River approximately 350 meters downstream from the SR 1013 bridge. Spruce Creek Township, Huntingdon County Lat: 40 37 03 Long: 78 09 54 RMI: 9.1

TABLE 2
HABITAT ASSESSMENT SUMMARY
LITTLE JUNIATA RIVER
BLAIR AND HUNTINGDON COUNTIES
AUGUST 29, 2000

HABITAT PARAMETER	STATIONS[1]			
	1LJR	2LJR	3LJR	4LJR
1. instream cover	18	17	12	17
2. epifaunal substrate	17	13	10	15
3. embeddedness	16	14	12	12
4. velocity/depth	16	16	16	17
5. channel alterations	15	17	17	14
6. sediment deposition	16	17	16	17
7. riffle frequency	16	12	14	15
8. channel flow status	18	18	18	18
9. bank condition	14	16	14	12
10. bank vegetation protection	15	17	15	13
11. grazing/disruptive pressures	17	18	16	16
12. riparian vegetation zone width	11	17	17	11
Total Score	189	192	177	177
Rating[2]	OPT	OPT	SUB	SUB

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

[2] OPT = Optimal; SUB = Suboptimal

TABLE 3
FISHES[1]
LITTLE JUNIATA RIVER
BLAIR AND HUNTINGDON COUNTIES

SPECIES NAME	STATION			
	1LJR	2LJR	3LJR	4LJR
Brown trout, *Salmo trutta*[2]			C	C
Brown trout, *Salmo trutta*[3]	A	A		VA
Cutlips minnow, *Exoglossum maxillingua*	C	C	C	
Central stoneroller, *Campostoma anomalum*	R			R
Blacknose dace, *Rhinichthys atratulus*	C	C	P	P
Longnose dace, *Rhinichthys cataractae*	A	P	C	C
River chub, *Nocomis micropogon*	A	R		
Fallfish, *Semotilis corporalis*		P	P	
White sucker, *Catostomus commersoni*	A	C	A	A
Northern hog sucker, *Hypentelium nigricans*	A	P	C	
Green sunfish, *Lepomis cyanellus*	R	R	P	
Redbreast sunfish, *Lepomis auritus*		P		
Sculpin, *Cottus sp.*	R	P		P
Rock bass, *Ambloplites rupestris*	P	A	A	
Smallmouth bass, *Micropterus dolomieu*	A	A	P	R
Tessellated darter, *Etheostoma olmstedi*	C	R	C	

1 - Data collected by the Pennsylvania Fish and Boat Commission (Aug 29, 2000)

2 - Mostly wild with a few stocked individuals

3 - Mostly individuals stocked as fingerlings from previous years

A = Abundant (>40); C = Common (16-40); P = Present (4-15); R = Rare (<4)

PINE CREEK

CRAWFORD AND WARREN COUNTIES

WATER QUALITY STANDARDS REVIEW
STREAM REDESIGNATION EVALUATION REPORT

SEGMENT: BASIN
DRAINAGE LIST: Q
STREAM CODE: 54221

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

JANUARY 2001
REVISED OCTOBER 2002

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 HQ-CWF. This evaluation is based on field surveys conducted in October 1995, April 1996, and April 2000.

Ten macroinvertebrate stations were sampled in 1995 but most of these samples were compared to reference stations in the Spring Creek (56113) watershed that has a designated use of HQ-CWF. Changes to the Department's regulations require that only streams with Exceptional Value Waters (EV) use designations be used as reference watersheds. As a result, 6 out of the 10 stations were resurveyed in 2000 and compared to EV reference stations sampled at the same time.

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 (70%), pasture (10%), residential (10%), industrial (5%) 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. All of these wetland expressions of surface water within the study area are considered part of the respective basins for purposes of this evaluation.

WATER QUALITY AND USES

Surface Water

No long-term water quality data were available to allow a direct comparison to water quality criteria. Grab samples were taken at 19 stations throughout the watershed (Figure 1 and Table 1). Results from these samples show alkalinities less than 20 mg/l at 12 stations (Table 2). 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. However, the instantaneous nature of grab samples precludes comparison to applicable water quality criteria. The indigenous aquatic community is a better indicator of long-term conditions and is used as a measure of both water quality and ecological significance.

Despite its predominantly forested nature, the Pine Creek watershed contains six NPDES permitted discharges (Table 3) and one surface water withdrawal (not a public water supply).

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

Overall habitat scores for aquatic biota were within the optimal range at all but 2 of the stations (Table 4). These two stations fell just below the optimal score. Streams within the Pine Creek watershed support all designated uses. Benthic macroinvertebrate samples were collected at ten stations during the October 1995 and April 2000 surveys. The results of these sampling efforts are presented in Table 5. Benthic macroinvertebrates were collected using sampling techniques adapted from the EPA Rapid Bioassessment Protocols. Taxonomic diversity was good with a mean of 32.7 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 redside dace. The diversity of darters was good with six species present.

BIOLOGICAL USE QUALIFICATIONS

The biological use qualifying criteria applied to Pine Creek were the integrated benthic macroinvertebrate score test described at § 93.4b(a)(2)(i)(A) and § 93.4b(b)(1)(v). This score was calculated from a 100-count subsample which was randomly selected from the total sample and enumerated following EPA's RBP III protocol (Table 7). Selected benthic macroinvertebrate community metrics generated from the subsamples were compared to reference stations with comparable drainage areas (Table 8). Stations 1PC, 3PC, 5PC, and 7PC were compared to Station R3 in the Arnot Run (55499) basin. The remaining stations in the Pine Creek basin were compared to Stations R1 and R2 in the Cross Fork (23765) watershed. See Table 1 for the location of these reference stations. Both of these reference watersheds have an Exceptional Value (EV) designation. 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 above the confluence with Caldwell Creek (1PC, 3PC, 5PC, and 7PC) had Biological Condition Scores between 83 and 91% of the reference stations scores. Scores from stations in the Caldwell Creek basin (12WB, 13WB, 15CC, and 17CC) were greater than 92% of the reference station scores except for Station 10CC which had a score of 53% of the reference station score. Station 19PC (Pine Creek below the confluence with Caldwell Creek) had a score that was 67% of the reference station score. Based on the Department's regulatory criteria, scores greater than or equal to 92% of the reference station score support an EV designation (§ 93.4b(b)(1)(v)), scores greater than or equal to 83% but less than 92% qualify for HQ, and scores less than 83% do not meet the threshold for an HQ designation (§ 93.4b(a)(2)(i)(A)).

The PFBC has designated the West Branch Caldwell Creek, from Three Bridge Run to the mouth, as "Class A" Wild Trout Waters based on a biomass of wild brown trout of 57.3 kg/ha. The main stems of Pine Creek and Caldwell Creek are stocked with trout, and the public heavily fishes this basin.

No special conditions were found during this survey that would qualify the Pine Creek basin as a "surface water of exceptional significance" or any other attribute listed in §93.4b

PUBLIC RESPONSE AND PARTICIPATION SUMMARY

The Department provided public notice of this redesignation evaluation and requested any technical data from the general public through publication in the Pennsylvania Bulletin on April 22, 2000 (30 Pa.B 2427). A similar notice was also published in the Titusville Herald on May 12, 2000. In addition, the Crawford County Planning Commission, City of Titusville and Oil Creek and Rome Townships, Crawford County; Warren County Planning and Zoning Commission and Deerfield, Eldred, Pittsfield, Southwest, and Triumph Townships, Warren County; Pleasantville Borough and Allegheny and Oil Creek Townships, Venango County; and Harmony Township, Forest County, were notified of the evaluation in a letter dated May 10, 2000. No data were received as a result of these inquiries.

A draft of this report was submitted to the above stakeholders, along with a request for comments, on September 20, 2002. No comments were received in response to this request.

RECOMMENDATION

Based on applicable regulatory definitions 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 Biological Condition Scores between 83% and 92% of the reference
- -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: waters with Biological Condition Scores greater than 92% of the reference
- -Affects 38.9 stream miles

Caldwell Creek basin (West Branch Caldwell Creek to mouth)
- -Change current HQ-CWF designation to EV
- -Based on: waters with Biological Condition Scores greater than 92% of the reference
- -Affects 26.3 stream miles

Pine Creek basin (Caldwell Creek to mouth)
- -Retain the current CWF designation

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

FIGURE 1.
PINE CREEK
CRAWFORD AND WARREN COUNTIES

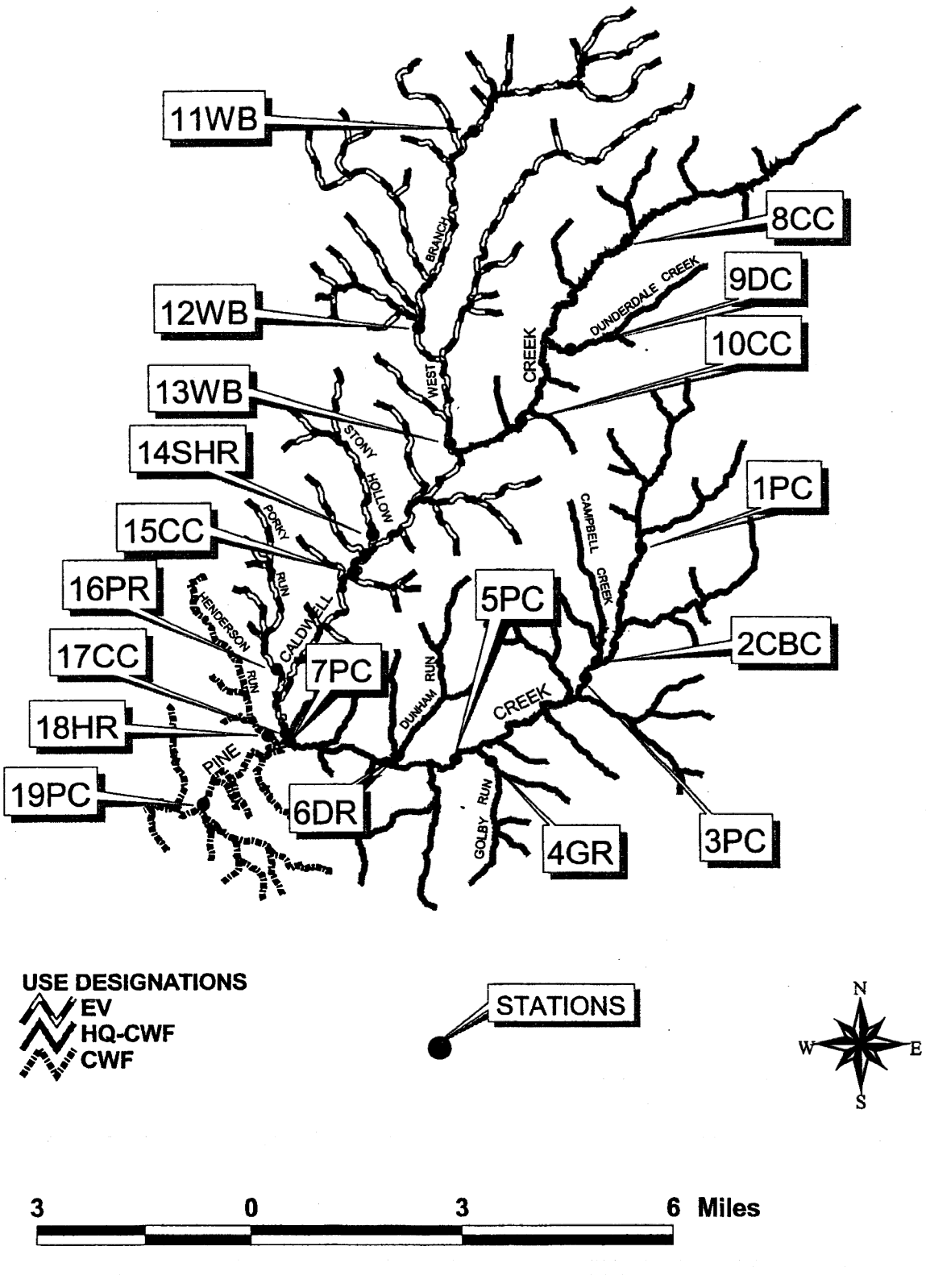

TABLE 1
STATION LOCATIONS
PINE CREEK
CRAWFORD AND WARREN COUNTIES

STATION	LOCATION
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 Cross Fork (23765) approximately 5 meters upstream of confluence with "Dry Hollow"
Abbott Township, Potter County
Lat: 41 34 16 Long: 77 46 54 RMI: 7.46

R2 Cross Fork approximately 15 meters downstream of the ford of the old road (T416)
Stewardson Township, Potter County
Lat: 41 29 41 Long: 77 49 14 RMI: 0.88

R3 Arnot Run (55499) approximately 75 meters downstream of the confluence with Little Arnot Run. Mead Township, Warren Couty
Lat: 41 44 38 Long: 79 04 52 RMI: 0.84

TABLE 2

WATER CHEMISTRY[1]

PINE CREEK, CRAWFORD & WARREN COUNTIES

OCTOBER 16-18,1995

Station	1PC	2CBC	3PC	4GR	5PC	6DR	7PC	8CC	9DC	10CC
Field Parameters										
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_2	NO DATA (meter malfunction)									
Laboratory Parameters										
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_3-N	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	0.03
NO_2-N	<.004	<.004	<.004	<.004	<.004	<.004	<.004	<.004	<.004	<.004
NO_3-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_4	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		

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

* - Total concentrations in ug/l

TABLE 2 (Cont.)[1]

Station	11WB	12WB	13WB	14SHR	15CC	16PR	17CC	18HR	19PC
Field Parameters									
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_2	NO DATA (meter malfunction)								
Laboratory Parameters									
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_3-N	0.03	0.02	0.02	0.02	0.02	0.02	<0.02	0.02	0.02
NO_2-N	<.004	<.004	<.004	<.004	<.004	<.004	<.004	<.004	<.004
NO_3-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_4	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.)[1]
RESAMPLE (APRIL 3,1996)

Station	4GR	10CC	13WB
Field Parameters			
Temp (°C)	6.2	6.9	5.0
pH	7.1	7.3	7.3
Cond (µmhos)	100	77	##
Laboratory Parameters			
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_3-N	<0.02	0.02	0.02
NO_2-N	<.004	<.004	<.004
NO_3-N	0.26	0.22	0.42
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_4	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

Discharger	NPDES Permit Number	Permitted Flow	Actual Flow (Average)	Estimated Q_{7-10} (CFS)
Weyerhaeuser	PA0104493	300 gal/day	0 gal/day	6.87
PFV Enterprises	PA0000701			
Outfall 001		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 AND APRIL 12-13, 2000

HABITAT PARAMETER	STATIONS[1]												
	1PC	3PC	5PC	7PC	10CC	12WB	13WB	15CC	17CC	19PC	R1	R2	R3
1. instream cover	16	16	14	16	14	16	17	14	15	14	16	16	18
2. epifaunal substrate	19	17	17	13	17	17	16	17	13	17	18	17	15
3. embeddedness	18	16	18	15	13	15	14	15	13	15	15	18	14
4. velocity/depth	17	15	14	18	12	17	16	16	16	14	13	15	18
5. channel alterations	18	18	18	18	19	16	18	17	18	13	18	18	19
6. sediment deposition	18	17	18	14	16	17	17	16	14	16	17	18	18
7. riffle frequency	18	16	16	12	14	13	14	14	12	14	18	14	13
8. channel flow status	13	13	13	12	18	18	18	18	19	20	19	18	12
9. bank condition	16	15	17	16	17	17	16	17	18	17	17	18	16
10. bank vegetation protection	17	16	16	17	18	18	17	18	17	16	16	18	18
11. grazing/disruptive pressures	17	17	12	19	19	19	18	16	19	15	17	19	19
12. riparian vegetation zone width	18	18	11	19	19	18	19	19	19	13	15	19	19
Total Score	205	194	184	189	196	201	200	197	193	184	199	208	199
Rating[2]	OPT	OPT	SUB	OPT	OPT	OPT	OPT	OPT	OPT	SUB	OPT	OPT	OPT

[1] Refer to Figure 1 and Table 1 for stations locations.

[2] OPT - Optimal; SUB - Suboptimal

TABLE 5
BENTHIC MACROINVERTEBRATE TAXA LIST
PINE CREEK, CRAWFORD AND WARREN COUNTIES
OCTOBER 16-19, 1995 AND APRIL 12-13, 2000

Taxa	Station[1]												
	1PC	3PC	5PC	7PC	10CC	12WB	13WB	15CC	17CC	19PC	R1	R2	R3
Ephemeroptera (mayflies)													
Baetiscidae; *Baetisca*		P	C	R									
Baetidae; *Acentrella*		P	P										
Baetis						P					P		
Caenidae; *Caenis*				C	P			P	P	C			
Ephemerellidae; *Drunella*					R	C	A	C	A	A	C	A	
Ephemerella	A	C	A	C	C	C	VA	P	A	A	A	VA	P
Eurylophella									R				
Serratella							C						
Emphemeridae; *Ephemera*		P		P				R	P				
Heptageniidae; *Cinygmula*						C		P					
Epeorus	P					C	C		P	R	A	VA	C
Heptagenia													P
Leucrocuta	R										P	C	
Rhithrogena											R		
Stenacron	P		R		P	R		P	R	P		R	R
Stenonema	A	A	A	C	P	P	C	C	A	P	C	A	A
Leptophlebiidae; *Leptophlebia*													C
Paraleptophlebia	A	VA	P	C	P	P	C	P	P		A	A	
Isonychidae; *Isonychia*		A	C	P		R	P	P	P		C	C	
Plecoptera (stoneflies)													
Capniidae; *Paracapnia*	P												P
Chloroperlidae; *Sweltsa*	R												P
Leuctridae; *Leuctra*	R	P			C		P				P	R	
Nemouridae; *Amphinemura*						R		P					
Prostoia								R	R	R			
Peltoperlidae sp.	C												
Perlidae; *Acroneuria*	A	C	R		P	R	P		R	P	P	A	C
Agnetina					R						A		
Eccoptera					R								
Paragnetina				R			P	R	R			P	
Perlodidae; *Diploperla*	R	R				R		R			C		
Isogenoides		R	P										
Isoperla		P			P	C	C	C			A	C	
Pteronarcyidae; *Pteronarcys*	R										R		R
Taeniopterygidae; *Strophopteryx*										R			
Taeniopteryx	P	P	R	C									P

Taxa	Station												
	1PC	3PC	5PC	7PC	10CC	12WB	13WB	15CC	17CC	19PC	R1	R2	R3
Trichoptera (caddisflies)													
Brachycentridae; *Brachycentrus*			C	C									
Glossosomatidae; *Glossosoma*			P					R					R
Helicopsychidae; *Helicopsyche*				R						P			
Hydropsychidae; *Cheumatopsyche*	A	A	A	C	P		A	C	P	P	P	A	C
Diplectrona	C	P				P							C
Hydropsyche	A	VA	C	P	P	P	C		P		C	P	A
Hydroptilidae; *Hydroptila*		P											
Limnephilidae; *Goera*	R			R		R							
Pycnopsyche							R						
Odontoceridae; *Psilotreta*						A	P				P	P	
Philopotamidae; *Chimarra*					P		P	P	P	R		R	
Dolophilodes	C	A	R	R		P	P	R					C
Wormaldia												R	
Polycentropodidae; *Polycentropus*	P	P	R		R						R		
Psychomyiidae; *Lype*		R											
Psychomyia				R			R						
Rhyacophilidae; *Rhyacophila*	A	P	C	C		P	R	P	P		C	R	P
Uenoidae; *Neophylax*	R					C	C	P	A	P	VA	C	P
Diptera (true flies)													
Athericidae; *Atherix*		C		P	R		R	R			C		R
Ceratopogonidae sp.		P	R	P	R								
Empididae; *Clinocera*						R	P	P	C	C			
Chelifera					R								
Hemerodromia		P		R									
Simuliidae; *Prosimulium*					C	A	P	A	C	A	A	A	
Simulium	R			R									
Tabanidae; *Chrysops*				P									
Tipulidae; *Antocha*	R	P	P	R	R	R	C	C	P	R			
Dicranota	P	C	C	C									C
Hexatoma	P		P	P	C	P	C	R			A	P	P
Pseudolimnophila													
Tipula		R						R				R	
Chironomidae spp.	P	P	P	C	A	C	A	C	P	C	P	C	C
Other Insect Taxa													
Megaloptera (dobson-, alder-, fishflies)													
Corydalidae; *Nigronia*		P	C	C	C	P	A	P	C	R		C	P
Sialidae; *Sialis*		P	R		P				R	R			
Odonata (dragonflies)													
Calopterygidae; *Calopteryx*				R									
Aeshnidae; *Boyeria*													R
Gomphidae; *Lanthus*		R	R										R
Ophiogomphus				P									
Stylogomphus					C	P	P	P	P		R	R	

Taxa	Station												
	1PC	3PC	5PC	7PC	10CC	12WB	13WB	15CC	17CC	19PC	R1	R2	R3
Coleoptera (aquatic beetles)													
Elmidae; *Dubiraphia*				R			R	R					
Optioservus	A	A	VA	A	P	A	A	P	P	C	C	P	A
Oulimnius	A	P	P	R	P	C	P				P		A
Promoresia	R						R					R	C
Stenelmis	P	C	C	C	C	P	P	P	P	A			R
Psephenidae; *Psephenus*			C	P	R	P	P	C	C	A		P	
Ectopria	R									R			
Non-Insect Taxa													
Oligochaeta (lumbricid type)		R	R	R									
Oligochaeta			C	C				C	R	P	C	P	
Decapoda (crayfish)													
Cambaridae sp.	R		R										
Cambarus					R		R				P	R	
Gastropoda (univalves, snails)													
Ancylidae; *Ferrissia*		R	C	P									R
Lymnaeidae sp.										R			
Pelecypoda (bivalve clams)													
Sphaeriidae sp.						P	P		P	P			
Number of taxa in total sample	33	36	33	37	30	32	36	34	30	26	30	30	30

[1] - Stations 1PC. 3PC. 5PC. 7PC. and R4 collected 10/16-19/1995. The remaining stations collected 4/12-13/2000

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[1]							
	3PC[2]	5PC[2]	7PC[2]	10CC[3]	11WB[3]	13WB[3]	17CC[3]	19PC[2]
Brown trout, *Salmo trutta*	X	X	X	X	X	X		X
Brook trout, *Salvelinus fontinalis*				X	X			
Grass pickerel, *Esox americanus*						X		
Central stoneroller, *Campostoma anolmalum*		X	X					X
Redside dace, *Clinostomus elongatus*	X			X		X		
Common shiner, *Luxilus cornutus*		X	X					X
Pearl dace, *Margariscus margarita*	X			X			X	
River chub, *Nocomis micropogon*	X	X					X	X
Silver shiner, *Notropis photogenis*		X	X	X	X	X	X	X
Rosyface shiner, *Notropis rubellus*								X
Mimic shiner, *Notropis volucellus*								X
Toungetied minnow, *Exoglossum laurae*							X	
Blacknose dace, *Rhinichthys atratulus*	X	X	X		X	X		X
Longnose dace, *Rhinichthys cataractae*	X	X	X					X
Creek chub, *Semotilus atromaculatus*	X		X	X	X	X		X
White sucker, *Catostomus commersoni*	X	X		X	X	X	X	X
Hog sucker, *Hypentelium nigricans*	X	X	X	X		X	X	X
Trout-perch, *Percopsis omiscomaycus*	X	X	X	X		X	X	
Rock bass, *Ambloplites rupestris*		X						
Bluegill, *Lepomis macrochirus*					X			
Pumpkinseed, *Lepomis gibbosus*	X	X						
Smallmouth bass, *Micropterus dolommieu*		X						X
Greenside darter, *Etheostoma blennioides*		X	X				X	X
Rainbow darter, *Etheostoma caeruleum*	X	X	X	X		X	X	X
Fantail darter, *Etheostoma flabellare*	X	X	X	X		X	X	X
Johnny darter, *Etheostoma nigrum*	X	X		X	X			X
Banded darter, *Etheostoma zonale*		X						X
Blackside darter, *Percina maculata*		X	X	X			X	
Mottled sculpin, *Cottus bairdi*	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 AND APRIL 12-13, 2000

Taxa	Station[1]												
	1PC	3PC	5PC	7PC	10CC	12WB	13WB	15CC	17CC	19PC	R1	R2	R3
Ephemeroptera (mayflies)													
Ameletidae; *Ameletus*								1					
Baetiscidae; *Baetisca*		1	3	1									
Baetidae; *Baetis*						3					2		
Caenidae; *Caenis*				3	1			2	1	7			
Ephemerellidae; *Drunella*						4	5	5	16	16	1	20	
Ephemerella	10	2	29	3	5	5	21	4	14	19	30	23	
Emphemeridae; *Ephemera*								2	2				
Heptageniidae; *Epeorus*	1					7	6	2	2		8	9	8
Cinygmula						6	1	3					
Leucrocuta												3	
Heptagenia													1
Rhithrogena											1		
Stenacron			1		3			5		2	1		1
Stenonema	6	17	5	3	2	1	2	13	18	4	2	7	14
Isonychiidae; *Isonychia*		12		1			1		4		1	4	
Leptophlebiidae; *Paraleptophlebia*	47	28	7	6	4	4	4	3	2		11	2	5
Plecoptera (stoneflies)													
Capniidae; *Paracapnia*	2												1
Chloroperlidae; *Sweltsa*													2
Leuctridae; *Leuctra*					6						1		
Nemouridae; *Amphinemura*							1	1					
Prostoia									1	1	1		
Perlidae; *Acroneuria*	3	2			2		1			2	1	4	3
Agnetina											5		
Eccoptura					1								
Paragnetina							1					2	

Taxa	Station												
	1PC	3PC	5PC	7PC	10CC	12WB	13WB	15CC	17CC	19PC	R1	R2	R3
Perlodidae; *Isoperla*		1				5	9	2			7	5	
Isogenoides			2										
Pteronarcyidae; *Pteronarcys*	1												
Taeniopterygidae; *Taeniopteryx*	1			3									4
Trichoptera (caddisflies)													
Brachycentridae; *Brachycentrus*			3	4									
Glossosomatidae; *Glossosoma*			1					2					1
Helicopsychidae; *Helicopsyche*				1						1			
Hydropsychidae;*Cheumatopsyche*	5	7	11	7	3		22	5	2	2	2	18	3
Diplectrona	2					1							2
Hydropsyche	5	27	5	1		2	2		2		1	1	22
Limnephilidae; *Goera*						1							
Odontoceridae; *Psilotreta*						11					1		
Philopotamidae; *Chimarra*					1			4		1			
Dolophilodes	6	14		1		1	1	1					5
Polycentropodidae; *Polycentropus*		1	1										
Psychomyiidae; *Psychomyia*				1									
Rhyacophilidae; *Rhyacophila*	6	2	2	4			1	1	1			1	2
Uenoidae; *Neophylax*	1					4	3	1	9	1	14	1	
Diptera (true flies)													
Athericidae; *Atherix*		1		3			1	1			1		1
Empididae; *Clinocera*								3	7	4			
Chelifera					1								
Simuliidae; *Prosimulium*					8	29	2	14	5	13	22	9	
Tabanidae; *Chrysops*				1									
Tipulidae; *Antocha*			1			1	4	1	1	1			
Dicranota		2	2	8									7
Hexatoma			2	4	5	2	6	1			3	1	3
Pseudolimnophila													
Tipula								1					
Ceratopogonidae sp.			2	2	1								
Chironomidae spp.		2	1	11	24	2	5		1	8	1	3	4

Taxa	Station												
	1PC	3PC	5PC	7PC	10CC	12WB	13WB	15CC	17CC	19PC	R1	R2	R3
Megaloptera (dobson- and alderflies)													
Corydalidae; *Nigronia*			4	4	10		10		3	1	3	3	1
Sialidae; *Sialis*		1			2				1	2			
Odonata (dragon-, damselflies)													
Aeshnidae; *Boyeria*													1
Gomphidae sp.						3							
Ophiogomphus				2									
Stylogomphus					9				1				
Coleoptera (aquatic beetles)													
Elmidae; *Dubiraphia*				1									
Optioservus	5	5	39	31	2	12	12			4	7		18
Oulimnius	17		1		2	3	1				1		19
Promoresia													5
Stenelmis		1	1	5	5	1			7	13			
Psephenidae; *Psephenus*			2	3	1	3	1		3	10		2	
Non-Insect Taxa													
Oligochaeta			3	6					1	2	6		
Gastropoda (univalves, snails)													
Sphaeriidae sp.						1			2	3			
Ancylidae; *Ferrissia*			4										1

[1] - Stations 1PC, 3PC, 5PC, 7PC, AND R4 collected 10/16-19/1995. The remaining stations collected 4/12-13/2000

TABLE 8
RBP METRIC COMPARISON
PINE CREEK, CRAWFORD AND WARREN COUNTIES
OCTOBER 16-19, 1995 AND APRIL 12-13, 2000

METRIC*	STATION												
	1PC	3PC	5PC	7PC	10CC	12WB	13WB	15CC	17CC	19PC	R1	R2	R3
1. TAXA RICHNESS	16	18	24	27	22	22	25	32	24	22	26	19	25
Cand/Ref (%)	64	72	96	108	85	85	96	123	92	116			
Biol. Cond. Score	2	4	6	6	6	6	6	6	6	6	6	6	6
2. MOD. EPT INDEX	12	9	9	11	8	12	14	16	10	9	15	12	13
Cand/Ref (%)	92	69	69	85	53	80	93	107	67	75			
Biol. Cond. Score	6	4	4	6	2	6	6	6	4	4	6	6	6
3. MOD. HBI	2.1	2.8	3.4	3.9	4.0	2.0	2.8	3.3	2.9	3.4	2.3	2.2	3.2
Cand-Ref	<0	<0	0.2	0.7	1.7	<0	0.5	1.0	0.6	1.2			
Biol. Cond. Score	6	6	6	4	0	6	6	4	6	2	6	6	6
4. % DOMINANT TAXA	40	22	30	26	20	28	18	13	17	17	22	20	16
Cand-Ref	24	6	14	10	<0	6	<0	<0	<0	<0			
Biol. Cond. Score	6**	6	4	4	6	6	6	6	6	6	6	6	6
5. % MOD. MAYFLYS	54	48	34	12	12	26	32	34	55	36	41	58	22
Ref-Cand	<0	<0	<0	10	29	15	9	7	<0	22			
Biol. Cond. Score	6	6	6	6	2	4	6	6	6	2	6	6	6
TOTAL BIOLOGICAL CONDITION SCORE	26	26	26	26	16	28	30	28	28	20	30	30	30
% COMPARABILITY TO REFERENCE	87	87	87	87	53	93	100	93	93	67			

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

** - Based on the dominant taxon having a Hilsenhoff score less than 3

SOUTH FORK BEECH CREEK

CENTRE COUNTY

WATER QUALITY STANDARDS REVIEW
AQUATIC LIFE USE ATTAINABILITY EVALUATION

Segment: Basin, Stinktown Run to Mouth
Drainage List: L
Stream Code: 22763

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

MAY 1998
REVISED JULY 2001

SOUTH FORK BEECH CREEK, CENTRE COUNTY
DRAINAGE LIST L

BACKGROUND

South Fork Beech Creek is a tributary to North Fork Beech Creek in the West Branch Susquehanna River basin. South Fork Beech Creek basin from Stinktown Run to its confluence with North Fork Beech Creek was inadvertently omitted from Chapter 93 and, therefore, was evaluated to determine the correct water use designation. The basin has a drainage area of approximately 18 square miles (Figure 1). Approximately 90% of the basin is forested, 5% is residential/hunting camps, and 5% is commercial. There are State Game Lands in the basin, but no other state or federal property is present. Abandoned strip mines also are present in the watershed.

A survey was conducted in the fall of 1997 by the Bureau of Watershed Conservation to determine the stream's existing use based on the indigenous fishery and macroinvertebrate community. Evaluations of these collections plus basic water chemistry were used to determine the proper aquatic life use designation of South Fork Beech Creek from Stinktown Run to its mouth.

METHODS

Three sampling sites (Figure 1 & Table 1) were surveyed on October 2, 5, and 6, 1997 for fish and macroinvertebrate assessment. Approximately 100 meters of stream were evaluated at each location using a backpack electrofisher to determine fish species and densities. Fish were returned to South Fork Beech Creek following the recording of data. Benthic macroinvertebrate populations were sampled using a d-frame kick-net (Modified EPA Rapid Bioassessment Protocol) in riffle areas at each station. Samples were preserved in 95% ethanol, transported to the laboratory and identified to the lowest level practicable (genus when possible). Grab water samples were collected at each location for laboratory analysis.

FINDINGS

Water Quality and Uses

No long-term water quality data were available to allow a direct comparison to water quality criteria. Based on grab samples, water quality at SFB2 and SFB3 was generally good with an average field pH of 6.4 (Table 2). Alkalinity values were low at all three sites indicating a low buffering capacity for the stream. These alkalinity values are probably naturally occurring. SFB1 had higher levels of acidity, hardness, manganese, nickel, sulfate, zinc, and lower alkalinity than SFB2 and SFB3, suggesting the presence of some acid mine drainage. However, since the instantaneous nature of the grab samples precludes comparison to applicable water quality criteria, the indigenous aquatic community is a better indicator of long-term conditions and is used as a measure of water quality and ecological significance.

Aquatic Biota

Benthic macroinvertebrates were collected at all three stations (Table 3). Good taxonomic diversity occurred at SFB2 (29 taxa) and SFB3 (28 taxa) with 22 and 16 taxa respectively of the Ephemeroptera, Plecoptera, and Trichoptera (EPT) groups. A total of 8 taxa were found at SFB1 but one taxon, *Diplectrona*, which has a low Hilsenhoff value (indicative of good water quality standards) was abundant.

Cold water fish species were collected at all stations (Table 4). Naturally reproducing brook trout were collected at station SFB1 and SFB2. Several year classes of brown trout were collected at SFB2 and SFB3. The presence of brook trout, brown trout, sculpin, and blacknose dace indicate that this section of the South Fork Beech Creek supports a cold water fishery.

BIOLOGICAL USE QUALIFICATIONS

The biological data indicate that this area of South Fork Beech Creek supports Cold Water Fishes (CWF) as defined at §93.3, based on the presence of naturally reproducing brook and brown trout. The presence of stoneflies, a coldwater benthic macro-invertebrate, is another biological indicator of the CWF use of this stream.

No special conditions were found during the survey that would qualify this area of South Fork Beech Creek as a surface water of exceptional ecological significance.

PUBLIC RESPONSE AND PARTICIPATION SUMMARY

The Department provided public notice of this redesignation evaluation and requested any technical data from the general public through publication in the Pennsylvania Bulletin on April 22, 2000 (30Pa.B 2071). A similar notice was also published in the Centre Daily Times on April 24, 2000. In addition, Boggs, Snow Shoe, and Union Townships were all notified of the evaluation in a letter dated April 19, 2000. The Centre Count Planning Commission was also notified at the same time. No data on water chemistry, instream habitat, or the aquatic community were received in response to these notifications.

A draft of this report was submitted to the above stakeholders, along with a request for comments, on September 20, 2002. No comments were received in response to this request.

RECOMMENDATION

The Department recommends that South Fork Beech Creek basin from Stinktown Run to the mouth be designated as CWF. This designation affects approximately 13.5 stream miles, and provides a level of protection consistent with South Fork Beech Creek's aquatic conditions.

Figure 1: South Fork Beech Creek

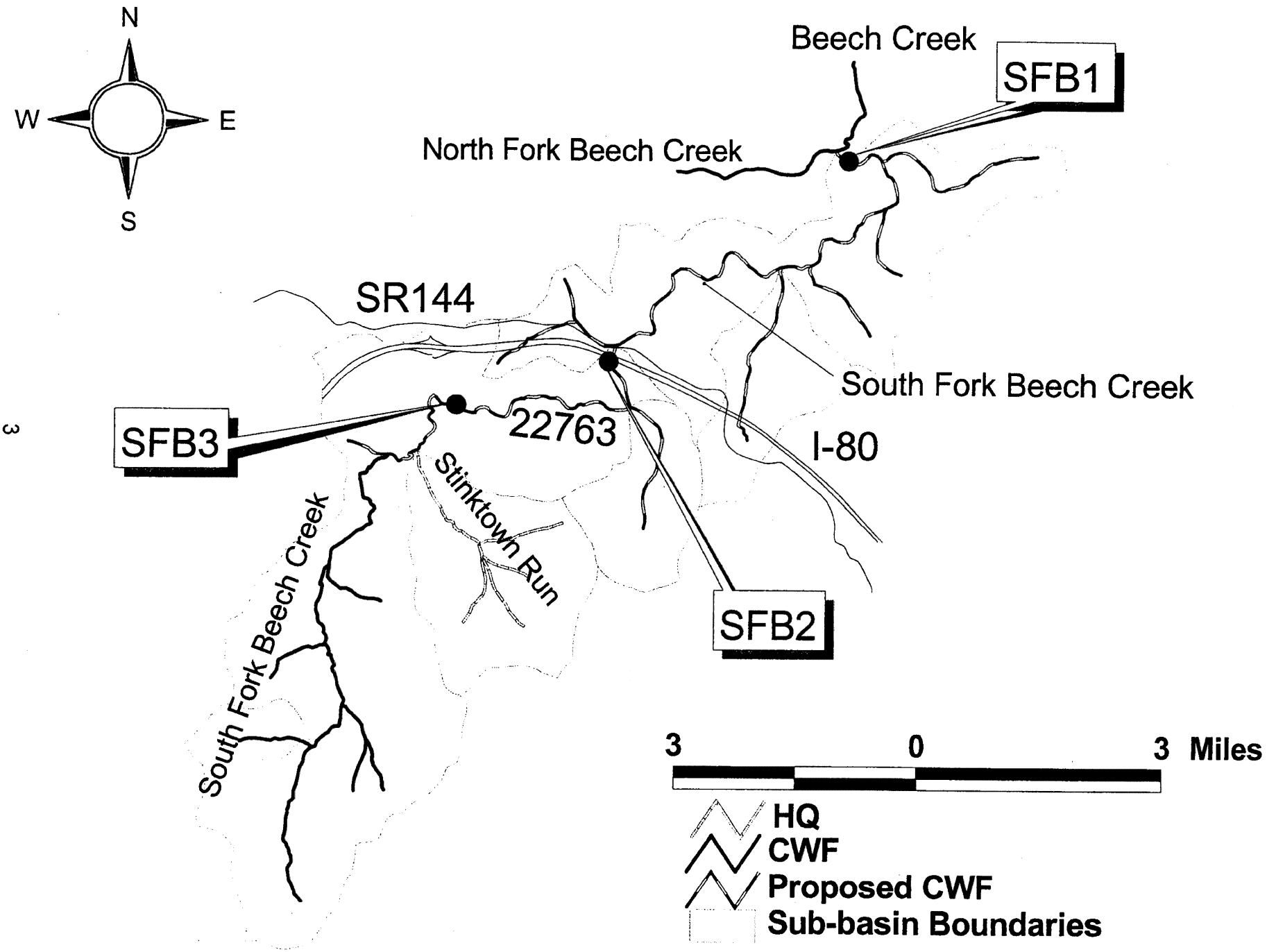

TABLE 1
COLLECTION STATIONS
SOUTH FORK BEECH CREEK, CENTRE COUNTY

Fish and benthic macroninvertebrate collection stations on South Fork Beech Creek, Centre County, October 5 and October 6, 1997.

STATION	LOCATION
SFB1	South Fork Beech Creek just upstream of confluence with North Fork Beech Creek Latitude: 41 02 55 Longitude: 77 52 04
SFB2	South Fork Beech Creek just upstream of Rt. 144 bridge crossing Latitude: 41 01 22 Longitude: 77 54 15
SFB3	South Fork Beech Creek approximately 0.5 mile downstream of Stinktown Run Latitude: 41 01 02 Longitude: 77 55 58

TABLE 2
WATER CHEMISTRY[1]
SOUTH FORK BEECH CREEK, CENTRE COUNTY
OCTOBER 5 & 6, 1997

STATION	SFB1	SFB2	SFB3
Field Parameters			
Temp (°C)	18.1	14.5	18.4
pH (std units)	4.73	6.32	6.53
Cond (µmhos)	118	67	70.6
Diss. O_2	9.9	11.2	9
Laboratory Parameters			
pH	6	6.2	6.2
Alkalinity	4	8.4	8.8
Acidity	5.2	1.4	1.2
Hardness	24	11	10
T Diss Sol.	190	38	190
Susp. Sol.	2	8	2
NH_3, -N	<.02	<.02	<.02
NO_2, -N	<.01	<.01	<.01
NO_3, -N	0.16	0.1	0.13
Total P	<0.02	<0.02	<0.02
Ca	6.2	3.53	3.6
Mg	2.06	1.18	1.16
Chlorides	20	10	10
SO_4	12	<10	<10
As*	<4.0	<4.0	<4.0
As Diss	<4.0	<4.0	<4.0
Cd*	<0.2	<0.2	<0.2
Cd Diss	<0.2	0.31	0.21
Hex Cr*	<10	<10	<10
Cr*	<50	<50	<50
Cu*	<4.0	<4.0	<4.0
Cu Diss	<4.0	<4.0	<4.0
Fe*	43	177	541
Pb*	<1.0	<1.0	<1.0
Pb Diss	<1.0	<1.0	<1.0
Mn*	245	43	68
Ni*	5.5	<4.0	<4.0
Ni Diss	5.7	<4.0	<4.0
Zn*	15.1	<5.0	<5.0
Zn Diss	16.9	5	5
Al*	101	72.5	139

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

*-Total concentrations in µg/l

TABLE 3
BENTHIC MACROINVERTEBRATE COLLECTIONS
SOUTH FORK BEECH CREEK, CENTRE COUNTY

Benthic macroinvertebrates collected at Stations SFB1 (October 5, 1997), SFB2 (October 6, 1997) and SFB3 (October 2, 1997) on South Fork Beech Creek, Centre County.

TAXA	Station SFB1	Station SFB2	Station SFB3
PLECOPTERA (Stoneflies)			
Capniidae *Paracapnia sp.*		P	
Chloroperlidae -	R		
Leuctridae *Leuctra sp.*		P	R
Peltoperlidae *Peltoperla/Tallaperla sp.*	R	R	P
Perlidae *Acroneuria sp.*		C	C
Perlidae *Paragnetina sp.*		P	
Pteronarcyidae *Pteronarcys*		P	
EMPHEMEROPTERA (Mayflies)			
Baetidae *Acentrella sp.*		P	R
Baetidae *Baetis sp.*		C	R
Baetiscidae *Baetisca sp.*		R	R
Ephemerellidae *Ephemerella sp.*			R
Ephemerellidae *Eurylophella sp.*		P	P
Ephemeridae *Ephemera sp.*		P	R
Heptageniidae *Epeorus sp.*		C	
Heptageniidae *Stenonema sp.*		C	A
Leptophlebiidae *Paraleptophlebia sp.*		C	R
TRICHOPTERA (Caddisflies)			
Glossosomatidae *Glossosoma sp.*		R	
Hydropsychidae *Cheumatopsyche sp.*		R	A
Hydropsychidae *Diplectrona sp.*	A		
Hydropsychidae *Hydropsyche sp.*	R	C	C
Lepidostomatidae *Lepidostoma sp.*		R	
Leptoceridae *Mystacides sp.*		R	
Limnephilidae -		R	
Philopotamidae *Dolophilodes sp.*		A	C
Polycentropidae *Polycentropus sp.*			R
Rhyacophilidae *Rhyacophila sp.*		R	P
COLEOPTERA (Beetles)			
Elmidae *Optioservus sp.*		R	P
Elmidae *Oulimnius sp.*		R	R
Elmidae *Promoresia sp.*	R	C	P
Elmidae *Stenelmis sp.*			R
Psephenidae *Ectopria sp.*			R
ODONATA (Dragonflies/Damselflies)			
Gomphidae -		R	R
Aeshnidae *Boyeria sp.*			R
MEGALOPTERA			
Corydalidae *Nigronia sp.*			R
Sialidae *Sialis sp.*			R
DIPTERA (Flies)			
Chironomidae -	C	P	P
Simuliidae *Simulium sp.*	R	R	
Tipulidae *Dicranota sp.*			R
Tipulidae *Hexatoma sp.*		P	P
Tipulidae *Limonia sp.*	R		
TOTAL TAXA	8	29	28

Relative Abundance: Rare (1-2) Present (3-9) Common (10-24) Abundant (25-100)

TABLE 4
FISH COLLECTIONS
SOUTH FORK BEECH CREEK, CENTRE COUNTY

Fish collected at Stations SFB1 (October 5, 1997), SFB2 (October 6, 1997) and SFB3 (October 5, 1997) on South Fork Beech Creek, Centre County.

SPECIES/SIZE CLASS	SFB1 (FISH COLLECTED)	SFB2 (FISH COLLECTED)	SFB3 (FISH COLLECTED)
Brook Trout			
3- 4 in	3	5	
4- 5 in		1	
5- 6 in		2	1
6- 7 in		2	
9- 10 in		1	
Totals	3	11	1
Brown Trout			
3- 4 in		1	1
4- 5 in			1
6- 7 in		1	
7- 8 in		1	1
8- 9 in		3	
10- 11 in		2	
12- 13 in		1	
Totals		9	3
Blacknose dace		52	34
Sculpin		31	2
Longnose dace		1	
Creek chub		1	2
Tesselated darter		5	28
Cutlips Minnow			1
White sucker		7	27
Total Taxa	1	8	8

SPRING CREEK

DAUPHIN COUNTY

WATER QUALITY STANDARDS REVIEW
STREAM REDESIGNATION EVALUATION REPORT

Segment: Basin
Drainage List: O
Stream Code: 10124

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

MARCH 1998
REVISED JULY 2001

SPRING CREEK, DAUPHIN COUNTY
DRAINAGE LIST O

BACKGROUND

Spring Creek is a tributary to the Susquehanna River. This basin has a drainage area of approximately 11 square miles (Figure 1). Approximately 20% of this basin is owned by Dauphin County which maintains a public-use section flowing through a forested area buffered by a pedestrian and bicycle use only pathway. The remainder of the basin contains urban development and is heavily influenced by associated activities. The Department's South Central Regional Office requested redesignation of Spring Creek from Warm Water Fishes (WWF) to Cold Water Fishes (CWF).

Surveys conducted by the Pennsylvania Fish and Boat Commission (PFBC) and the Department's South Central Regional Office support the recommendation. The purpose of this survey was to document the existing aquatic life use of Spring Creek.

METHODS

Two sampling stations (Table 1) previously surveyed in July of 1996 by the PFBC were chosen by the Department for fish and macroinvertebrate assessment. On July 28, 1997, the Department surveyed station SC02 by electrofishing for 35 minutes a distance of 150 meters upstream from the Rt 444 bridge to a large pool. On July 29, 1997, the Department surveyed station SC03 by electrofishing upstream a distance of approximately 100 meters starting at 19th Street. These two locations are in addition to a third station (SC01) upstream of Interstate 83 which was surveyed in May of 1997 by the PFBC for fish assessment only. Approximately 100 meters of stream reach were evaluated at each location using a backpack electrofisher to determine fish species and densities. Fish were collected, counted, and identified while game fish were also measured for length. All fish were returned to Spring Creek following the recording of data.

Benthic macroinvertebrate populations were monitored using a D-frame Kick-net in riffle areas at each station. Samples were preserved in 95% ethanol, transported to the laboratory and identified to the lowest level (genus when possible).

FINDINGS

Thirteen taxa of benthic macroinvertebrates were identified at SC02, and fifteen taxa were identified at SC03 (Table 2). Both stations contained 1 mayfly taxon and 2 caddisfly taxa. Most taxa collected were fairly pollution-tolerant, indicating that stream quality may be influenced by urban runoff and substrate degradation from urban development.

DEP survey results documented nine species of fish at both stations surveyed in July of 1997 (Table 3). PFBC results indicated 6 and 7 species respectively at SC02 and SC03, and 10 species upstream at SC01. Blacknose dace were present at all stations and brown trout were collected from stations SC02 and SC03. The trout collected at station SC03 represented a naturally reproducing population.

PUBLIC RESPONSE AND PARTICIPATION SUMMARY

The Department provided public notice of this redesignation evaluation and requested any technical data from the general public through publication in the Pennsylvania Bulletin on April 22, 2000 (30 Pa.B 2071). A similar notice was also published in the Harrisburg Patriot-News on April 21, 2000. In addition, the City of Harrisburg, Paxtang Borough, Penbrook Borough, Swatara Township, and Lower Paxton Township were all notified of the evaluation in a letter dated April 19, 2000. The Cumberland-Dauphin-Perry Tri-County Planning Commission was also notified at the same time. The Dauphin County Conservation District provided water chemistry data taken July 13, 1999 at two stations on Spring Creek. No other data on water chemistry, instream habitat, or the aquatic community were received in response to these notifications.

A draft of this report was submitted to the above stakeholders, along with a request for comments, on September 20, 2002. No comments were received in response to this request.

AQUATIC LIFE USE QUALIFICATIONS

The biological data indicate that Spring Creek supports Cold Water Fishes (CWF) as defined at §93.3, but is negatively influenced from urban non-point source pollution as documented by data collected from the benthic macroinvertebrate community.

RECOMMENDATION

Based on applicable regulatory criteria, the Department recommends that Spring Creek basin be redesignated as Cold Water Fishes (CWF) based on the presence of naturally reproducing brown trout and the presence of blacknose dace. This redesignation affects approximately 15.7 stream miles, and provides a level of Chapter 93 protection consistent with Spring Creek's aquatic conditions.

Figure 1: Spring Creek Collection Stations

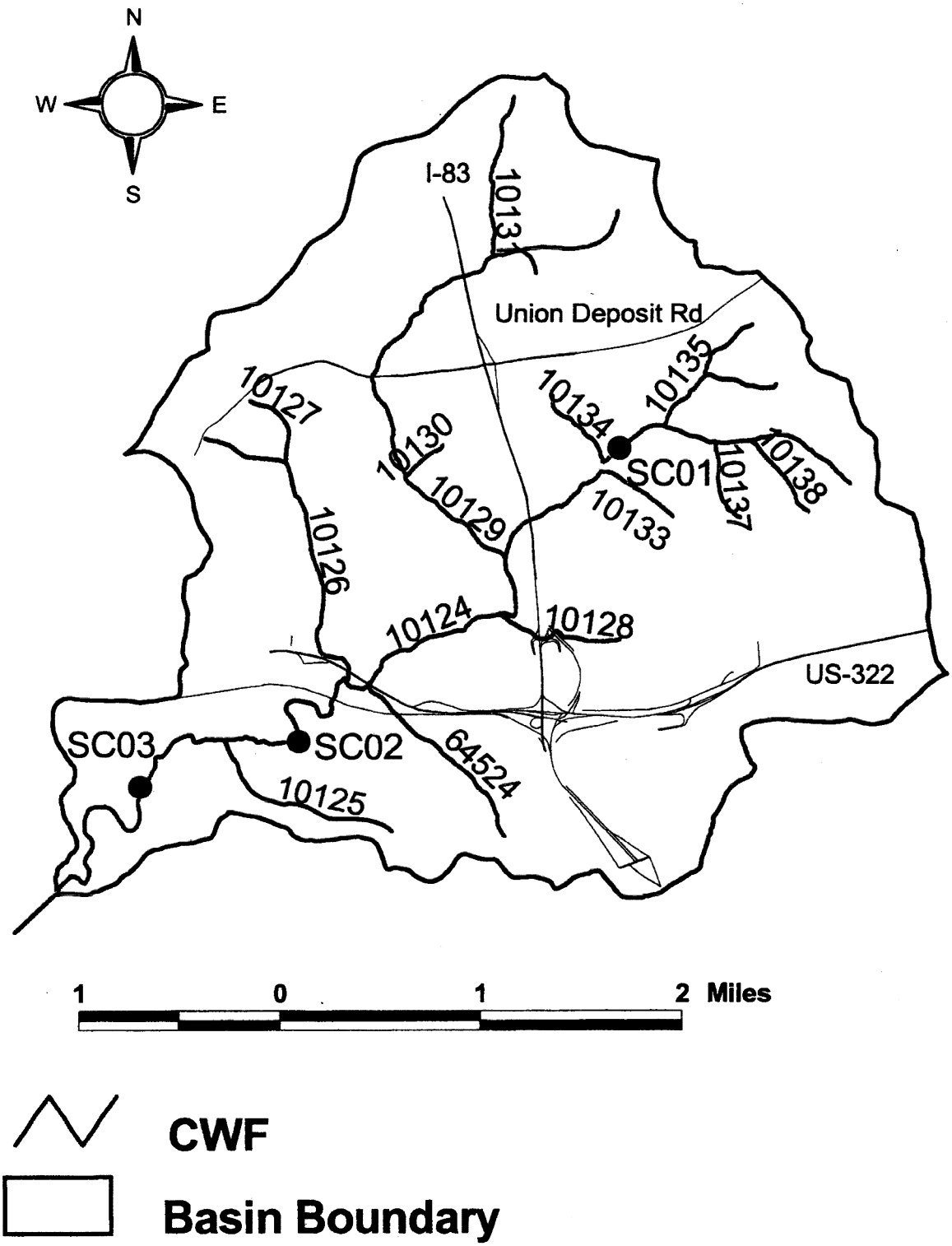

TABLE 1
SAMPLING STATION LOCATIONS
SPRING CREEK – DAUPHIN COUNTY

Fish and/or benthic macroinvertebrate collection stations on Spring Creek, Dauphin County, May 21, July 28 and July 29, 1997.

STATION	LOCATION
SC01	Spring Creek 0.6 kilometers upstream of East Park Drive bridge Latitude: 40 16 21 Longitude: 76 48 26
SC02	Spring Creek approximately 300 meters upstream of the Route 441 bridge crossing Latitude: 40 15 09 Longitude: 76 50 14
SC03	Spring Creek 2.1 kilometers upstream of confluence with Susquehanna River Latitude: 40 14 55 Longitude: 76 51 07

TABLE 2
BENTHIC MACROINVERTEBRATE DATA
SPRING CREEK – DAUPHIN COUNTY

Benthic macroinvertebrates collected at Stations SC02 (July 28, 1997) and SC03 (July 29, 1997) on Spring Creek, Dauphin County.

TAXA	SC02	SC03
TURBELLARIA (Flatworms)		A
DECOPODA (Crayfish)		
Cambaridae *Orconectes* sp.	R	R
AMPHIPODA (Freshwater shrimp)		
Gammaridae *Gammarus* sp.	VA	VA
ISOPODA (Aquatic sowbugs)		
Asellidae *Caecidotea* sp.	R	
EMPHEMEROPTERA (Mayflies)		
Baetidae *Baetis sp.*	R	R
TRICHOPTERA (Caddisflies)		
Hydropsychidae *Cheumatopsyche sp.*	C	P
Hydropsychidae *Hydropsyche sp.*	A	A
COLEOPTERA (Beetles)		
Elmidae *Optioservus sp.*	P	P
Elmidae *Stenelmis sp.*	A	VA
Psephenidae *Psephenus sp.*	R	P
ODONATA (Dragonflies/Damselflies)		
Gomphidae -	R	
DIPTERA (Flies)		
Chironomidae -	C	A
Empididae *Hemerodromia* sp.		P
Muscidae *Limnophora* sp.		R
Simuliidae *Simulium vittatum*		R
Tipulidae *Antocha* sp.	C	A
Tipulidae *Tipula* sp.	P	P
TOTAL TAXA	13	15

Relative Abundance: Rare (1-2) Present (3-9) Common (10-24) Abundant (25-100) Very Abundant (101+)

TABLE 3
HISTORICAL FISH DATA
SPRING CREEK – DAUPHIN COUNTY

Historical Fish Data at Stations SC01, SC02, and SC03 on Spring Creek, Dauphin County.

SPECIES/SIZE CLASS	SC01 (PFBC-5/21/97)	SC02 (PFBC-7/16/96)	SC02 (DEP-7/28/97)	SC03 (PFBC-7/16/96)	SC03 (DEP-7/29/97)
Brown Trout					
75-99mm (3- 4 in)		8		28	5
100-124mm (4- 5 in)				4	10
250-274mm (10-11 in)		1			
275-299mm (11-12 in)			1	1	4
300-324mm (12-13 in)				1	
350-374mm (14-15 in)				1	
375-399mm (15-16 in)		1			
Total	0	10	1	35	19
Blacknose dace	X	X	X	X	X
Bluegill				X	X
Bluntnose minnow	X				
Central stoneroller	X		X		
Common shiner	X				
Creek chub	X	X	X	X	
Greenside darter					X
Green sunfish	X				
Largemouth bass					X
Longnose dace	X	X	X	X	X
Pumpkin sunfish			X		
Spotfin shiner	X	X	X	X	X
Tesselated darter	X		X		X
White sucker	X	X	X	X	X
Total Taxa	10	6	9	7	9

X- Fish species present

WALTZ CREEK

NORTHAMPTON COUNTY

WATER QUALITY STANDARDS REVIEW

AQUATIC LIFE USE ATTAINABILITY EVALUATION

Segment: Basin
Stream Code: 63243
Drainage List C

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

JANUARY 2001

INTRODUCTION

In 1994, it was determined that during the compilation of Chapter 93, the Waltz Creek basin was not assigned a "designated use". The designated uses listed for the surrounding Martin's Creek drainage segments are either Cold Water Fishes (CWF) or Trout Stocking (TSF) and Migratory Fishes (MF, in part) but they do not include Waltz Creek.

Northeast Regional Office staff conducted a survey on December 20, 1994 and recommended that the Chapter 93 designated use for the Waltz Creek basin be Cold Water Fishes (CWF) because of the presence of well established cold water fauna and Migratory Fishes (MF) because of the presence of the American eel (DEP 1995). However, there was no information offered to consider warmer summer month conditions. Subsequent assessments were conducted in 1997 and 1998. In addition, there was the opportunity to consider newer, more detailed Waltz Creek fishery data collected by the Pennsylvania Fish & Boat Commission (August 1999). The purpose of this report is to review the information and data gathered during these investigations in order to determine the proper Chapter 93 designated use for Waltz Creek.

GENERAL WATERSHED DESCRIPTION

Waltz Creek is a tributary to Martins Creek in the Delaware River drainage. The basin is located in Plainfield and Washington Townships and the Borough of Pen Argyl in Northampton County north of Easton (Figure 1). Waltz Creek is a freestone stream (with some alkaline influences) that drains 11.1 mi^2 and flows in a southeastly direction. Relatively flat rural lands with some gently rolling hills of low relief characterize the surrounding area.

There are significant impacts to the Waltz Creek basin from human activities. Land uses include localized agricultural activities, rural residential development, and the urban areas of Pen Argyl. In addition, Waltz Creek is located in the "slate belt" of northeast Pennsylvania. Thus, the study area is also noted for active and historic slate quarries. It appears that portions of upper Waltz Creek had been relocated in the past to accommodate quarrying activities.

WATER QUALITY AND USES

Surface Water

No long-term water quality data were available to allow a direct comparison to water quality criteria. However, chemical "grab" samples and biological data have been collected from Waltz Creek during recent field surveys conducted by the Department's Northeast Regional Office (NERO) staff and the Pennsylvania Fish & Boat Commission (PFBC).

Department Surveys. These surveys include a 12/20/94 survey (DEP 1995), 9/10/97 assessments made under the Unassessed Waters (UW) Program, and a 2/11/98 "intensive follow-up" survey (DEP 1998).

The intensive follow-up survey was conducted in response to the UW stream assessment observations. The Department's UW Program assesses the state's surface waters using qualitative biological data to identify impaired waters, sources and causes of these impairments, and to attribute their origin to either "point" or "nonpoint" sources. Another mechanism provided by the UW program, is a more detailed intensive follow-up survey in order to confirm and better define the nature, extent, sources, causes, and discharge origins of the observed impairments.

PFBC IBI Fish Survey. The PFBC (1999) collected fish at one site on Waltz Creek on 8/25/99. This effort was an intensive "one-pass removal" method for the purpose of collecting fish population data that will be used in developing a fish-based Index of Biotic Integrity (IBI) for small Pennsylvania streams.

Figure 1 shows station locations of these various survey sample points.

Water Quality. Laboratory analysis results of Waltz Creek surface waters are presented in Table 1. Grab samples indicated that the overall water quality of Waltz Creek is generally good. However, the

instantaneous nature of grab samples precludes comparison to applicable water quality criteria. Despite the limitations of grab samples, observations can be made that provide a generalized overview of Waltz Creek's water quality. The grab sample results were generally better than criteria. Based on hardness, alkalinity, calcium, and magnesium concentrations, grab sample analysis results suggest that Waltz Creek generally exhibits normal buffering capacity. While most metals analyzed were below detection limits and Chapter 93 criteria values, concentrations for copper at 1WC and 2UNT and zinc at 1WC and 3UNT slightly exceeded their hardness-based criteria. These parameter concentrations were also elevated at other stations but higher hardness levels attenuated their impacts. Except for nutrients, other tested parameters exhibited normal background concentrations. Nutrients were elevated below the Pen Argyl sewage treatment plant at 3UNT and in the lower Waltz Creek mainstem (4WC). Water chemistry information and field observations indicate that Waltz Creek displays fluctuations in water quality often associated with runoff from storm sewers and residential areas (DEP 1998).

There are two active NPDES permitted point source discharges in the study area. One is a municipal sewage treatment plant discharge located on an unnamed tributary of Waltz Creek (Figure 1; Table 1) in the Borough of Pen Argyl permitted to the Pen Argyl Municipal Authority. The second discharge is a non-municipal sewage treatment discharge located in Plainfield Township and permitted to H.A. Berkheimer, Inc.

There is one permitted surface water withdrawal permit in the study area – an instream diversion for the Citizens Utility Water Company for 0.149 MGD.

Aquatic Biota

The indigenous aquatic community is an excellent indicator of long-term conditions and is used as a measure of both water quality and ecological significance. NERO staff collected habitat and benthic macroinvertebrate data during their 1994 & 1998 surveys. Fish data were collected by NERO in 1994 and by the PFBC in 1999.

Habitat. For simplicity, the most current habitat data (DEP 1998) is reported in Table 2. Instream habitat conditions were evaluated at each station where benthic macroinvertebrates were sampled. The habitat evaluation consists of rating twelve habitat parameters to derive a station habitat score. The range of habitat score totals for Waltz Creek stations was 156-211 – generally considered to reflect sub-optimal to optimal habitat conditions.

Benthos. NERO's benthic macroinvertebrate collection efforts employed the Department's PA-DEP RBPIII benthic sampling methodology. The PA-DEP RBPIII method is a modification of EPA's Rapid Bioassessment Protocols (RBPs; Plafkin, et al 1989). The collected and processed benthic samples serve as the basis for benthic metric analysis and allows comparisons of Waltz Creek metrics scores to generally accepted water quality predictive scoring ranges (e.g. Shannon diversity index range of <1-3+, where low scores are indicative of poor quality and higher scores better quality).

Waltz Creek supports widely varied benthic macroinvertebrate populations. Macroinvertebrates collected in the Waltz Creek basin (Table 3) revealed taxa richness (total # of taxa) values ranging 7-31 in December 1994 and 4-19 in February 1998. Modified EPT index scores were also widely variable with ranges of 2-12 (1994) and 0-19 (1998). It must be noted that both surveys were conducted during winter conditions, so there should not be very much variablility attributed to seasonality. However, the older survey data from 1994 reflects total sample identifications while only portions of the 1998 collections were identified (100+ sub-samples). This difference in sample processing accounts for the variation between the two NERO surveys.

Despite the different sample sizes between the two NERO surveys, pollution sensitive benthic metric values were comparable. The benthic collections of both surveys were consistent with each other and reflect the water quality conditions of their respective station. The macroinvertebrate communities were quite varied in condition, "health", and diversity, and contained a number of pollution-tolerant genera. For example, when considering the 1998 data, Waltz Creek's upper stations (1- & 4WC) and headwater tributaries (2- & 3UNT) scored poorly. The "Shannon" diversity index, a traditional benthic metric where low scores indicate poor conditions, scored low – ranging from .47 to 1.59. (Normally, in the spectrum of typical diversity index scores, <1 represent "very poor" water quality conditions and 3+ represent "excellent" conditions). The HBI scores (Hilsenhoff Biotic Index; high values indicating poorer water quality conditions) for 2- & 3UNT were among the highest found in the study area (6.25 & 5.88, respectively). With the exception of the lower-most station (8WC), the other stations scored poorly with the %Dominant Taxon metric (Higher percentages indicating benthic community imbalance). The poor performances of these three metrics indicate that the stream has been subjected to varying degrees of chronic or acute degradation. These stations receive the

discharge from the Pen Argyl STP and runoff from residential areas.

The best benthic conditions found in Waltz Creek appear at 8WC and at the headwaters of Greenwalk Creek (5GC). Relative to the rest of the study area, these stations had the best scores for taxa richness (19, 17), HBI (3.85, 3.46), and Shannon diversity (2.45, 1.91). Conditions at Station 8WC may reflect improved water quality as a result of dilution of runoff emanating from Pen Argyl in the headwaters of Waltz Creek. Greenwalk Creek headwaters (5GC) don't receive direct urban runoff like Waltz Creek does.

Fish. Waltz Creek fish populations were sampled by NERO staff in 1994 and with the assistance of PFBC biologists in August 1999. The presence of coldwater fishes, particularly brown trout, was the basis for the Department's original use-attainability recommendations (1995). The PFBC's IBI survey provided valuable warm weather data concerning the Waltz Creek fishery.

Seven species of fish were captured in Waltz Creek during the Department's December 1994 survey (Table 4). The PFBC quantitative IBI survey documented the same species plus one – the shield darter (*Percina peltata*). Forty-six brown trout (85-288mm in size) and 3 rainbow trout (155-323) were captured during the PFBC survey. These species were also collected in 1994. Brown and rainbow trout are cold water species and the rest, while commonly found in cold water streams, are more widely adaptive and temperature tolerant "coolwater fishes". The size of captured trout (sub-legal sizes of <175mm) suggest natural reproduction. However, Greenwalk Creek supports a trout hatchery, which raises the possibility of sub-legal sized "escapees" (especially the observed rainbows). Overall, the Waltz Creek fishery is dominated by blacknose dace with low-to-moderate density brown trout populations being present.

PUBLIC RESPONSE AND PARTICIPATION SUMMARY

The Department provided public notice of this redesignation evaluation and requested any technical data from the general public through publication in the Pennsylvania Bulletin on April 22, 2000 (30 Pa.B 2071). A similar notice was also published in The Express Times newspaper (Easton, PA) on April 21, 2000. In addition, Plainfield and Washington Townships, Pen Argyl Borough, and Lehigh Valley Planning Commission were notified of the redesignation evaluation in a letter dated April 19, 2000. No data on water chemistry, in-stream habitat, or the aquatic community were received in response to these notices.

A draft of this report was submitted to the above stakeholders, along with a request for comments, on September 20,2002. No comments were received in response to this request.

RECOMMENDATIONS

The biological data indicate that Waltz Creek supports cold water and migratory fish. Two species of trout were collected from Waltz Creek during both cold and warm months. American eels were also collected in the mainstem. These species were found in both 1995 and 1999.

Based on applicable regulatory criteria, the Department recommends that the entire Waltz Creek basin be designated Cold Water Fishes (CWF), Migratory Fishes (MF).

This recommendation adds approximately 14.6 stream miles of CWF waters to Chapter 93.

REFERENCES

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.

Department of Environmental Protection. 1995. *Use-Attainability Investigation; Waltz Creek, Northampton County.* Northeast Regional Office Memorandum; March 24, 1995 (on 12/20/94 survey).

Department of Environmental Protection. 1998. *Waltz Creek Intensive Follow-up Survey.* Northeast Regional Office Report; June 28, 1998 (on 2/11/98 survey).

Pennsylvania Fish & Boat Commission (1999). File information, 8/25/99 IBI Survey of Martins Creek basin.

FIGURE 1. WALTZ CREEK WATERSHED NORTHAMPTON CO.

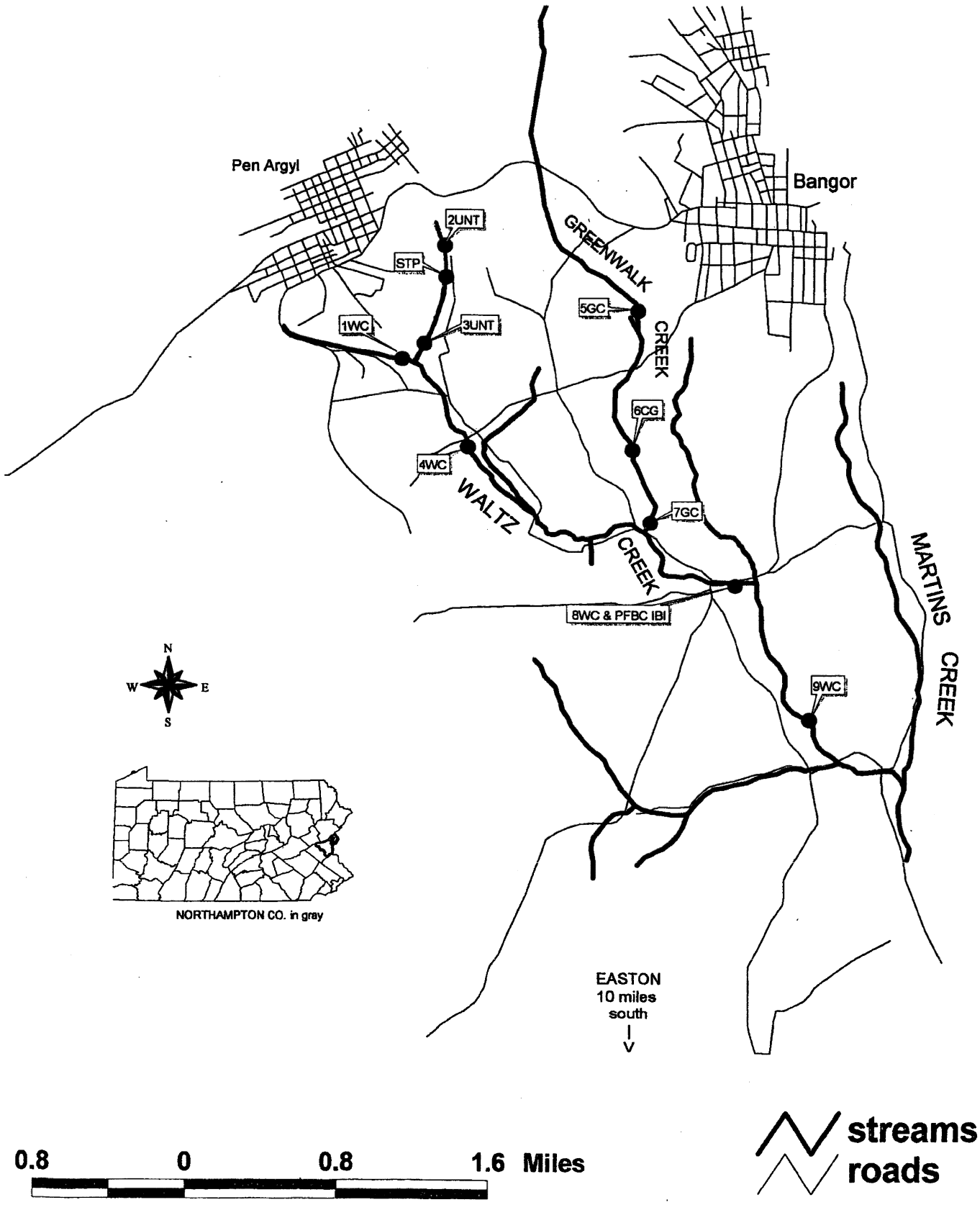

TABLE 1
WATER CHEMISTRY [1]
WALTZ CREEK, NORTHAMPTON COUNTY
FEBRUARY & APRIL 1998

STATIONS [2]	1WC (1)		2UNT (4E)		STP		3UNT (5E)		4WC (2)		5GC (6G)		6GC (7G)		8WC (3)	
DATES [3]	2/11/98	4/13/98	2/11/98	4/13/98	2/11/98	4/13/98	2/11/98	4/13/98	2/11/98	4/13/98	2/11/98	4/13/98	2/11/98	4/13/98	2/11/98	4/13/98
pH	6.7	6.8	6.4	6.5	7.3	7	7.0	6.9	7.1	6.8	6.3	6.4	6.5	6.6	7.1	6.8
ALK	34	32	32	26	162	50	74	42	56	40	15.2	15.4	19.2	20	36	32
COND	300	312	158	118	1030	660	642	465	553	479	216	201	210	217	371	343
BOD	1.4	0.83	<0.3	0.86	4.4	14.5	1.2	4.3	0.8	2.2	<0.3	1	3.2	0.8	0.5	1.3
SuspSol	10	32	14	32	24	44	8	48	24	58	<2	6	14	26	2	40
NH_3	<0.02	<0.02	<0.02	<.02	0.28	1.54	0.03	0.14	<0.02	0.09	<0.02	<.02	0.08	0.05	<0.02	<.02
NO_2	<0.01	<0.01	<0.01	<.01	0.7	0.34	0.1	0.08	0.04	0.05	<0.01	<.01	0.01	<.01	0.02	<.01
NO_3	1.18	1.12	1.00	0.63	25.82	13.5	7.63	3.77	5.07	2.99	1.00	0.82	0.89	0.77	3.37	2.35
TOT P	<0.02	<0.02	<0.02	0.02	2.06	1.81	0.35	0.29	0.17	0.14	<0.02	<.02	0.06	0.04	0.08	0.07
HARD	25	91	44	36	21	69	46	134	189	159	61	50	61	55	119	101
CA	34.6	31.5	18.7	12.3	20.5	22.6	55.8	42.6	78.0	51.8	19.6	18.9	19.6	19.3	35.4	36.7
MG	8.63	12.2	3.63	2.57	19.10	14.1	22.60	17.3	109.00	19	7.68	6.77	7.09	7.01	11.70	13.6
CU*	-	<10	<10	<10	21	24	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
PB*	<1	<1	<1	<1	1.1	2.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
NI*	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<10	<50	<50	<50	<50	<50
ZN*	18	<10	10	<10	69	62	30	16	133	<10	49	<10	105	<10	83	<10
MBAS	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
AL*	-	<200	-	<200	-	397	-	<200	-	<200	-	<200	-	<200	-	200
MN*	-	<10	-	<10	-	73	-	19	29	18	-	<10	-	12	-	19
FE*	-	135	-	41	-	466	-	201	-	225	-	21	-	136	-	271
CR*	<50	<50	-	<50	-	<50	-	<50	-	<50	-	<50	-	<50	-	<50
B*	-	-	<250	-	710	-	<250	-	-	-	-	-	-	-	-	-
HG*	-	-	<1	-	<1	-	<1	-	-	-	-	-	-	-	-	-
F COL/100ml	160	60	170	<20	<20	20	3100	40	880	100	<20	20	160	<20	60	60
F STP/100ml	<20	20	<20	<20	3100	3600	1100	280	280	120	<20	<20	<20	<20	60	40

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

* - concentrations in µg/l

2 - NERO survey stations in parentheses

3 - collected as part of the 1998 intensive follow-up survey

TABLE 2
HABITAT ASSESSMENT SUMMARY
WALTZ CREEK, NORTHAMPTON COUNTY
FEBRUARY 1998

HABITAT PARAMETER	scoring range	STATIONS [1]						
		1WC 1	2UNT 4E	3UNT 5E	4WC 2	5GC 6G	6GC 7G	8WC 3
1 . instream cover	0 - 20	13	9	12	14	15	17	16
2 . epifaunal substrate	0 - 20	16	13	13	17	16	16	17
3 . embeddedness	0 - 20	10	16	11	10	18	15	17
4 . velocity/depth	0 - 20	16	15	16	16	11	17	16
5 . channel alterations	0 - 20	13	7	16	15	19	16	15
6 . sediment deposition	0 - 20	9	12	11	12	18	17	17
7 . riffle frequency	0 - 20	17	16	17	17	19	18	18
8 . channel flow status	0 - 20	17	16	17	17	19	18	17
9 . bank condition	0 - 20	6	16	15	10	19	18	17
10 . bank vegetation protection	0 - 20	16	16	16	13	19	16	14
11 . grazing/disruptive pressures	0 - 20	16	13	16	10	19	16	13
12 . riparian vagetation zone width	0 - 20	12	5	13	5	19	10	5
Total Score	0 - 240	161	154	173	156	211	194	182

TABLE 3
WALTZ CREEK, NORTHAMPTON COUNTY
D-FRAME RESULTS
December 1994 & February 1998

STATIONS	1WC	2UNT		3UNT	4WC		5GC	6GC	7GC	8WC	9WC
NERO Stations	ST 1	epk-UNT	ST 4E	ST 5E	epk-2	ST 2	ST 6G	ST 7G	epk-Gwalk	ST 3	epk-3
Survey dates	Feb-98	Dec-94	Feb-98	Feb-98	Dec-94	Feb-98	Feb-98	Feb-98	Dec-94	Feb-98	Dec-94
TAXA											
Mayflies											
Ameletidae ***Ameletus***	-	-	-	-	-	-	1	-	-	-	-
Baetidae ***Baetis***	7	-		1	1	8	-	7	4	4	8
Ephemerellidae ***Ephemerella***	-	-	-	-	1	-	-	-	7	12	53
Eurylophella	-	-	-	-	-	-	2	-	-	-	1
Serratella	-	-	-	-	-	-	10	11	3	6	
Heptageniidae ***Stenonema***	-	-	-	-	-	-	-	-	2	3	15
Stoneflies											
Perlidae ***Acroneuria***	-	-	-	-	-	-	-	-	-	2	7
Paragnetina spp	-	-	-	-	-	-	-	-	-	-	6
Phasganophora *	-	-	-	-	-	-	-	-	-	-	5
Capnidae ***Paracapnia***	-	-	-	-	-	-	19	-	-	-	-
Chloroperlidae ***Sweltsa***	-	-	-	-	-	-	3	-	-	-	-
Pelodidae ***Yugus***	-	-	-	-	-	-	1	-	-	-	-
Peltoperlidae ***Tallaperla***	-	-	-	-	-	-	-	-	-	-	-
Caddisflies											
Glossosomatidae ***Glossosoma***	-	-	-	-	-	-	-	-	-	-	1
Goeridae ***Goera***	-	-	-	-	-	-	-	-	-	-	1
Hydropsychidae ***Cheumatopsyche***	-	-	-	14	85	6	1	-	275	-	65
Diplectrona	-	3	-	1	3	-	-	-	-	-	-
Hydropsyche	-	-	1	3	30	6	1	1	30	9	22
Hydroptilidae ***Palaeagapetus***	-	-	-	-	-	-	1	-	-	-	-
Limnephilidae ***Hydatophylax***	-	-	-	-	-	-	-	-	-	-	10
Philopotamidae ***Chimarra***	-	-	-	-	-	-	1	33	130	5	57
Dolophilodes	-	-	-	-	-	-	-	-	1	1	21
Polycentropodidae ***Polycentropus***	-	-	-	-	-	-	1	-	-	1	5
Potamyia	-	-	-	1	-	-	-	-	-	-	-
Rhyacophilidae ***Rhyacophila***	1	-	-	-	-	-	1		3	1	18
Uneoidae ***Neophylax***		14	3	-	-	-	-	-	-	-	-
True Flies											
Chironomidae	5	35	59	101	119	15	12	60	60	9	30
Empididae ***Clinocera***	-	-	1	1	-	-	-	-	-	1	-
Muscidae ***Limnophora***	-	-	1	-	1	1	-	-	-	-	-
Simulidae ***Prosimulium***	-	-	-	-	-	-	-	-	1	-	-
Simulium	-	-	-	10	13	3		2	1	1	-
Tipulidae ***Antocha***	-	-	-	-	-	-	-	-	-	-	4
Dicranota?	-	-	-	-	-	-	-	-	-	-	1
Pedicia	-	-	-	-	1	-	-	-	-	-	-
Tipula	-	24	2	3	8	-	-	-	2	-	2
Tabanidae	-	-	-	-	2	-	-	-	-	-	2
Misc. Insect Taxa											
Dytiscidae	-	1	-	-	-	-	-	-	-	-	-
Elmidae ***Optioservus***	-	-	-	-	3	7	1	1	10	20	22
Promoresia	-	-	-	-	1	-	-	-	-	-	1
Stenelmis	-	-	-	-	-	-	-	-	-	4	4
Psphenidae ***Psephenus***	-	-	-	-	1	-	-	-	-	1	17
Ectopria	-	-	-	-	1	-	-	-	-	-	1
Sialidae ***Sialis***	-	-	-	-	-	-	-	-	-	1	-
Gomphidae sp	-	-	-	-	-	-	-	-	1	-	1
Arigomphus	-	-	-	-	-	-	1	-	-	-	-
Boyeria	-	-	-	-	-	-	-	-	-	-	1
Non-Insect Taxa											
Amphipoda ***Gammarus***	97	1	-	-	177	48	41	-	148	4	29
Isopoda ***Caecidotea***	-	-	2	-	4	-	-	39	318		6
Mollusca ***Physa***	-	-	5	-	-	-	-	-	-	-	-
Sphaerium	-	-	-	-	-	-	-	-	4	-	-
Oligochaeta	-	9	6	-	11	1	3	-	-	1	7
Turbellaria ***Cura***	-	-	-	-	-	-	-	3	-	-	-
total # individals	110	87	80	135	462	95	100	157	1000	86	423
taxa richness	4	7	9	9	18	9	17	9	18	19	31
mEPT	1	2	1	1	2	0	9	2	6	7	12
Hilsenhoff	4.191	5.138	6.25	5.881	5.152	4.82	3.46	5.338	5.318	3.849	3.754
% Dom	88.18	40.23	73.75	74.81	38.31	50.53	41	38.22	31.8	23.26	15.37
%mMayfly	0	0	0	0	0.2	0	13	7	1.2	24.49	16.3
Shannon	0.469	1.469	1.064	0.959	1.689	1.591	1.91	1.562	1.754	2.485	2.806

* = *Agnetina*

TABLE 4
FISHES [1]
WALTZ CREEK, NORTHAMPTON COUNTY

	station	Waltz				
		1WC	4WC	7GC	8WC	9WC
	data source [2]	DEP:epk-1	DEP:epk-2	DEP:epk-Gwalk	PFBC	DEP:epk-3
Salmo trutta , **brown trout**		A	A	A	46 (85-288mm)	C
Oncorhynchus mykiss , **rainbow trout**		-	-	R (<150mm)	3 (155, 180, 323mm)	R (<150mm)
Rhinichythys atratulus , **blacknose dace**		-	C	-	176	P
Rhinichythys cataractae , **longnose dace**		-	-	-	51	R
Catastomus commersoni , **white sucker**		R	C	-	26	P
Etheostoma olmstedi , **tessellated darter**		-	-	-	5	R
Percina peltata , **shield darter**		-	-	-	8	-
Anguilla rostrata , **American eel**		-	-	-	36	P
	TOTAL TAXA	2	3	2	8	7

1 - X = ocurrence; R - rare, P - present, C - common, A - abundant; counts for significant game fish indicated
2 - DEP: epk# =12/20/94; PFBC: 8/25/99
3 - juvenile/adult

Pennsylvania Department of Environmental Protection

Rachel Carson State Office Building
P.O. Box 2063
Harrisburg, PA 17105-2063
August 13, 2003

Policy Office 717-783-8727

Mr. Robert E. Nyce, Executive Director
Independent Regulatory Review Commission
14th Floor, Harristown #2
333 Market Street
Harrisburg, PA 17120

RE: Proposed Rulemaking: Stream Redesignations (Brushy Meadow Creek, et al.) (#7-380)

Dear Mr. Nyce:

Enclosed is a copy of a proposed regulation for review and comment by the Independent Regulatory Review Commission (Commission) pursuant to Section 5(a) of the Regulatory Review Act. This proposal is scheduled for publication as a proposed rulemaking in the *Pennsylvania Bulletin* on August 23, 2003, with a 45-day public comment period. The Environmental Quality Board (EQB) approved this proposal on December 17, 2002.

This proposal amends § 93.9c, 93.9g, 93.9l, 93.9n, 93.9o, 93.9q and 93.9v, relating to the Designated Uses and Water Quality Criteria for waterbody segments. The regulatory changes in this proposed rulemaking are the result of physical, chemical and biological characteristics studies conducted by DEP on two petitioned streams—Crum Creek (Chester and Delaware Counties) and Green Lick Run (Fayette County)—and on Pine Creek (Warren and Crawford Counties), which was evaluated in response to a request from the Pennsylvania Fish and Boat Commission. Also included in this package are recommendations for the following streams: Brushy Meadow Creek and Waltz Creek (Northampton County), Little Juniata River (Blair and Huntington Counties), Spring Creek (Dauphin County) and South Fork Beech Creek (Centre County). In addition, this package contains a revision to the recently finalized Class A Wild Trout Streams rulemaking. While redesignating the upper part of the Moshannon Creek basin, an entry for the remainder of the main stem of Moshannon Creek was inadvertently deleted. To complete the Moshannon Creek listing, an entry for the main stem from Roup Run to the mouth of the Moshannon Creek has been added.

Many of the streams in this rulemaking are being considered for redesignation as High Quality (HQ) or Exceptional Value (EV) Waters. The changes provide the appropriate designated uses for these

streams to protect existing uses. The designated use changes will have no additional impact on treatment requirements; however, some new or expanding discharges may be subject to additional requirements to meet designated and existing stream uses. The proposed redesignations will be implemented through DEP's permit and approval actions.

The Department will provide the Commission with any assistance required to facilitate a thorough review of this proposal. Section 5(g) of the Regulatory Review Act provides that the Commission may, within 30 days after the close of the public comment period, convey to the agency any comments, recommendations and objections to the proposed regulation. The Department will consider any comments or suggestions made by the Commission, as well as the Committees and public commentators, prior to final adoption of the regulation

Please contact me at the number above if you have any questions or need additional information.

Sincerely,

Michele L. Tate

Michele L. Tate
Acting Regulatory Coordinator

Enclosure

TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO THE REGULATORY REVIEW ACT

I.D. NUMBER:	7-380
SUBJECT:	Stream Redesignations, Brushy Meadow Creek, et al.
AGENCY:	DEPARTMENT OF ENVIRONMENTAL PROTECTION

TYPE OF REGULATION

X Proposed Regulation

Final Regulation

Final Regulation with Notice of Proposed Rulemaking Omitted

120-day Emergency Certification of the Attorney General

120-day Emergency Certification of the Governor

Delivery of Tolled Regulation
a. With Revisions b. Without Revisions

RECEIVED
2003 AUG 13 PM 3:13
INDEPENDENT REGULATORY REVIEW COMMISSION

FILING OF REGULATION

DATE	SIGNATURE	DESIGNATION
8-13-03	Richard P. Hoffman	HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
8-13-03	Robert A. Costello	SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
8-13-03	Elena Pajan	INDEPENDENT REGULATORY REVIEW COMMISSION
		ATTORNEY GENERAL (for Final Omitted only)
8/13/03	Mayra Garcia	LEGISLATIVE REFERENCE BUREAU (for Proposed only)

August 6, 2003