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)
7-410

IRRC Number: 2611

(3) Short Title

Stream Redesignations, Big Brook, et al.

(4) PA Code Cite

25 Pa. Code, Chapter 93

(5) Agency Contacts & Telephone Numbers

Primary Contact: Michele Tate, 783 -8727
Secondary Contact: Kelly Heffner, 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 proposal modifies Chapter 93 to reflect the recommended redesignation of streams shown on the attached list. The changes include 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.

(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 2006-2007	FY +1 2007-08	FY +2 2008-09	FY +3 2009-10	FY +4 2010-11	FY +5 2011-12
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 2003-2004	FY-2 2004-2005	FY-1 2005-2006	Current FY 2006-2007
Env. Prot.Operations (160)	$76,393,000	$85,898,000	$87,897,000	$89,847,000
Env. Program Mgmt. (161)	$43,679,000	$37,594,000	$37,049,000	$36,868,000

(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.

(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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INDEPENDENT REGULATORY REVIEW COMMISSION

DO NOT WRITE IN THIS SPACE

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

By: Amy M. Elliott
(Deputy Attorney General)

APR 17 2007
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. 7-410

DATE OF ADOPTION February 20, 2007

BY Kathleen A. McGinty

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 Andrew C. Clark

DATE OF APPROVAL MAR 5 2007

(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 (Big Brook, *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 (Big Brook, *et al.*)

Preamble

The Environmental Quality Board (Board) proposes to amend 25 Pa. Code §§93.9b, 93.9f, 93.9g, 93.9n, 93.9o, and 93.9r to read as set forth in Annex A.

This proposal was adopted by the Board at its meeting of February 20, 2007.

A. Effective Date

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

B. Contact Persons

For further information, contact Richard H. Shertzer, Chief, Division of Water Quality Standards, Bureau of Water Standards and Facility Regulation, 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 (Department) Web site (http://www.depweb.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 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 (relating to Pennsylvania) sets forth certain requirements for portions of the Commonwealth's antidegradation program.

D. Background of the Proposed 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 may identify candidates for redesignation during routine waterbody investigations. Requests for consideration may also be initiated by other agencies. Organizations, businesses, or individuals may submit a rulemaking petition to the Board.

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 shall ensure the protection of designated and existing uses.

Existing use protection is provided when the Department determines, based on its evaluation of the best available scientific information, that a surface water attains water uses identified in regulations at 25 Pa. Code sections 93.3 and 93.4. Examples of water uses protected include the following: Cold Water Fishes (CWF), Warm Water Fishes (WWF), HQ and EV. A final existing use determination is made on a surface water at the time the Department takes a permit or approval action on a request to conduct an activity that may impact surface water. If the determination demonstrates that the existing use is different than the designated use, the water body will immediately receive the best protection identified by either the attained uses or the designated uses. A stream will then be "redesignated" through the rulemaking process to match the existing uses with the designated uses. For example, if the designated use of a stream is listed as protecting WWF but the redesignation evaluation demonstrates that the water attains the use of CWF, the stream would immediately be protected for CWF, prior to a rulemaking. Once the Department determines the water uses attained by a surface water, the Department will recommend to the Board that the existing uses be made "designated" uses, through rulemaking, and be added to the list of uses identified in the regulation at 25 Pa. Code section 93.9.

These streams were evaluated in response to five petitions, as well as requests from the Department's Regional and Central Offices as follows:

Petition:

Big Brook - (Lebanon Twp. (Wayne Co.) Board of Supervisors)
Brooke Evans Creek - (Larry Piasecki)
Wissahickon Creek - (Upper Gwynedd Twp; Montgomery Co.)
Furnace Run - (students from Conestoga Valley High School, Lancaster County)
Clarion River - (Iron Furnace Chapter of Trout Unlimited, the Alliance for Wetlands and Wildlife, the Commissioners of Clarion County, and Reliant Energy Mid-Atlantic Power Holding LLC)

Department:

Beaver Creek
Mill Creek
Stone Creek

These regulatory changes were developed as a result of aquatic studies conducted by the Department. The physical, chemical, and biological characteristics and other information on these waterbodies were evaluated to determine the appropriateness of the current and requested designations using applicable regulatory criteria and definitions. In reviewing whether waterbodies qualify as HQ or EV waters, the Department considers the criteria in § 93.4b (relating to qualifying as High Quality of Exceptional Value Waters). Based upon the data collected in these surveys, the Department recommends the designations described in this Preamble and as set forth in Annex A.

Copies of the Department's stream evaluation reports for these waterbodies are available on the Department's website or from the contacts whose addresses and telephone numbers are listed in Section B.

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

Big Brook – Big Brook is a tributary to Dyberry Creek in the Delaware River drainage. The basin is located in Dyberry, Oregon, Lebanon, and Damascus Townships in Wayne County. The Big Brook basin is currently designated High Quality – Cold Water Fishes (HQ-CWF) and was evaluated for redesignation based on a petition submitted by the Lebanon Township (Wayne County) Board of Supervisors. The reference station was located on Sawkill Creek. Sawkill Creek is an EV stream in Pike County. Sawkill Creek was used because of its close proximity, similar drainage area, and similar geologic setting. The Department recommends that the Big Brook basin be redesignated EV based on waters with biological conditions scores at all five sampling stations greater than 92% of the reference, thus satisfying the regulatory criterion for redesignation as EV.

Mill Creek – Mill Creek is a tributary to Tulpehocken Creek in the Schuylkill River watershed. The stream is located in Jefferson and Tulpehocken Townships, Berks County. Mill Creek was inadvertently omitted from Chapter 93. The Department documented the presence of a coldwater fishery in the basin. Species identified include blacknose dace and creek chub. Based on the presence of cold water species, the Department recommends that the Mill Creek basin be designated as CWF. Since there are two Mill Creeks that are tributary to Tulpehocken Creek within Berks County, and both were inadvertently omitted from drainage list F in Chapter 93, it is proposed that the stream code and river mile location (Stream Code 01936 at RM 20.3) be added to the stream name within the Chapter 93 drainage list to clarify which Mill Creek is being added through this rulemaking. The other Mill Creek, which originates and has most of its basin within Lebanon County (Stream Code 1956 at RM 29.6) needs further evaluation and will be subject of a future rulemaking action once that use determination has been completed.

Brooke Evans Creek – Brooke Evans Creek is a tributary to the Schuylkill River in the Delaware River watershed. The candidate basin is a freestone stream located in Limerick Township, Montgomery County. Brooke Evans Creek is currently designated Warm Water Fishes (WWF) and was evaluated for redesignation in response to a petition from Mr. Larry Piasecki. Rock Run is an EV stream in the French Creek basin, which was chosen as a reference stream because both are freestone streams, have similar drainage area, are close in proximity to each other and are found in similar geologic settings. The candidate basin failed to meet the 83% comparison standard required to qualify as High Quality (HQ) Waters; a pre-requisite for redesignation to EV waters. The Department recommends that Brooke Evans Creek basin retain its current warm water fishes (WWF) designation.

Wissahickon Creek – The Wissahickon Creek is a tributary to the Schuylkill River in the Delaware River basin. The Wissahickon Creek watershed is located in Landsdale, Montgomery, Upper Gwynedd, Horsham, Worchester, Lower Gwynedd, Whitpain, Upper Dublin, Abington, Whitemarsh, Springfield, and Cheltenham Townships in Montgomery and Philadelphia Counties and the Boroughs of North Wales, Landsdale, and Ambler. The Wissahickon Creek basin is currently designated Trout Stocking (TSF), and was evaluated based on the petition submitted by Upper Gwynedd Township. American eel have been found throughout the main stem of the Wissahickon Creek. Based on applicable regulatory criteria, the Department recommends that the Wissahickon Creek basin from its source to the Route 73 Bridge remain designated TSF. The Department also recommends that Migratory Fishes (MF) designation be added due to the presence of the migratory American eel.

Beaver Creek – Beaver Creek is a tributary to the East Branch Brandywine Creek in the Delaware River Basin and flows through East and West Brandywine and Caln Townships of Chester County. The designated use of the upper Beaver Creek basin (upstream of the east Brandywine / Caln Township border) is not defined in Chapter 93, whereas downstream of the referenced border, the designated use is Trout Stocking, Migratory Fishes (TSF, MF). In order to correct this omission, Department and Pennsylvania Fish & Boat Commission (Commission) staff members conducted an evaluation which extended to the entire basin. The presence of a reproducing trout population was confirmed by these surveys. American eel were found at all five sample stations, including upstream of the impoundment at Bondsville Road, which indicates that the impoundment is not a barrier to the migration of this species. Based on these survey findings, the Department recommends that the Beaver Creek basin be designated Cold Water Fishes, Migratory Fishes (CWF, MF).

Stone Creek – Stone Creek is a tributary to Dunning Creek in East St. Clair Township, Bedford County and it is included in the Susquehanna River Basin. It was determined that during the compilation of Chapter 93, the Stone Creek basin was not assigned a designated use. The Department recommends that the Stone Creek basin from its source to its confluence with UNT 14908 at river mile 0.34 be designated warm water fishes (WWF) as these stream segments are normally dry during the summer months. The Department recommends that the remainder of Stone Creek basin be designated CWF based upon temperature data and the established use of these waters by the Reynoldsdale Hatchery for the maintenance and propagation of brook trout.

Furnace Run – Furnace Run is located in the Susquehanna River Basin. Furnace Run originates in Heidelberg Township, Lebanon County and flows through Elizabeth and Clay Townships, Lancaster County where it enters Middle Creek. Furnace Run basin is currently designated Trout Stocking (TSF), except for Segloch Run, a tributary which is designated EV. Furnace Run basin was evaluated for redesignation based on a petition that was submitted by students from Conestoga Valley High School. The presence of an established, naturally reproducing brook trout population was documented in the headwaters of Furnace Run. The HQ integrated benthic macroinvertebrate scoring criterion of >83% was met for the headwaters of Furnace Run. Segloch Run is an EV stream and was used as reference because it is an adjacent watershed with the same geologic setting and similar drainage area to the upper reaches of Furnace Run. The Department recommends that the protected use of the upper portion of the Furnace Run basin from its source to the SR 1026 road crossing be designated High Quality – Cold Water Fishes (HQ-CWF). The lower portion of Furnace Run downstream from SR 1026 should remain TSF.

Clarion River – The Clarion River is a large tributary to the Allegheny River located in the Ohio River basin. The Clarion River mainstem from the confluence of the East and West Branches downstream to the mouth is currently designated Cold Water Fishes (CWF). The section of the Clarion River from the inlet of Piney Lake to the mouth was evaluated for redesignation based on the petition submitted jointly by the Iron Furnace Chapter of Trout Unlimited, the Alliance for Wetlands and Wildlife, the Commissioners of Clarion County, and Reliant Energy Mid-Atlantic Power Holding LLC. The segment of the Clarion River that is being considered for redesignation flows through or borders the Clarion County townships of Clarion, Highland, Monroe, Paint, Piney, Beaver, Licking, Perry, and Richland and is located in close proximity to Clarion and Callensburg boroughs. Species composition data from the Clarion River in and below the impoundment created by Piney Dam reveals that warm water fish species are predominant. Data was collected which indicates that this reach of the Clarion River frequently excedes CWF criteria. The Department recommends that the designated use of the Clarion River

from the inlet of Piney Lake downstream to the mouth be changed from CWF to WWF. All tributaries to this reach will retain their current designation.

E. Benefits, Costs and Compliance

Executive Order 1996-1 provides for a cost/benefit analysis of the proposed amendments.

1. **Benefits** – Overall, the Commonwealth, its citizens and natural resources will benefit from these recommended changes because they provide the appropriate level of protection in order to preserve the integrity of existing and designated uses of surface waters in this Commonwealth. Protecting water quality provides economic value to present and future generations in the form of clean water for drinking, recreational opportunities, and aquatic life protection. It is important to realize these benefits to ensure opportunity and development continue in a manner that is environmentally, socially and economically sound. Maintenance of water quality ensures its future availability for all uses.

2. **Compliance Costs** – The proposed amendments to Chapter 93 may impose additional compliance costs on the regulated community. These regulatory changes are necessary to improve total pollution control. The expenditures necessary to meet new compliance requirements may exceed that which is required under existing regulations.

   Persons conducting or proposing activities or projects must comply with the regulatory requirements relating to designated and existing uses. Persons expanding a discharge or adding a new discharge point to a stream could be adversely affected if they 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 cost 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 redesignated. The initial costs resulting from the installation of technologically advanced wastewater treatment processes may be offset by potential savings from and increased value of improved water quality through more cost-effective and efficient treatment over time.

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 this 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 paperwork, would be required. Additionally, paperwork associated with demonstrating social and economic justification (SEJ) may be required for new or expanded discharges to certain HQ Waters, and consideration of nondischarge alternatives is required for all new or expanded discharges to EV and HQ Waters.

F. Pollution Prevention

The water quality standards and antidegradation program are major pollution prevention tools because the 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 regulations effectively fulfill the goals for which they were intended.

H. Regulatory Review

Under Section 5(a) of the Regulatory Review Act (71 P.S. § 745.5(a)), on April 27, 2007, 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, in compliance with Executive Order 1996-1, "Regulatory Review and Promulgation." 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 10 days of the close of the Committees' review period. The comments, recommendations or objections shall specify the regulatory review criteria that have not been met. The Regulatory Review Act specifies detailed procedures for review by the Department, the General Assembly and the Governor prior to final-form 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, 16th Floor, 400 Market Street, Harrisburg, PA 17101-2301). Comments submitted by facsimile will not be accepted. Comments must be received by the Board by June 26, 2007. 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 June 26, 2007. 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 June 26, 2007.

BY:

_____

Kathleen A. McGinty
Chair
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

§93.9b. Drainage List B

Delaware River Basin in Pennsylvania
Lackawaxen River

Stream	Zone	County	Water Uses Protected	Exceptions to Specific Criteria
	* * * * *			
4—Van Auken Creek	Basin	Wayne	HQ-TSF, MF	None
3—Dyberry Creek	Basin, Source to **[Confluence with West Branch Lackawaxen River] Big Brook**	Wayne	HQ-CWF, MF	None
4—Big Brook	**Basin**	**Wayne**	**EV**	**None**
3—Dyberry Creek	**Basin, Big Brook to Confluence with West Branch Lackawaxen River**	**Wayne**	**HQ-CWF, MF**	**None**
2—Lackawaxen River	Main Stem, Confluence of West Branch Lackawaxen River and Dyberry Creek to Mouth	Wayne	HQ-TSF, MF	None
	* * * * *			

§93.9f. Drainage List F

Delaware River Basin in Pennsylvania
Schuylkill River

Stream	Zone	County	Water Uses Protected	Exceptions to Specific Criteria
	* * * * *			
4—Owl Creek	Basin	Lebanon	WWF	None
4—Mill Creek (Stream Code 01936 at RM 20.30)	**Basin**	**Berks**	**CWF**	**None**
3—Tulpehocken Creek	Blue Marsh Reservoir	Berks	WWF	None
	* * * * *			
3—Gulley Run	Basin	Montgomery	WWF	None
3—Wissahickon Creek	Basin	Philadelphia	TSF**, MF**	None

§93.9g. Drainage List G

Delaware River Basin in Pennsylvania
Delaware River

Stream	Zone	County	Water Uses Protected	Exceptions to Specific Criteria
	* * * * *			
5—Unnamed Tributaries to East Branch Brandywine Creek	Basins, in East Brandywine and Uwchlan Townships	Chester	HQ-TSF, MF	None
5—Beaver Creek	Basin**[, East Brandywine-Caln Township Border to Mouth]**	Chester	**CWF[TSF]**, MF	None
5—Valley Creek	Basin, Source to Broad Run	Chester	CWF, MF	None
	* * * * *			

§93.9n. Drainage List N

Susquehanna River Basin in Pennsylvania
Juniata River

Stream	Zone	County	Water Uses Protected	Exceptions to Specific Criteria
	* * * * *			
5—Georges Creek	Basin	Bedford	WWF	None
5—Stone Creek	**Basin, Source to Confluence with UNT 14908 at RM 0.34**	**Bedford**	**WWF**	**None**
6—Unnamed Tributary (UNT) 14908 to Stone Creek	**Basin**	**Bedford**	**CWF**	**None**
5—Stone Creek	**Basin, UNT 14908 to Mouth**	**Bedford**	**CWF**	**None**
5—Bobs Creek	Basin, Source to Deep Hollow Run	Bedford	HQ-CWF	None
	* * * * *			

§93.9o. Drainage List O

Susquehanna River Basin in Pennsylvania
Susquehanna River

Stream	Zone	County	Water Uses Protected	Exceptions to Specific Criteria
	* * * * *			
4—Middle Creek	Basin, Elders Run to Furnace Run	Lancaster	TSF	None

5—Furnace Run	**Basin, source to SR 1026 [Main Stem]**	Lancaster	**HQ-CWF [TSF]**	None
5[6]—[Unnamed Tributaries to] Furnace Run	Basin**[s], SR 1026 to Segloch Run**	Lancaster	TSF	None
6—Segloch Run	Basin	Lancaster	EV	None
5—Furnace Run	**Basin, Segloch Run to Mouth**	**Lancaster**	**TSF**	**None**
4—Middle Creek	Basin, Furnace Run to Mouth	Lancaster	WWF	None

* * * * *

§93.9r. Drainage List R

Ohio River Basin in Pennsylvania
Clarion River

Stream	Zone	County	Water Uses Protected	Exceptions to Specific Criteria
	* * * * *			
5—Silver Creek	Basin	Elk	HQ-CWF	None
3—Clarion River	Main Stem, Confluence of East and West Branches to **Inlet of Piney Lake at RM 37.4 [Mouth]**	Clarion	CWF	None
4—Unnamed Tributaries to Clarion River	Basins, Confluence of East and West Branches to **Inlet of Piney Lake at RM 37.4 [Mouth]**	Elk-Forest-Jefferson-Clarion	CWF	None
4—Johnson Run	Basin	Elk	CWF	None
	* * * * *			
4—Blyson Run	Basin	Clarion	EV	None
3—Clarion River	**Main Stem, Inlet of Piney Lake at RM 37.4 to Mouth**	**Clarion**	**WWF**	**None**
4—Unnamed Tributaries to Clarion River	**Basins, Inlet of Piney Lake at RM 37.4 to Mouth**	**Clarion**	**CWF**	**None**
4—Mill Creek	Main Stem, Source to Little Mill Creek	Clarion	HQ-CWF	None

* * * * *

STREAM REDESIGNATIONS / CORRECTIONS

Big Brook, et al.

Stream	County	Reach	List	Current Designation*	Requested Designation*	Recommended Designation*
Big Brook	Wayne	Basin, Source to T477 (Gridline Road) Bridge Crossing in Lebanon Twp.	B	HQ-CWF	EV	Basin, EV
Mill Creek	Berks	Basin	F	None	---	CWF
Brooke Evans Creek	Montgomery	Basin	F	WWF	EV	WWF (no change)
Wissahickon Creek	Montgomery	Basin, Source to Route 73 Bridge	F	TSF	WWF	Basin, TSF, MF (no change, add MF)
Beaver Creek	Chester	Basin, Source to East Brandywine – Caln Township Border	G	None	---	Basin, CWF, MF
Beaver Creek	Chester	Basin, East Brandywine-Caln Township Border to Mouth	G	TSF, MF	---	
Stone Creek	Bedford	Basin, Source to Confluence with UNT 14908 at RM** 0.34	N	None	---	WWF
Unnamed Tributary (UNT) 14908 to Stone Creek	Bedford	Basin	N	None	---	CWF
Stone Creek	Bedford	Basin, UNT 14908 to Mouth	N	None	---	CWF
Furnace Run	Lancaster/ Lebanon	Basin, Source to SR1026	O	TSF	HQ/EV	HQ-CWF
Clarion River	Clarion	Main Stem, Inlet of Piney Lake to Mouth	R	CWF	WWF	WWF

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

** RM = River Mile
UNT = Unnamed Tributary

BIG BROOK

WAYNE COUNTY

WATER QUALITY STANDARDS REVIEW
STREAM REDESIGNATION EVALUATION REPORT

Segment: Basin
Stream Code: 05992
Drainage List B

WATER QUALITY MONITORING SECTION (APF)
DIVISION OF WATER QUALITY STANDARDS
BUREAU OF WATER STANDARDS AND FACILITY REGULATION
DEPARTMENT OF ENVIRONMENTAL PROTECTION

OCTOBER 2006

INTRODUCTION

The Big Brook basin is currently designated High Quality – Cold Water Fishes (HQ-CWF) and was evaluated for redesignation as Exceptional Value (EV) Waters based on a petition submitted by the Lebanon Township (Wayne County) Board of Supervisors. The petitioner requested redesignation of the stream reach from the headwaters to the T477 (Gridline Road) crossing in Lebanon Township on the basis of exceptional water quality, aquatic life, habitat and land use. The Environmental Quality Board (EQB) accepted the petition for further study on January 16, 2001. The Department evaluated the entire basin. One component of the evaluation was a field survey conducted by Department staff on April 24-25, 2002.

GENERAL WATERSHED DESCRIPTION

Big Brook is a tributary to Dyberry Creek in the Delaware River drainage (Figure 1). The basin is located in Dyberry, Oregon, Lebanon and Damascus townships in Wayne County. Big Brook is a freestone creek containing 28.9 miles of streams that drains 14.5mi^2 and flows in a southerly direction. The surrounding area is characterized by relatively hilly topography, which is portrayed on the Aldenville and Galilee 7.5-minute series USGS quadrangles.

Much of the watershed has a relatively low population density and land ownership is entirely private with forested or agricultural land uses. The watershed is entirely within the North-East Plateau ecoregion. The National Wetlands Inventory maps indicate the presence of forested and shrub-scrub swamp.

WATER QUALITY AND USES

Surface Water

No long-term water chemistry data were available to allow a direct comparison to water quality criteria. The Department collected grab samples at station 3BB (Table 1) on April 24, 2002 (Table 2). These samples indicated generally good water quality but since the instantaneous nature of grab samples precludes comparison to applicable water quality criteria, the indigenous aquatic community is a better indicator of long-term water quality conditions. There are no National Pollution Discharge Elimination System (NPDES) permitted discharges and one water withdrawal permitted to Wayne County Ready Mix, within the Big Brook basin. There is the potential of water quality impacts from non-point sources due to the presence of agriculture, roadways, and private on-lot sewage disposal in the basin.

Aquatic Biota

The indigenous aquatic community is an excellent indicator of long-term water quality conditions and is used as a measure of both water quality and ecological significance. Department staff collected habitat and benthic macroinvertebrate data at three sampling locations on April 24-25, 2002 (Figure 1).

Habitat. Instream habitat conditions were evaluated at each of the three stations where benthic macroinvertebrates were sampled (Figure 1, Table 3). The habitat evaluation consists of rating twelve habitat parameters to derive a station habitat score. The habitat scores for Big Brook ranged from 177 to 195; reflecting sub-optimal to optimal habitat conditions.

Benthos. Benthic macroinvertebrate collection efforts employed the Department's PA-DEP RBP benthic sampling methodology using the Departments antidegradation sampling protocol adapted from EPA's 1989 and 1999 Rapid Bioassessment Protocols manuals. The results of the benthic macroinvertebrate sampling efforts are presented in Table 4. Taxonomic diversity was good with a mean of 22.7 total taxa per station. A large number of taxa intolerant of pollution were present at all stations.

BIOLOGICAL USE QUALIFICATIONS

The qualifying criterion applied to Big Brook was the DEP antidegradation integrated benthic macroinvertebrate scoring test described at §93.4b(a)(2)(i)(A) and §93.4b(b)(1)(v). Selected benthic macroinvertebrate community metrics were compared to a reference station (Table 5). The reference station was located on Sawkill Creek, Pike County. Sawkill Creek was used because of its close proximity, similar drainage area, and similar geologic setting. Sawkill Creek is currently designated Exceptional Value (EV) in Chapter 93 and has served as an EV reference stream in other Departmental surveys. All sampling was done over a two-day period to minimize the effects of seasonal variation. This comparison was done using the following metrics that were selected to assess aquatic 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 on Big Brook had biological condition scores greater than 92% of the reference station on Sawkill Creek. This indicates that Big Brook qualifies for an EV designation under the Department's regulatory criterion (§ 93.4b(b)(1)(v)).

PUBLIC RESPONSE AND PARTICIPATION SUMMARY

The Department provided public notice of this aquatic life use evaluation and requested any technical data from the general public through publication in the Pennsylvania Bulletin on April 27, 2002 (32 Pa.B 2162). A similar notice was also published in the Scranton Times on April 26, 2002. In addition, the Lebanon Township Board of Supervisors were notified of the redesignation evaluation in a letter dated November 19, 2001 and March 12, 2002. No additional data was received in response to these requests.

RECOMMENDATIONS

Based on applicable regulatory definitions and requirements of § 93.4(b), the Department recommends that the protected use of Exceptional Value (EV) be applied to the Big Brook basin, including all its tributaries, from its source to mouth. This recommendation is consistent with the petitioner's request and affects approximately 29 stream miles.

TABLE 1
STATION LOCATIONS
BIG BROOK, WAYNE COUNTY

STATION	LOCATION
1BB	Big Brook at T477 (Gridline Road) bridge crossing in Lebanon Township. Lat: 41.6386 Long: -75.2606 RMI: 4.1
2UNTBB	Unnamed tributary Big Brook (5995) SR191 bridge crossing in Oregon Township. Lat: 41.6683 Long: -75.2550 RMI: 0.1
3BB	Big Brook at T550 bridge crossing in Dyberry Township. Lat: 41.6803 Long: -75.2469 RMI: 0.42
Ref1	Sawkill Creek along T524 in Milford Township, Pike County. Lat: 41.3511 Long: -74.8453 RMI: 4.5

TABLE 2

WATER CHEMISTRY[1]

BIG BROOK, WAYNE COUNTY

April 24, 2002

STATION	3 BB
Field Parameters	
Temp (°C)	11.46
pH	8.62
Cond (umhos)	116
Diss. O_2	10.67
Laboratory Parameters	
pH	8.2
Alkalinity	22
Acidity	0
Hardness	28
T Diss. Sol.	30
Susp. Sol.	<2
NH_3-N	<0.02
NO_2-N	<0.01
NO_3-N	0.14
Total P	0.01
Ca	9.52
Mg	1.12
Cl	7
SO_4	<20.0
As*	<4.0
As Diss*	<4.0
Cd*	<0.2
Cd Diss*	<0.2
hex Cr*	<10.0
Cr*	<50
Cu*	<4
Cu Diss*	<4
Fe*	138
Pb*	<1
Pb Diss.*	<1
Mn*	<10.0
Ni*	<4.0
Ni Diss.*	<4.0
Zn*	<5.0
Zn Diss*	<5.0
Al*	38.599
fecal coliforms	<10

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

*-Total concentration in ug/l

TABLE 3
HABITAT ASSESSMENT SUMMARY
BIG BROOK, WAYNE COUNTY
APRIL 2002

HABITAT PARAMETER	scoring range	Candidate Stations			Reference Station
		1BB	2UNTBB	3BB	Ref[1]
1 . instream cover	0 - 20	17	16	16	18
2 . epifaunal substrate	0 - 20	18	16	18	19
3 . embeddedness	0 - 20	17	16	16	18
4 . velocity/depth	0 - 20	15	16	14	16
5 . channel alterations	0 - 20	17	14	16	17
6 . sediment deposition	0 - 20	17	16	17	18
7 . riffle frequency	0 - 20	18	17	18	18
8 . channel flow status	0 - 20	17	18	17	17
9 . bank condition	0 - 20	16	13	15	16
10 . bank vegetation protection	0 - 20	16	16	16	17
11 . grazing/disruptive pressures	0 - 20	15	12	17	19
12 . riparian vegetation zone width	0 - 20	13	7	13	16
Total Score	0 - 240	196	177	193	209
Rating		Optimal	Suboptiomal	Optimal	Optimal

Ref[1] - Sawkill Creek, Pike County

TABLE 4
SEMI-QUANTITATIVE BENTHIC MACROINVERTEBRATE DATA
BIG BROOK, WAYNE COUNTY
April 24, 2002

		Candidate Stations			Reference Station
		1BB	2UNTBB	3BB	Ref[1]
MAYFLIES					
Baetidae	*Acentrella*	-	-	3	1
	Baetis	-	-	-	4
Ephemerellidae	*Drunella*	8	16	23	2
	Ephemerella	30	21	14	18
	Eurylophella	-	1	-	-
	Serratella	13	6	2	10
Heptageniidae	*Cinygmula*	-	1	-	-
	Epeorus	14	8	5	1
	Stenonema	-	2	2	6
Isonychidae	*Isonychia*	5	1	2	2
Leptophlebiidae	*Paraleptophlebia*	1	9	7	-
STONEFLIES					
Leuctridae	*Leuctra*	-	3	2	1
Perlidae	*Acroneuria*	1	-	2	6
	Agnetina	-	4	1	-
	Paragnetina	3	-	2	-
Perlodidae	*Isoperla*	4	-	1	11
Pteronarcyidae	*Pteronarcys*	-	1	-	-
CADDISFLIES					
Helicopsychidae	*Helicopsyche*	1	-	-	-
Hydropsychidae	*Cheumatopsyche*	-	-	1	1
	Diplectrona	-	-	1	1
	Hydropsyche	2	2	1	6
Philopotamidae	*Dolophilodes*	5	-	2	3
Rhyacophilidae	*Rhyacophila*	4	2	1	6
Uenoidae	*Neophylax*	-	4	-	1
TRUE FLIES					
	Chironomidae	10	13	24	5
Empididae	*Chelifera*	-	1	-	1
	Hemerodromia	-	1	-	-
Simuliidae	*Simulium*	-	-	1	2
	Prosimulium	-	-	-	1
Tipulidae	*Antocha*	-	1	-	1
	Cryptolabis	-	-	5	-
	Dicranota	-	1	-	-
	Hexatoma	-	-	6	-
	Pseudolimnophila	-	-	1	-
MISC. INSECT TAXA					
Corydalidae	*Nigronia*	-	-	2	6
Sialidae	*Sialis*	1	-	-	-
Elmidae	*Optioservus*	1	-	2	-
	Oulimnius	-	-	-	1
	Promoresia	4	-	-	8
	Stenelmis	-	4	-	-
Psephenidae	*Ectopria*	1	-	-	-
	Psephenus	3	10	5	5
Gomphidae	*Boyeria*	-	1	-	-
	Total Taxa	19	23	26	26

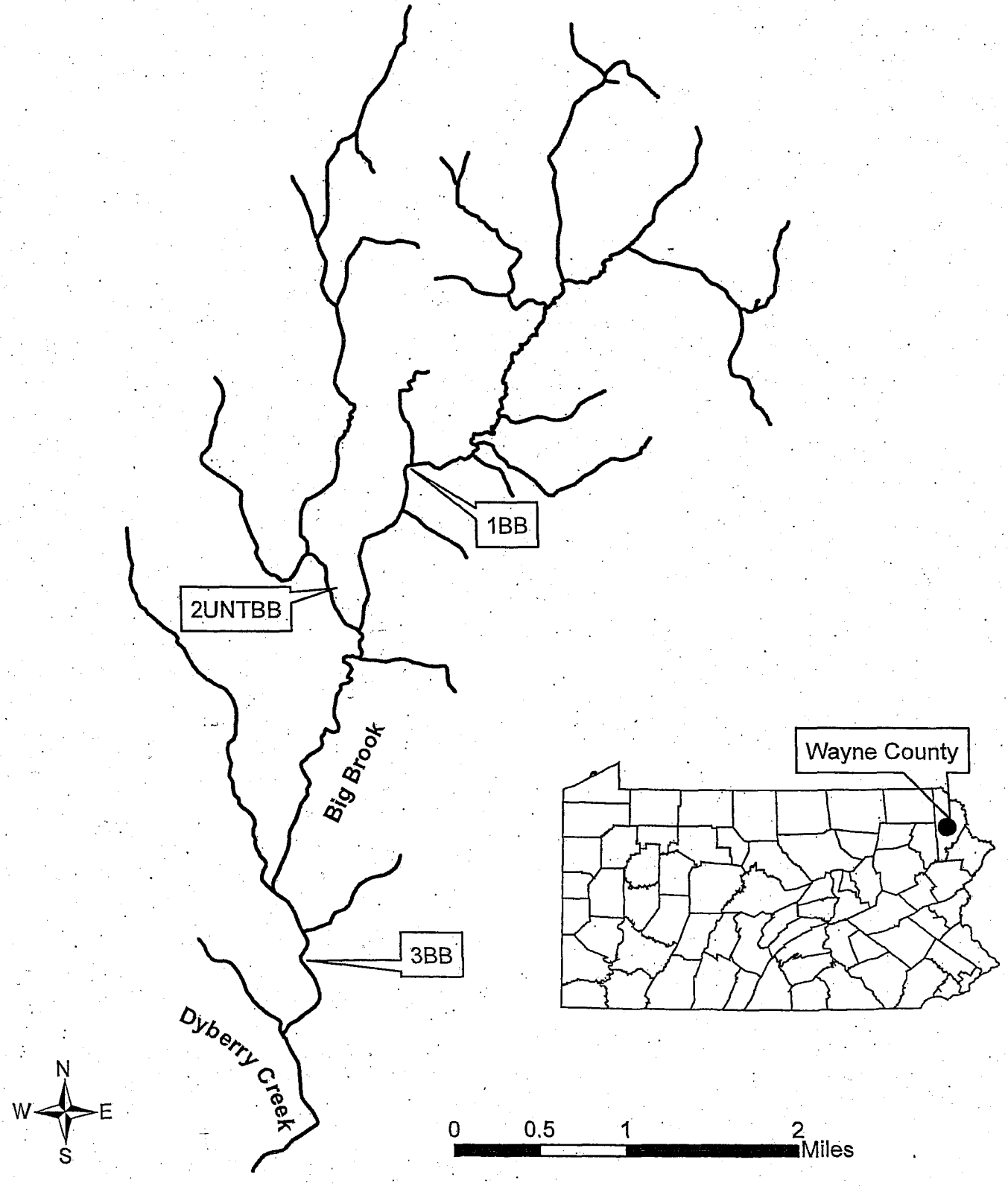
Ref[1] - Sawkill Creek, Pike County

TABLE 5
RBP METRIC COMPARISON
BIG BROOK

METRIC	STATION			
	1 BB	2 UNTBB	3 BB	Ref[1]
1. TAXA RICHNESS	19	23	26	26
Candidate/Reference (%)	73%	88%	100%	--
Biological Condition Score	6	8	8	--
2. MOD. EPT INDEX	12	14	16	14
Candidiate/Reference (%)	86%	100%	114%	--
Biological Condition Score	8	8	8	--
3. MOD. HBI	1.83	2.32	2.59	2.41
Candidate - Reference	-0.58	-0.09	0.18	--
Biological Condition Score	8	8	8	--
4. % DOMINANT TAXA	27	18.6	20.3	16.4
Candidate - Reference	10.6	2.2	3.9	--
Biological Condition Score	8	8	8	--
5. % MODIFIED MAYFLIES	64	57.5	49.2	36.4
Reference - Candidate	-27.6	-21.1	-12.8	--
Biological Condition Score	8	8	8	--
TOTAL BIOLOGICAL CONDITION SCORE	38	40	40	--
% COMPARABILITY TO REFERENCE	95%	100%	100%	--

Ref[1] - Sawkill Creek, Pike County

Figure 1
Big Brook
Wayne County



MILL CREEK
BERKS COUNTY

WATER QUALITY STANDARDS REVIEW
STREAM DESIGNATION EVALUATION REPORT

SEGMENT: BASIN
STREAM CODE: 01936
DRAINAGE LIST: F

WATER QUALITY ASSESSMENT SECTION (DSB)
DIVISION OF WATER QUALITY STANDARDS
BUREAU OF WATER STANDARDS AND FACILITY REGULATION
DEPARTMENT OF ENVIRONMENTAL PROTECTION

OCTOBER 2006

EXECUTIVE SUMMARY REPORT
MILL CREEK
BERKS COUNTY
DRAINAGE LIST F

BACKGROUND

Mill Creek is a tributary to Tulpehocken Creek in the Schuylkill River watershed. This stream is located in Jefferson and Tulpehocken Townships, Berks County and has a drainage area of 12.0 square miles. Land use in this basin is mostly pastureland with smaller amounts of cropland and low-density residential. There are also a few small remnants of hardwood forest distributed throughout the basin. Because Mill Creek was inadvertently omitted from Chapter 93 of the Pennsylvania Code, it was evaluated to determine the correct aquatic life use designation. This evaluation was based on a field survey conducted on September 19, 2001.

FINDINGS

AQUATIC BIOTA: Fish were collected at 4 stations during the September 2001 survey (Figure 1 and Table 1). An assessment of the instream and riparian zone habitat parameters was also made (Table 2). Habitat scores ranged from 184 to 127. Station 1MC near the headwaters of Mill Creek had the highest score which falls in the lower end of the Optimal category. This station had a forested riparian zone that resulted in scores for epifaunal substrate, embeddedness, sediment deposition, and bank condition that were higher than the other stations. Scores of the remaining three stations fell in the lower end of the Suboptimal category. Station 3UNT was on a small tributary that drained an area of intense agriculture and had very low scores for all four of the parameters listed above.

A total of 7 species of fish were collected during this survey (Table 3). The fish community at Stations 1MC and 2UNT was dominated by creek chub and blacknose dace, species that are commonly found in cold water streams. White suckers, which tolerate a wide range of temperature regimes, were present at all stations. They were the only species collected at Station 3UNT because of the poor instream habitat. Station 4MC contained a mixture of cold-water and warm-water species. White suckers were abundant at this station while blacknose dace and tessellated darters were common. Small numbers of banded killifish and largemouth bass, both warm-water species, were also collected but these species may be transitory from the Tulpehocken Creek, which is approximately 0.6 stream miles downstream from this station.

PUBLIC RESPONSE AND PARTICIPATION SUMMARY

The Department provided public notice of this designation evaluation and requested any technical data from the general public through publication in the Pennsylvania Bulletin on April 27, 2002 (32 Pa.B 2162). A similar notice was also published in the Reading Eagle-Times on April 26, 2002. In addition, Jefferson and Tulpehocken Townships were also notified of the

evaluation in a letter dated March 12, 2002. The Berks County 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.

RECOMMENDATIONS

Based on applicable regulatory definitions, the Department recommends a designated use of Cold Water Fishes (CWF) for the Mill Creek basin. This recommendation is based on the propagation and/or maintenance of flora and fauna that are indigenous to a cold-water habitat (e.g. creek chub and blacknose dace). This recommendation affects approximately 20.6 stream miles.

FIGURE 1.
MILL CREEK

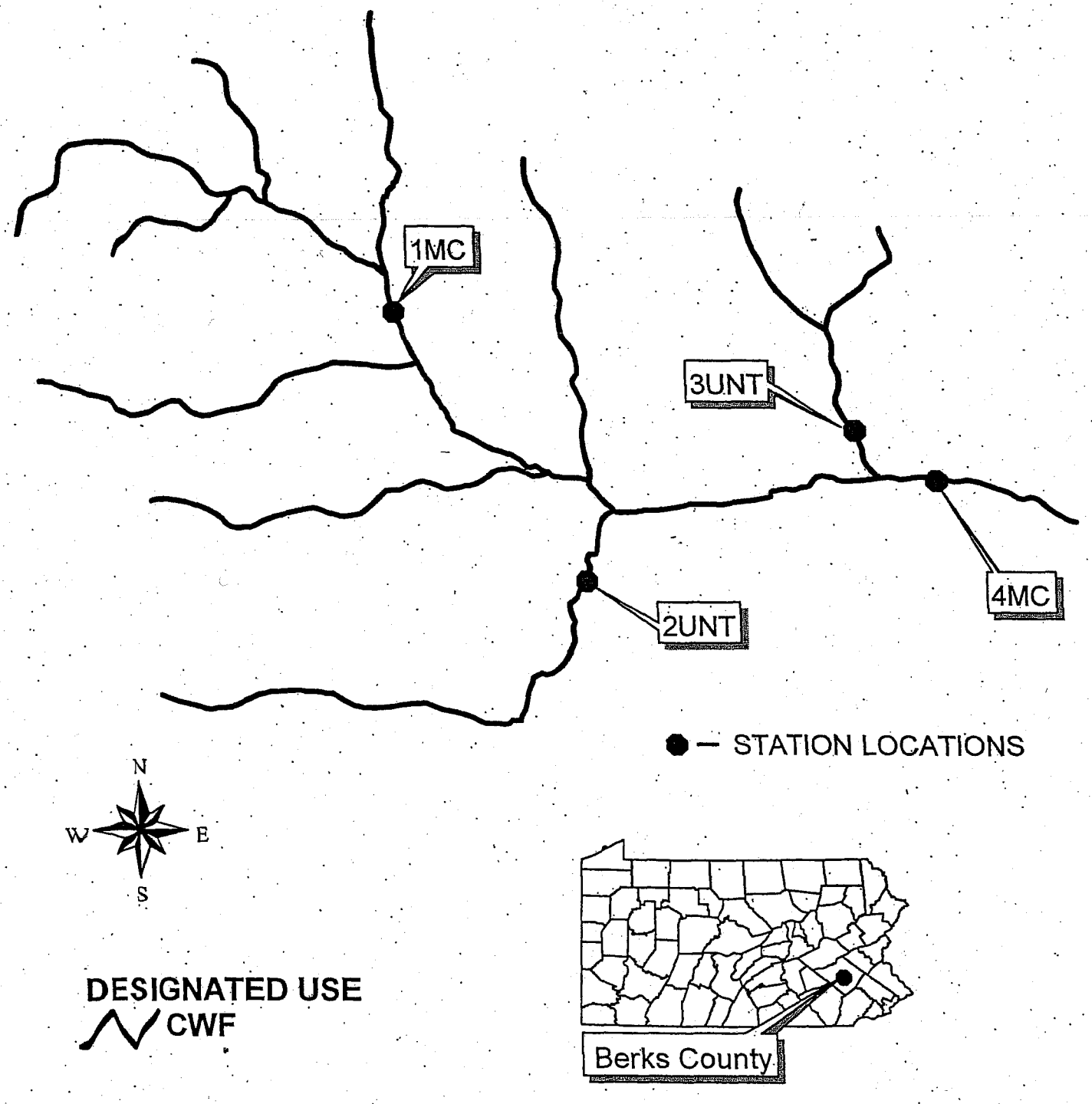


TABLE 1
STATION LOCATIONS
MILL CREEK
BERKS COUNTY

STATION	LOCATION
1MC	Mill Creek (01936) approximately 10 meters upstream from the T623 crossing. Tulpehocken Township, Berks County Lat: 40° 25' 54" Long: 76° 13' 21" RMI: 3.53
2UNT	Unnamed Tibutary to Mill Creek (01939) approximately 30 meters upstream of the SR419 bridge Tulpehocken Township, Berks County Lat: 40° 24' 49" Long: 76° 12' 27" RMI: 0.37
3UNT	Unnamed Tributary to Mill Creek (01937) approximately 50 meters downstream of the T623 crossing. Jefferson Township, Berks County Lat: 40° 25' 23" Long: 76° 11' 05" RMI: 0.21
4MC	Mill Creek approximately 5 meters downstream of the T958 bridge. Jefferson Township, Berks County Lat: 40° 25' 12" Long: 76° 10' 44" RMI: 0.63

TABLE 2
HABITAT ASSESSMENT SUMMARY
MILL CREEK, BERKS COUNTY
SEPTEMBER 19, 2001

HABITAT PARAMETER	STATIONS[1]			
	1MC	2UNT	3UNT	4MC
1. instream cover	16	14	12	14
2. epifaunal substrate	15	11	9	11
3. embeddedness	13	12	5	12
4. velocity/depth	15	9	8	15
5. channel alterations	17	15	16	17
6. sediment deposition	16	7	4	11
7. riffle frequency	14	13	12	12
8. channel flow status	15	15	10	10
9. bank condition	16	14	13	9
10. bank vegetation	17	15	12	11
11. grazing/disruptive	16	11	14	12
12. riparian vegetation	14	8	12	6
Total Score	184	144	127	140
Rating[2]	OPT	SUB	SUB	SUB

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

[2] OPT = Optimal; SUB = Suboptimal

TABLE 3
FISHES
MILL CREEK
BERKS COUNTY
SEPTEMBER 19, 2001

SPECIES NAME	STATION			
	1MC	2UNT	3UNT	4MC
Blacknose dace, *Rhinichthys atratulus*	C	A		C
Longnose dace, *Rhinichthys cataractae*				P
Creek chub, *Semotilis atromaculatus*	C	C		R
White sucker, *Catostomus commersoni*	C		C	A
Banded killifish, *Fundulus diaphanus*				R
Largemouth bass, *Micropterus salmoides*		R		R

A = Abundant; C = Common; P = Present; R = Rare

BROOKE EVANS CREEK

MONTGOMERY COUNTY

WATER QUALITY STANDARDS REVIEW

STREAM REDESIGNATION EVALUATION REPORT

Segment: Basin
Stream Code: 01638
Drainage List: F

WATER QUALITY ASSESSMENT SECTION (GLW)
DIVISION OF WATER QUALITY STANDARDS
BUREAU OF WATER STANDARDS AND FACILITY REGULATION
DEPARTMENT OF ENVIRONMENTAL PROTECTION

OCTOBER 2006

INTRODUCTION

The Department conducted an evaluation of Brooke Evans Creek in response to a petition from Mr. Larry Piasecki that requests this basin be redesignated to Exceptional Value waters (EV). The Environmental Quality Board accepted this petition for further study on February 19, 2002. Brooke Evans Creek is currently designated Warm Water Fishes (WWF). This evaluation is based on a field survey conducted February 12, 2002.

GENERAL WATERSHED DESCRIPTION

Brooke Evans Creek, a freestone stream, is a tributary to the Schuylkill River in the Delaware River watershed. The candidate basin is located in Limerick Township, Montgomery County. It has a drainage area of 1.5 square miles and contains 2.7 stream miles. The surrounding area is characterized by relatively flat topography with some gently rolling hills of low relief.

The current land use in the watershed consists mostly of single-family residential and open fields. Land use is a mixture of residential (40%), old fields (30%), industrial (15%), cropland (5%), pasture (5%), and commercial (5%). There are no major population centers in this basin.

WATER QUALITY AND USES

Surface Water

No long-term water quality chemistry data were available to allow a direct comparison to water quality criteria. Instead, biological data was collected to evaluate water quality conditions in Brooke Evans Creek, since the indigenous aquatic community is a better indicator of long-term water quality conditions. There is one NPDES permit for a sewage treatment plant that has not been constructed. There are no permitted surface water withdrawals in the candidate basin.

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. Department staff collected habitat and benthic macroinvertebrate data at two locations on Brooke Evans Creek (1BEC and 2BEC), and from one station on Rock Run (EV reference, 1RR) on February 12, 2002 (Figure 1, Table 1).

Habitat. Instream habitat was assessed at each station on Brooke Evans Creek and Rock Run. Total habitat scores (Table 2) at stations 1BEC (173) and 2BEC (153) were suboptimal, compared to an optimal score at 1RR (205). Low scoring parameters indicated intense vegetative disruptive pressure, severely eroded banks, and a lack of epifaunal substrate and adequate riparian buffering at station 2BEC; and intense vegetative disruptive pressure and a lack of adequate riparian buffer at station 1BEC.

Benthos. Benthic macroinvertebrate samples were collected at all three stations (Table 3) using the Department's Antidegradation sampling protocol (PA-DEP RBP) adapted from EPA's 1989 and 1999 Rapid Bioassessment Protocol manuals (Plafkin, et al 1989, Barbour, et al 1999). While taxa sensitive to water quality degradation were present at both 1 and 2BEC, the relatively high abundances of tolerant taxa at these stations compared to the reference station reflect the cumulative impacts of human activity in the basin. The presence of a species of special concern, *Stygobromus pizzini*, an amphipod crustacean was noted by the petitioner. The Pennsylvania Natural Heritage Program (PHNP) tracks species of special concern by using element rankings established by The Nature Conservancy (1996) to indicate a species risk of extinction both globally and within the state. Little is known about the global status of *S. pizzini*, but it is not considered threatened or endangered in the state (PHNP, 2004). No *S. pizzini* were found during the Department's February 2002 survey. An inquiry with the Pennsylvania Fish and Boat Commission indicated that no fisheries data was available.

BIOLOGICAL USE QUALIFICATIONS

The qualifying criterion applied to Brooke Evans Creek was the DEP integrated benthic macroinvertebrate scoring test described at §93.4(b)(2)(i)(A) and §93.4(b)(1)(v). Selected benthic macroinvertebrate community metrics from Brooke Evans Creek (Table 4) were compared to those from a reference stream with a comparable drainage area. Stations 1BEC and 2BEC were compared to a reference station on Rock Run (1RR), a tributary to French Creek, which is currently designated Exceptional Value (EV). Rock Run was used as a reference because both are freestone streams, have similar drainage area (3.3 and 1.5 square miles, respectively), are in close proximity (8 miles) to each other, and are found in similar geologic settings. In addition, Rock Run has served as an EV reference stream in several other Departmental surveys. Sampling of all stations was conducted on the same day to minimize seasonal variation. The comparisons were done using the following metrics that were selected as being indicative of community health: taxa richness; modified EPT index; modified Hilsenhoff Biotic Index; percent dominant taxon; and percent modified mayflies.

Based on these five metrics, neither station (1BEC or 2BEC) in the candidate basin had Biological Condition Scores (BCS) greater than 75% of the reference station (Table 4). As a result, the candidate basin does not meet the 83% comparison standard required to qualify as High Quality Waters (§93.4(b)(2)(i)(A)); a pre-requisite for redesignation to EV waters. None of the other antidegradation requirements listed in §93.4b, pertaining to qualifying as High Quality or Exceptional Value waters, apply to this basin.

PUBLIC RESPONSE AND PARTICIPATION SUMMARY

The Department provided public notice of this redesignation evaluation and requested technical data from the general public through publication in the Pennsylvania Bulletin on April 27, 2002 (32 Pa.B 2162). A similar notice was also published in The Mercury newspaper (Pottstown, PA) on April 26, 2002. In addition, Limerick Township and the Montgomery County Planning Commission were notified of the redesignation evaluation in a letter dated March 12, 2002. No data were received as a result of these requests.

RECOMMENDATION

Based on applicable regulatory definitions and requirements of § 93.4b, the Department recommends that Brooke Evans Creek basin from its source to its mouth retain its current warm water fishes (WWF) designation. A total of 2.7 stream miles will retain their current designation. This recommendation does not reflect the EV designation sought in the petition.

REFERENCES

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Figure 1
Station Locations
Brooke Evans Creek
Montgomery County

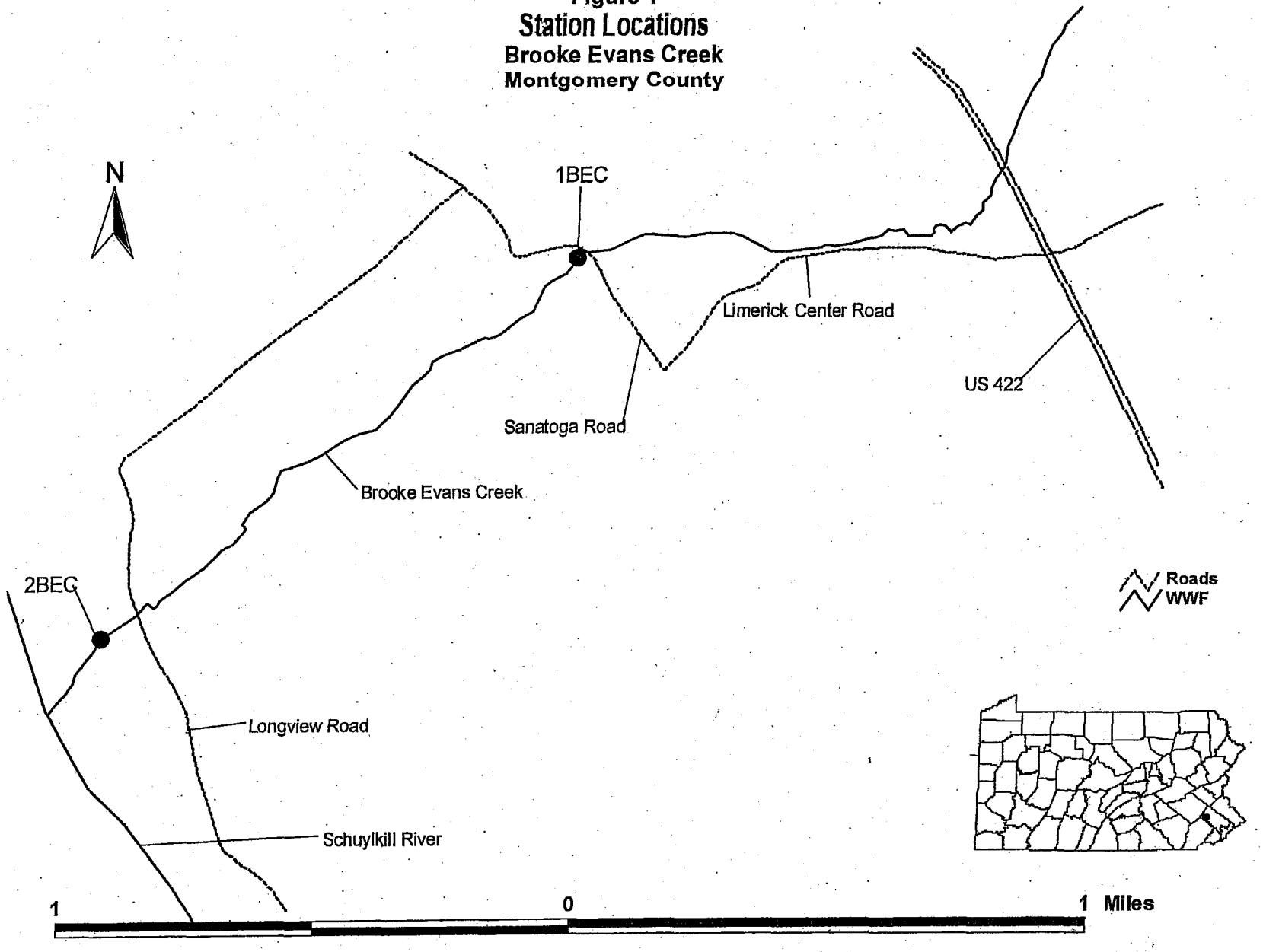

TABLE 1
STATION LOCATIONS
BROOKE EVANS CREEK
MONTGOMERY COUNTY

STATION	LOCATION
1BEC	Brooke Evans Creek (01638) approximately 15 meters downstream of Sanatoga Road (SR 4025). Limerick Township, Montgomery County Lat: 40° 13' 35" Long: 75° 34' 04" RMI: 1.4
2BEC	Brooke Evans Creek (01638) approximately 125 meters downstream of Longview Road (T-200). Limerick Township, Montgomery County Lat: 40° 12' 58" Long: 75° 35' 07" RMI: 0.2
1RR	Rock Run (01591) approximately 50 meters upstream of confluence with French Creek (01548) at Warwick County Park. South Coventry Township, Chester County Lat: 40° 10' 19" Long: 75° 41' 45" RMI: 0.1

TABLE 2
HABITAT ASSESSMENT RESULTS
BROOKE EVANS CREEK
MONTGOMERY COUNTY
FEBRUARY 12, 2002

PARAMETER	STATION[1]		REFERENCE
	1BEC	2BEC	1RR[2]
Instream cover	12	11	18
Epifaunal substrate	15	10	15
Embeddedness	16	16	18
Velocity/depth regimes	15	14	17
Channel alteration	14	15	16
Sediment deposition	16	14	17
Frequency of riffles	17	14	17
Channel flow status	17	16	19
Condition of banks	17	10	15
Bank vegetative protection	16	10	16
Disruptive pressure	12	12	18
Riparian zone width	6	11	19
Total Score	173	153	205
Rating[3]	SUB	SUB	OPT

[1] Refer to Figure 1 and Table 1 for the station locations
[2] Rock Run, Chester County
[3] OPT=Optimal; SUB=Suboptimal

TABLE 3
SEMI-QUANTITATIVE BENTHIC MACROINVERTEBRATE DATA
BROOKE EVANS CREEK, MONTGOMERY COUNTY
FEBRUARY 12, 2002

TAXA	STATION[1]		REFERENCE
	1BEC	2BEC	1RR[2]
Ephemeroptera (mayflies)			
Ameletidae; ***Ameletus***	7		3
Baetidae	1	1	
Baetis			2
Labiobaetis	1		
Caenidae; ***Caenis***	1	1	
Ephemerellidae			1
Ephemerella	1		47
Eurylophella	2	6	2
Dannella			1
Serratella			15
Heptageniidae; ***Epeorus***			8
Stenacron	1		
Stenonema			6
Isonychiidae; ***Isonychia***			6
Plecoptera (stoneflies)			
Capniidae; ***Allocapnia***	3		
Chloroperlidae			1
Nemouridae	18	10	
Amphinemura	1		4
Prostoia	84	33	66
Perlodidae	10		
Isoperla	33	17	1
Taeniopterygidae; ***Taenionema***			2
Taeniopteryx			1
Trichoptera (caddisflies)			
Hydropsychidae; ***Cheumatopsyche***	14		10
Hydropsyche		3	4
Hydroptilidae; ***Leucotrichia***			1
Philopotamidae; ***Chimarra***	4	25	1
Rhyacophilidae; ***Rhyacophila***			3
Uenoidae; ***Neophylax***	1		1
Other Insect Taxa			
DIPTERA (true flies)			
Chironomidae	40	100	21
Simuliidae; ***Prosimulium***	13	10	8
Tipulidae; ***Dicranota***	2		
Tipula	1		1
ODONATA (dragon-, damselflies)			
Gomphidae; ***Stylogomphus***			1

TAXA	STATION		REFERENCE
	1BEC	2BEC	1RR[2]
COLEOPTERA (aquatic beetles)			
Elmidae; ***Macronychus***		1	
Optioservus		2	
Psephenidae; ***Psephenus***	1		
Non-Insect Taxa			
Turbellaria (flat worms)			
Planariidae	1	6	
Oligochaeta			8
Sphaeriidae	1		
Amphipoda			
Gammaridae; ***Gammarus***	1		
Isopoda			
Asellidae; ***Caecidotea***	1		
Number of taxa in total sample	25	13	27

[1] Refer to Figure 1 and Table 1 for the station locations
[2] Rock Run, Chester County

WISSAHICKON CREEK

MONTGOMERY COUNTY

WATER QUALITY STANDARDS REVIEW

STREAM REDESIGNATION EVALUATION

Segment: Source to Route 73 Bridge
Stream Code: 00844
Drainage List F

WATER QUALITY MONITORING SECTION (APF)
DIVISION OF WATER QUALITY STANDARDS
BUREAU OF WATER STANDARDS AND FACILITY REGULATION
DEPARTMENT OF ENVIRONMENTAL PROTECTION

OCTOBER 2006

GENERAL WATERSHED DESCRIPTION

Wissahickon Creek is a tributary to the Schuylkill River in the Delaware River drainage. The basin is located in Landsdale, Montgomery, Upper Gwynedd, Horsham, Worchester, Lower Gwynedd, Whitpain, Upper Dublin, Abington, Whitemarsh, Springfield, and Cheltenham Townships in Montgomery County and Philadelphia County and the Boroughs of North Wales, Landsdale, and Ambler. The Wissahickon Creek is a freestone stream that drains approximately 64.0mi^2 and flows in a southerly direction. The surrounding area is characterized by low relief topography, which is portrayed on the Lansdale, Ambler, and Germantown 7.5-minute series USGS quadrangles.

The Wissahickon Creek basin is currently designated Trout Stocking (TSF), which provides for the maintenance of stocked trout from February 15 to July 31, and the maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat. Wissahickon Creek was evaluated for a less restrictive use redesignation to Warm Water Fishes (WWF) based on a petition submitted by Upper Gwynedd Township, Montgomery County on March 23, 2004. The Environmental Quality Board (EQB) accepted the petition for study on June 15, 2004. The petitioner requested redesignation of the stream reach from the headwaters to the Route 73 (Skippack Pike) Bridge in Whitemarsh Township (Montgomery County) based on current water quality, aquatic life, and land use conditions and alleged that the petitioned section is not being stocked with trout by the Pennsylvania Fish and Boat Commission (PFBC). This report covers the portion of the basin from the source to the Route 73 Bridge.

Much of the Wissahickon Creek watershed is listed on the State's Integrated Water Quality Monitoring and Assessment Report list of impaired waters (303(d)) with impairments due to problems associated with elevated nutrient levels, low dissolved oxygen concentrations, siltation, water/flow variability, oil and grease, and pathogens. Land use within the petitioned portion of the watershed is characterized by an urban setting consisting of low (34%) and high density residential development (8%). Wooded areas interspersed with homes makes up 40% of the land use. Land ownership is mostly

private with public land located in the very lower portion of the petitioned area within Fort Washington State Park. The watershed is within the Piedmont physiographic province.

WATER QUALITY AND USES

Surface Water

Historically, water quality conditions reflect the number of sewage discharges present in the Wissahickon Creek basin. Historical surveys conducted by the Commonwealth document that eutrophic conditions were caused by high nutrient concentrations related to sewage treatment plant and industrial discharges (Table 1-2, Figure 1) (summary in Boyer 1997).

The Department has collected data, which continue to show eutrophic conditions. Water quality data collected in 1988, 1995, and 1996 show elevated nutrient levels throughout the watershed (Tables 3). Starting in headwater areas, the main stem, as well as Sandy Run; a major tributary, exhibited high nutrient levels and was characterized as having marginal or poor overall stream conditions (Boyer 1989; 1995; 1997). Data from an algal assay conducted in 1993, indicated that Wissahickon Creek was nutrient enriched from high instream nitrogen and phosphorus concentrations and that algal production was trace element limited (Schubert 1996).

Boyer (1997) calculated that 26 permitted facilities discharged a total of 21.2 cubic feet/second (cfs) of treated effluent into the Wissahickon Creek Basin. The average daily flow of the stream at Bells Mill Road (RM 6.6) is 63.0 cfs and the Q_{7-10} is 8.5 cfs. The calculated treated effluent represents 34% of the average stream flow and almost 250% of the Q_{7-10} flow.

Dissolved oxygen (DO) has been monitored in Wissahickon Creek in relation to the high nutrient levels. Boyer (1997) sampled 4 stations on Wissahickon Creek and 1 station on Sandy Run during August. DO concentrations at all 5 of these stations were above the TSF Chapter 93 minimum instantaneous criterion of 4 mg/l for August (5.3 – 10.5 mg/l) (Table 4). Sampling was conducted in 1999 at 16 locations on Wissahickon Creek, Sandy Run, and Pine Run in July 1999 (Boyer 1999). Of over 120 readings the DO criterion for July (5.0 mg/l) was violated 43 times at these stations (Table 5). However,

almost all of these represent a "DO sag" where DO concentrations commonly are at their lowest levels in the early morning hours prior to sunrise and photosynthetic production of DO. Problematic locations (5-WC, 7-WC, 1-SR, and 2-SR) are in the upper reaches of these streams, which are dominated by treated wastewater. In most cases, the DO concentrations at downstream locations did not drop below the 5.0 mg/l criterion. A notable downstream exception was at 13-WC and 15-WC, which are below the Ambler Borough Sewage Treatment Plant discharge and Sandy Run, also effluent dominated.

Everett (2002) monitored DO measurements at 8 locations on Wissahickon Creek, Sandy Run, and Pine Run during July 2002 (Figure 2). Most of these 8 stations targeted problem stations (5-WC, 7-WC, 13-WC, 15-WC & 2-SR) identified in Boyer (1999). Similarly to Boyer's 1999 study, Everett DO data displays DO sags during darkness and early morning hours that drop below the 5.0 mg/l July criterion. Other tributary locations (2-PR and 3-PR and 7-SR) did not exhibit DO concentrations below the criterion threshold.

Data collected by the National Institute for Environmental Renewal (NIER 1998) and the Philadelphia Water Department (Butler et al. 2001; PWD 2005 unpublished data) is generally consistent with water quality measurements collected by the Department. Both NIER and PWD collected DO data. These results also showed increased incidence of DO concentrations that exceed TSF Chapter 93 criteria in the upper portion of Wissahickon Creek and fewer DO criteria exceedences in the lower petitioned portion with the same evidence of early morning DO sags.

Currently, there are 27 permitted discharges, 80 groundwater withdrawals, 7 surface water withdrawals, 1 land disposal (single resident spray irrigation), 10 ground water recharge points, and 12 on-lot septic discharges within the Wissahickon Creek drainage basin. The stream also is impacted by non-point sources from the agricultural, residential, commercial, and industrial areas. In spite of these stressors, Wissahickon Creek demonstrated water quality at or near applicable TSF criteria.

Aquatic Biota

The Department collected habitat and benthic macroinvertebrate data at 3 sampling locations on August 22-23, 2005. Previous Department surveys include those conducted by Strekal (1974; 1976) and Boyer (1988; 1997).

Benthos. Benthic macroinvertebrate collection efforts employed the PA-DEP RBP benthic sampling methodology, which is a modification of EPA's Rapid Bioassessment Protocols (RBPs; Plafkin, et al 1989; Barbour et al. 1999). Benthic samples were collected from 3 stations (9-WC, 13-WC, and 15-WC) on the main stem of Wissahickon Creek (Table 6). The benthic community was dominated by facultative/tolerant taxa displaying fair taxonomic diversity with a mean of 12 taxa per station. The assemblages exhibited low percentages of pollution intolerant EPT (Ephemeroptera, Plecoptera, and Trichoptera) taxa and Hilsenhoff Biotic Index (HBI) scores in the 5.5 - 6.5 range. HBI scores above 5 reflect benthic dominance by pollution tolerant taxa, often indicating the presence of significant organic pollution.

During previous surveys, Strekal (1974; 1976) and Boyer (1989; 1997) found benthic macroinvertebrate assemblages that reflected fair station diversity with most of the taxa being classified as pollution "tolerant" or "facultative," similar to DEP's 2005 survey (Tables 7-8). Department data is generally consistent with macroinvertebrate samples collected by the PFBC (Wnuk et.al. 1994) and the Philadelphia Water Department (Butler et. al. 2001).

Habitat. Instream habitat conditions were evaluated at 3 stations; 9-WC, 13-WC, and 15-WC (Table 9). The habitat evaluation consisted of rating twelve habitat parameters to derive a station habitat score. The habitat scores for Wissahickon Creek ranged from 177 to 180; reflecting suboptimal habitat conditions. Habitat analysis conducted by the Philadelphia Water Department (Butler et. al. 2001), using a rating scale similar to the Departments' assessment, also indicated suboptimal habitat conditions.

Fish. Fisheries surveys have been conducted within the petitioned area or immediately downstream by DEP (Strekal 1974; Boyer 1989; 1997), PFBC (Wnuk et.al. 1994), and PWD (Butler et. al. 2001; PWD 2005). Based on fish assemblage data collected by Boyer (1989, 1997), at least 22 species of fish are known to reside in the petitioned

portion of Wissahickon Creek (Table 10). A section of Wissahickon Creek within the petitioned area, from Joshua Road downstream to the Route 73 Bridge, is also within the reach stocked by the PFBC. The PFBC has stocked Wissahickon Creek since 1970 and currently stocks this section once pre-season and twice in-season. Trout have been documented to occur within the stocked section of the petitioned area into June and July (Table 11). The PWD also documented the presence of trout approximately 1 mile upstream of the stocking limit in June 2005 (PWD 2005).

Because of the significant volumes of treated wastewater assimilated by this stream, most of the sites exhibit low species abundance comprised of fish taxa characterized as pollution tolerant and generalist feeding guilds. The community lacks an abundance of top-predators, which is indicative of an unbalanced fishery. American eel have been found throughout the mainstem of the Wissahickon.

PUBLIC RESPONSE AND PARTICIPATION SUMMARY

The Department provided public notice of this aquatic life use evaluation and requested any technical data from the general public through publication in the Pennsylvania Bulletin on July 10, 2004 (34 Pa.B 3650). A similar notice was also published in The Reporter, Landsdale, PA on July 6, 2004. In addition, the Ambler, Lansdale, and North Wales Boroughs; the Lower Gwynedd, Montgomery, Upper Dublin, Upper Gwynedd, Whitemarsh, and Whitpain Townships; and the Montgomery County Planning Commission were notified of the redesignation evaluation in a letter dated June 25, 2004. Chris Crockett from the Philadelphia Water Department provided water chemistry, habitat, and biological data for Wissahickon Creek.

The Department received letters from Whitemarsh Township and the Philadelphia Water Department in opposition to the requested designation change. Whitemarsh Township expressed concerns that a WWF reclassification may adversely affect recreational activities of their citizens as well as those of the other downstream communities. The Philadelphia Water Department (PWD) withdraws water from the Wissahickon Creek to provide about 25% of the drinking water needs of 325,000 Philadelphians. Consequently, the PWD actively monitors the water quality of Wissahickon Creek and has expressed concerns over taste and odor problems and increased treatment costs.

Further, they are concerned that a WWF redesignation would adversely affect both the native fish communities and the Wissahickon Creek trout fishery.

CONCLUSIONS

Wissahickon Creek is impacted by many sources including municipal and industrial wastewater discharges and non-point sources from both residential and agricultural land use. The first permanent flow for Wissahickon Creek is located downstream from the North Wales Borough sewage treatment plant discharge. Throughout its course, the Wissahickon Creek is highly augmented by treated discharges. Both these point and non-point sources contribute to elevated nutrient concentrations. Elevated nutrient concentrations contribute to fluctuations in DO levels where early morning "sags" sometimes violate Chapter 93 TSF DO criteria. These violations are most prevalent within portions of the stream where stream flow is effluent dominated. The middle portion of the study section shows few TSF DO violations indicating the streams ability to recover from the high effluent loads. The lower portion of the study reach, including below the confluence with Sandy Run again shows DO "sags" and violations of TSF DO criteria from increased nutrient loads coming from local sources.

While the above summary generally characterizes the Wissahickon Creek as a stream impacted by numerous point and non-point sources, there are indications that the basin's water quality conditions are not irretrievable. In reporting conditions surveyed in 1976, Strekal described impacted stream reaches with recovery zones downstream. Boyer (1997) observed that, overall, the water quality and biotic conditions have slowly improved during his several investigations since 1988. He described improving fish populations as one moves downstream - specifically noting reproducing bass populations and holdover stocked trout in the lower reaches of Wissahickon Creek. Some tributaries display better water quality that contributes to the improving conditions downstream.

Additionally, despite the compromised water quality conditions in the upper reaches, PFBC maintains an active stocking program in Wissahickon Creek. A section of the stream within the petitioned area, from Joshua Road downstream to the Route 73 Bridge, is stocked with catchable sized trout. Trout have been documented upstream of

the stocked area and persist throughout the stocking season. American eel have been found through the watershed.

When considering a petition request to redesignate a waterbody with a less restrictive use, the Department must evaluate the existing use of that waterbody as defined at § 93.1 and review the less restrictive regulatory use in § 93.4 for applicability. A waterbody considered for redesignation may not be redesignated to a less restrictive use than its existing use. Based on the information presented and discussed above, the Department finds that the Wissahickon Creek has supported and continues to support a TSF existing use.

RECOMMENDATIONS

Based on the existing use findings of this report and data and file information gathered pertinent to the petitioned area, the Department recommends that the Wissahickon Creek basin from its source to the Route 73 Bridge remain designated TSF. The findings of this study do not indicate that the original TSF designation was inappropriate. Trout stocking is an existing use that will expand throughout the upper watershed as wastewater loading is attenuated. The Department also recommends that Migratory Fishes (MF) designation be added due to the presence of American Eel.

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TABLE 1.
WISSAHICKON CREEK - WATER CHEMISTRY
DEP (Strekal, 1976)

September 21, 1976		Station				
		3-WC	5-WC	8-WC	10-WC	15-WC
Strekal station		1	2	3	4	5
Parameter	Units	Field				
Temp.	°C	10.5	11	12	11.5	12.5
Diss. O_2	mg/l	7.9	5.8	8.6	10.4	6.2
		Laboratory				
pH	std units	7.2	7.4	7.5	7.7	7.4
BOD-5 day	mg/l	4.4	8.9	1.9	1.7	3.9
Chemical Oxygen Demand	mg/l	21	36.8	25.8	22	32.7
Alkalinity	mg/l	89	145	133	87	170
NH_3-N	mg/l	0.05	2.17	0.18	0.08	0.98
NO_2-N	mg/l	0.01	0.765	0.045	0.012	0.558
NO_3-N	mg/l	0.64	11.2	3.45	1.35	3.99
PO_4	mg/l	0.49	12.4	20.1	5.49	13.4
SO_4-total	mg/l	54	196	141	55	71
Turbidity	JTU	7	13	4	7	7
Conductance	µmhos/cm	562	1248	1040	546	785
Total Coliform	col/100ml	5600	18000	7300	1300	14000
Fecal Coliform	col/100ml	230	900	120	200	1100

TABLE 2.
STATION LOCATIONS
WISSAHICKON CREEK, MONTGOMERY COUNTY

STATION	LOCATION
1-WC	Wissahickon Creek at Hancock Street, Upper Gwynedd Township, Montgomery County. Lat: 40.2278 Long: -75.2744 RMI: 22.90
2 WC	Wissahickon Creek at Wissahickon Avenue, Upper Gwynedd Township, Montgomery County. Lat: 40.2214 Long: -75.2818 RMI: 21.57
3-WC	Wissahickon Creek 0.3 km downstream of Summneytown Pike Upper Gwynedd Township Montgomery County. Lat: 40.2142 Long: -75.2917 RMI: 20.88
4-WC	Wissahickon Creek along Moyer Road upstream N. Wales STP, Upper Gwynedd Township, Montgomery County. Lat: 40.2137 Long: -75.2917 RMI: 20.30
5-WC	Wissahickon Creek at North Wales Road, Upper Gwynedd Township, Montgomery County. Lat: 40.1988 Long: -75.2892 RMI: 19.86
6-WC	Wissahickon Creek vicinity of Upper Gwynedd Twp STP, Upper Gwynedd Township, Montgomery County. Lat: 40.1904 Long: -75.2850 RMI: 19.00
7-WC	Wissahickon Creek at Swedesford Road, Upper Gwynedd Township, Montgomery County. Lat: 40.1866 Long: -75.2787 RMI: 17.84
8-WC	Wissahickon Creek at Plymouth Road, Upper Gwynedd Township, Montgomery County. Lat: 40.1867 Long: -75.2550 RMI: 16.91
9-WC	Wissahickon Creek at Blue Bell Pike, Whitpain Township, Montgomery County. Lat: 40.1691 Long: -75.2510 RMI: 15.75
10-WC	Wissahickon Creek at Mount Pleasant Avenue, Whitpain Township, Montgomery County. Lat: 40.1588 Long: -75.2328 RMI: 13.81

11 WC	Wissahickon Creek at Butler Pike Upper Dublin Township, Montgomery County. Lat: 40.1516 Long: -75.2281 RMI: 13.40
12-WC	Wissahickon Creek below Ambler Borough STP Discharge, Upper Dublin Township, Montgomery County. Lat: 40.1443 Long: -75.2207 RMI: 12.80
13-WC	Wissahickon Creek at Morris Road, Whitemarsh Township, Montgomery County. Lat: 40.1395 Long: -75.2167 RMI: 12.11
14-WC	Wissahickon Creek at Lafayette Road Whitemarsh Township, Montgomery County Lat: 40.1320 Long: -75.2222 RMI: 11.65
15-WC	Wissahickon Creek at Route 73, Whitemarsh Township, Montgomery County. Lat: 40.1240 Long: -75.2202 RMI: 10.78
1-PC	Prophecy Creek Whitpain Township, Montgomery County Lat: 40.1514 Long: -75.2295
1-SR	Sandy Run at Route 152 Upper Dublin Township, Montgomery County Lat: 40.1274 Long: -75.1664 RMI: 3.79
2-SR	Sandy Run at Twining Road Upper Dublin Township, Montgomery County Lat: 40.1270 Long: -75.1686 RMI: 3.77
3-SR	Sandy Run at Walnut Street Springfield Township, Montgomery County Lat: 40.1237 Long: -75.1968 RMI: 1.92
4-SR	Sandy Run at confluence with Pine Run Whitemarsh Township, Montgomery County Lat: 40.1315 Long: -75.2040 RMI: 1.20
5-SR	Sandy Run 1.5 km upstream of mouth, Whitemarsh Township, Montgomery County. Lat: 40.1331 Long: -75.2070 RMI: 1.0

6-SR	Sandy Run at Bethlehem Pike Whitemarsh Township, Montgomery County. Lat: 40.1336 Long: -75.2140 RMI: 0.58
7-SR	Sandy Run at Mouth Whitemarsh Township, Montgomery County. Lat: 40.1296 Long: -75.2202 RMI: 0.00
1-PR	Pine Run at Susquehanna Road Upper Dublin Township, Montgomery County Lat: 40.1420 Long: -75.1686 RMI: 2.13
2-PR	Pine Run upstream Upper Dublin STP Upper Dublin Township, Montgomery County Lat: 40.1353 Long: -75.1879 RMI: 0.77
3-PR	Pine Run at Mouth Whitemarsh Township, Montgomery County Lat: 40.1315 Long: -75.2040 RMI: 1.20

TABLE 3.
WISSAHICKON CREEK - WATER CHEMISTRY
DEP (Boyer; 1989, 1995, 1997)

Station		1-WC	2-WC	3-WC		4-WC	5-WC			7-WC	8-WC	
Boyer (1989) station			1			2	3				4	
Boyer (1995) station				1				2		3		
Boyer (1997) station		1			2				3			4
Date		8-9/1996	8/1988	7/1995	8-9/1996	8/1988	8/1988	7/1995	8-9/1996	7/1995	8/1988	8-9/1996
Parameter	Units	Field										
Temp.	°C	25.2	24.7	21.6	25.6	22.7	22.0	22	21.5	25.7	26.6	21.7
Diss. O_2	mg/l	7.6	4.9	8.3	7.9	11.4	8.5	10.2	8.5	11.8	11.3	9.2
pH	std units	7.83	7.63	7.04	7.63	7.43	7.51	7.72	7.44	8.11	8.51	7.85
Conductance	µmhos/cm	1700	780	240	280	422	488	450	400	1450	850	900
		Laboratory										
Conductance	µmhos/cm	-	748	-	-	478	597	-	-	-	869	-
pH	std units	-	7.8	-	-	7.9	7.8	-	-	-	8.3	-
Color	PT/C	-	<5.0	-	-	<5.0	<5.0	-	-	-	<5.0	-
BOD-5 day	mg/l	1.5	2	1.8	1.2	1	4	1.2	1.2	1.5	0.9	0.6
Chemical Oxygen Demand	mg/l	13	-	10	15	-	-	12	10	28	-	15
Alkalinity	mg/l	76	122	52	66	136	166	70	84	240	104	94
Residue-total	mg/l	1184	-	186	218	-	-	462	330	1006	-	672
Diss. Solids	mg/l	1182	522	172	218	398	442	458	330	990	670	668
Susp. Solids	mg/l	<2	2.0	14	≤2	<2.0	10.0	4	<2	16	<2.0	4
Settleable Solids	ml/l	<.2	-	<.2	<.2	-	-	<.2	<.2	<.2	-	<.2
NH_3-N	mg/l	<.02	0.06	0.12	<.02	0.06	0.08	<.02	<.02	0.06	0.06	<.02
NO_2-N	mg/l	0.01	0.004	0.03	0.018	0.006	0.288	0.02	0.014	0.034	0.02	0.022
NO_3-N	mg/l	1.53	<.04	1.03	0.71	0.97	16.1	8.03	4.21	3.93	12.6	6.76
N-Kjeldahl	mg/l	0.96	-	0.91	0.39	-	-	0.89	0.47	1.99	-	1.32
P-total	mg/l	0.19	0.10	0.12	0.04	-	-	1.21	0.63	0.93	-	1.73
Carbon, organic-total	mg/l	4.3	-	7.2	5.7	-	-	5.7	5	0.98	-	5.9
Hardness-total	mg/l	198	180	57	79	180	170	120	112	158	190	159
Ca-total	mg/l	51.7	46	14	23	58	51	24	31.6	43.3	57	46.6
Mg-total	mg/l	17.4	20	4.7	7.12	17	16	9.08	11.1	15.5	19	18.2
Cl	mg/l	476	64		29	64	92	-	55	-	128	108
SO_4-total	mg/l	33.8	251	21	23.3	72	75	52	40.1	398	196	184
Cadmium-total	µg/l	<.2	<0.2	<.2	0.42	<0.2	<0.2	<.2	<.2	0.3	0.26	0.4
Chromium-total	µg/l	4.2	9.2	<4	<4	<4.0	4.6	<4	<4	4.6	<4.0	<4
Cu-total	µg/l	23	<50	<10	<10	<50	<50	11	22	29	<50	47
Fe-total	µg/l	56	240	651	283	<100	400	154	78	275	<100	156
Pb-total	µg/l	2.1	<4.0	2.2	2.4	<4.0	<4.0	<1	2	4.8	4	5.4
Mn-total	µg/l	<10	80	85	13	<50	<50	14	11	83	<50	16
Ni-total	µg/l	<25	60	<25	<25	<50	<50	<25	<25	38	<50	<25
Zn-total	µg/l	<10	40	12	22	10	20	<10	13	107	60	65
Al-total	µg/l	330	<150	506	421	<150	850	<135	303	191	<150	236
Mercury-total	µg/l	<.2	-	<.2	<.2	-	-	<.2	<.2	<.2	-	<.2
Total Residual Chlorine	mg/l	-	0.1	-	-	0.08	0.02	-	-	-	0.07	-
Turbidity	NTU	<1	2.80	9.8	1.3	<1.0	6.4	1.3	<1	1	1.75	1.2
Total Coliform	col/100ml	5500	3000	19000	3800	2000	4000	11000	2500	6300	2000	5600
Fecal Coliform	col/100ml	3000	130	1700	580	170	190	500	240	1200	590	480
Total Fecal Strep	col/100ml	5800	780	1400	280	240	480	800	220	940	310	280

TABLE 3 (cont.)
WISSAHICKON CREEK - WATER CHEMISTRY
DEP (Boyer; 1989, 1995, 1997)

Station		9-WC	10-WC			13-WC				15-WC			6-SR			
Boyer (1989) station			5			6				8			7			
Boyer (1995) station		4					5							6		
Boyer (1997) station				5				6			8				7	
Date		7/1995	8/1988	6/1996	8-9/1996	8/1988	7/1995	6/1996	8-9/1996	8/1988	6/1996	8-9/1996	8/1988	7/1995	6/1996	8-9/1996
Parameter	Units	Field														
Temp.	°C	23.6	27.9	23.7	22.4	25.5	24.1	20.5	22.5	26.7	20.6	20	26.1	23.6	19.8	22
Diss. O_2	mg/l	11.8	11.0	10.2	10	9.1	8.4	8.2	11.9	8.5	7.6	8	8.4	7	7.6	7.2
pH	std units	8.41	8.74	8	8.11	8.06	7.99	7.64	8.08	8.18	7.55	7.69	8.05	7.54	7.5	7.49
Conductance	µmhos/cm	1000	1050	600	620	790	465	400	700	700	440	-	580	700	340	-
		Laboratory														
Conductance	µmhos/cm	-	855	-	-	757	-	-	-	627	-	-	529	-	-	-
pH	std units	-	8.7	-	-	7.9	-	-	-	7.9	-	-	7.9	-	-	-
Color	PT/C	-	<5.0	-	-	5	-	-	-	<5.0	-	-	<5.0	-	-	-
BOD-5 day	mg/l	0.9	1.6	3.7	0.78	3.6	1.5	7.1	0.87	2.0	4.7	1.2	1.2	1.2	4.2	1.8
Chemical Oxygen Demand	mg/l	20	-	19	13	-	38	26	18	-	26	20	-	18	24	15
Alkalinity	mg/l	158	118	102	96	116	100	78	94	120	74	82	136	112	80	80
Residue-total	mg/l	650	-	638	430	-	626	356	490	-	374	374	-	660	336	310
Diss. Solids	mg/l	642	622	622	430	578	606	340	488	486	352	356	464	660	300	294
Susp. Solids	mg/l	8	<2.0	16	<2	14.0	20	16	2	<2.0	22	18	<2.0	<2	36	16
Settleable Solids	ml/l	<.2	-	<.2	<.2	-	<.2	<.2	<.2	-	<.2	<.2	-	<.2	<.2	<.2
NH_3-N	mg/l	0.02	0.05	0.08	<.02	0.09	0.05	0.16	0.12	0.07	0.17	0.06	0.15	0.07	0.26	0.09
NO_2-N	mg/l	0.014	0.054	0.046	0.014	0.028	0.014	0.048	0.038	0.060	0.062	0.028	0.088	0.058	0.076	0.034
NO_3-N	mg/l	1.6	3.67	4.83	4.35	9.57	8.04	4.7	8.19	6.30	2.98	5.29	5.91	11.4	2.96	3.84
N-Kjeldahl	mg/l	1.23	-	1.14	0.59	-	1.95	1.58	1.12	-	0.89	0.81	-	1.35	1.02	0.59
P-total	mg/l	1.08	-	0.76	0.67	3.52	3.41	1.06	1.77	2.64	0.74	1.16	3.19	2.54	0.53	0.66
Carbon, organic-total	mg/l	7.2	-	5.8	4.5	-	8	8.3	6.1	-	7.7	6.8	-	6.5	7.1	6.5
Hardness-total	mg/l	137	182	168.9	147	195	162	109.5	130	179	103.9	111	161	186	100.4	105
Ca-total	mg/l	38.9	56	41.6	41.6	61	50.1	32	52.9	52	26.4	37	45	42.1	25	29.1
Mg-total	mg/l	13.5	18	14.3	10.1	17	12.7	10.1	11.6	17	9.28	11.8	19	18.1	10.5	12.7
Cl	mg/l	-	103	107	72	116	-	74	90	85	57	57	71	-	43	39
SO_4-total	mg/l	190	235	147	87	129	70	74.6	62.9	103	56.2	41.2	54	48	22.5	23.6
Cadmium-total	µg/l	0.7	0.34	<.2	0.2	0.27	<.2	0.75	<.2	0.23	<.2	0.83	<0.2	<.2	<.2	0.25
Chromium-total	µg/l	<4	<4.0	5.8	<4	6.0	11.6	4.1	<4	<4.0	4.2	<4	<4.0	<4	<4	<4
Cu-total	µg/l	28	<50	20	28	50.0	113	37	45	<50	28	27	<50	75	18	23
Fe-total	µg/l	157	<100	309	160	160	3020	1110	173	<100	1420	705	<100	315	1480	806
Pb-total	µg/l	3.1	<4.0	2.9	4.1	5	10.4	5.3	3.6	<4.0	6.9	3.2	<4.0	1.5	14.3	4.9
Mn-total	µg/l	58	<50	59	44	<50	269	85	18	<50	82	30	<50	39	80	32
Ni-total	µg/l	34	<50	<25	<25	<50	34	<25	<25	<50	<25	<25	<50	<25	<25	<25
Zn-total	µg/l	74	50	58	27	40	74	62	19	20	48	40	30	41	43	27
Al-total	µg/l	<135	<150	<135	239	240	2520	975	240	<150	1300	721	<150	198	1280	733
Mercury-total	µg/l	<.2	-	<.2	<.2	-	<.2	<.2	0.213	-	<.2	<.2	-	<.2	<.2	<.2
Total Residual Chlorine	mg/l	-	0.04	-	-	0.1	-	-	-	0.12	-	-	0.02	-	-	-
Turbidity	NTU	<1	1.90	2.9	2.8	11.6	6.8	29	3.1	2.20	38	13.8	2.8	1.4	35	18.7
Total Coliform	col/100ml	5900	4000	2100	2300	5000	3500	43000	1600	35000	82000	41000	80000	3900	83000	120000
Fecal Coliform	col/100ml	460	260	1000	880	2000	340	21000	120	6000	29000	15000	51000	1400	34000	38000
Total Fecal Strep	col/100ml	540	140	300	140	160	550	29000	60	210	54000	29000	420	1700	34000	24000

TABLE 4.
WISSAHICKON CREEK - TEMP - DO MONITORING
DEP (Boyer, 1997)

Station	Boyer (1997) Station	Time	DO (mg/l)	Temp (C)
August 23, 1996				
9-WC	W-1 Blue Bell Penlynn Pike Bridge	9:50	8.3	23.6
		12:45	10.5	24.8
14-WC	W-2 50' upstream of Lafayette Rd. Bridge	8:40	6.8	22.6
		12:25	9.2	23.6
14-WC	W-3 50' upstream of confl. w/ Sandy Run	12:15	9.2	23.6
7-SR	S-1 Sandy Run mouth	9:25	5.3	22.1
		12:10	7.5	23.2
15-WC	W-4 30' downstream with confl. w/ Sandy Run	9:10	6.5	22.4
		12:00	8.9	23.4
August 30, 1996				
5-WC	W-1 North Wales Road Bridge	7:37	6.4	18.1
		11:02	9.2	19.1
9-WC	W-2 Blue Bell Penlynn Pike Bridge	7:19	6.8	20.4
		11:14	10.1	21.8
13-WC	W-3 Morris Road Bridge	7:08	7.2	19.6
		11:25	8.9	21
7-SR	S-1 Sandy Run mouth	6:58	7.8	19.3
		11:33	8.2	20
15-WC	W-4 30' downstream with confl. w/ Sandy Run	6:51	6.7	19.7
		11:41	8.1	20.3

TABLE 5.
WISSAHICKON CREEK - WATER CHEMISTRY
DEP (Boyer; 1999)

July 16, 1999

Location	Time	DO (mg/l)	Temp (C)
5-WC	3:10 am	**1.65**	21.3
	4:51 am	**1.5**	21.0
	6:38 am	**1.95**	20.5
7-WC	3:26 am	**4.7**	24.5
	5:04 am	**4.4**	24.2
	6:50 am	5	24.0
8-WC	3:42 am	6.7	23.8
	5:19 am	6.3	23.3
	7:04 am	6.35	23.0
12-WC	3:57 am	6.3	22.0
	5:34 am	5.8	21.8
	7:21 am	6.08	21.5
13-WC	4:10 am	5.3	21.9
	5:46 am	**4.9**	21.5
	6:14 am	5.1	21.5
	7:32 am	5.03	21.5
15-WC	4:23 am	5.2	22.3
	6:01 am	**4.9**	22.0
	7:46 am	5.2	21.8

July 20, 1999

Location	Time	DO (mg/l)	Temp (C)
6-WC	3:10 am	**2.4**	24.8
- upstream	4:55 am	**2.6**	24.3
	6:15 am	**2.7**	23.9
6-WC	3:18 am	6.2	26.5
- downstream	5:02 am	6.0	26.5
	6:22 am	6.0	26.1
7-WC	3:30 am	**4.85**	26
	5:11 am	**4.85**	24.9
	6:46 am	**4.9**	25.5
12-WC	3:47 am	5.3	25.5
	5:28 am	5.0	25.3
	7:02 am	5.0	25
13-WC	4:02 am	**4.35**	24
	5:35 am	**4.3**	24
	7:16 am	**4.0**	24
	8:49 am	**4.7**	24
15-WC	4:14 am	**4.65**	25
	5:51 am	**4.7**	24.8
	7:30 am	**4.7**	24.5

July 23, 1999

Location	Time	DO (mg/l)	Temp (C)
6-WC	3:14 am	**3.6**	23.8
- upstream	5:06 am	**3.55**	23.5
	7:12 am	**3.9**	23.5
7-WC	3:23 am	**4.7**	26.0
	5:16 am	**4.5**	26.0
	7:21 am	5.1	25.9
8-WC	3:37 am	6.45	25.5
	5:31 am	6.2	25.3
	7:31 am	6.1	25.2
12-WC	3:54 am	5.7	24.8
	5:47 am	5.4	24.5
	7:46 am	5.6	24.3
13-WC	4:04 am	**4.85**	24.0
	6:00 am	**4.6**	24.0
	7:54 am	**4.7**	24.0
15-WC	4:17 am	5.25	24.0
	6:12 am	5.05	24.0
	8:09 am	5.2	23.9

* Bold values indicate concentrations below Chapter 93 criteria for July 1 - 31

July 21-22, 1999

Location	Time	DO (mg/l)	Temp (C)
1-SR	3:56 am	5.9	23.9
2-SR	1:12 pm	8.4	25.1
	1:19 pm	8.2	25.1
	2:41 pm	8.8	25.4
	3:52 pm	9.0	25.5
	4:05 am	5.15	23.8
	5:12 am	**4.8**	23.7
	5:20 am	**4.7**	23.7
	6:53 am	**4.7**	23.6
3-SR	1:43 pm	8.1	24.0
	2:58 pm	8.45	24.3
	4:09 pm	8.4	24.9
	4:19 am	6.05	22.5
	5:34 am	5.7	22.1
	7:08 am	5.7	22.0
4-SR	12:19 pm	9.6	24.8
	2:12 pm	9.85	24.2
	3:25 pm	9.7	24.0
	3:09 am	6.05	23.0
	4:48 am	6.1	23.0
	6:18 am	6	23.0
6-SR	1:56 pm	9.6	24.8
	3:10 pm	9.3	24.5
	3:13 pm	9.25	24.4
	4:30 am	5.95	23.2
	5:45 am	5.8	23.1
	7:21 am	5.85	23.0
15-WC	5.56 am	**4.75**	23.2
	7:30 am	**4.9**	23.1
2-PR	12:38 pm	6	23.1
	2:22 pm	6.7	23.9
	3:36 pm	6.95	24.0
	3:22 am	5.3	23.0
	4:58 am	5.1	22.7
	6:30 am	5	22.7
3-PR	12:18 pm	6.45	24.1
	2:09 pm	7.1	24.9
	3:23 pm	7.0	25.0
	3:06 am	5.55	23.0
	4:44 am	5.6	23.0
	6:15 am	5.5	22.9

July 27, 1999

Location	Time	DO (mg/l)	Temp (C)
1-SR	3:49 am	5.15	24.0
	7:05 am	**4.9**	23.2
	8:50 am	**4.9**	23.5
2-SR	3:58 am	**4.0**	23.9
	5:40 am	**3.1**	23.3
	7:15 am	**2.7**	23.0
	7:32 am	**3.5**	23.0
	8:40 am	6.8	23.9
	8:58 am	7.1	24.0
3-SR	4:13 am	5.6	22.5
	5:52 am	5.6	22.0
	7:54 am	5.5	21.5
4-SR	3:09 am	5.8	23.9
	5:06 am	5.9	23.2
	6:25 am	5.8	23.0
6-SR	4:24 am	5.75	23.8
	6:13 am	5.75	23.2
	8:11 am	5.8	23.2
15-WC	4:40 am	**4.6**	24.0
	6:02 am	**4.6**	23.5
	8:20 am	5.05	23.3
1-PR	3:38 am	6.25	22.0
	5:31 am	6.5	21.2
	6:48 am	6.5	21.1
2-PR	3:22 am	5.1	24.1
	5:19 am	**4.85**	23.8
	6:34 am	**4.7**	23.3
3-PR	3:07 am	5.5	23.5
	5:05 am	5.5	23.0
	6:22 am	5.5	22.9

TABLE 6.
SEMI-QUANTITATIVE BENTHIC MACROINVERTEBRATE DATA
Wissahickon Creek, Montgomery County
August 22-23, 2005

Station #	9-WC	13-WC	15-WC
MAYFLIES			
Baetidae ***Baetis***	13	15	12
CADDISFLIES			
Hydropsychidae ***Cheumatopsyche***	25	90	61
Hydropsyche	17	20	50
Hydroptilidae ***Hydroptila***	1	-	-
Leucotrichia	3	-	-
Philopotamidae ***Chimarra***	31	-	-
TRUE FLIES			
Chironomidae	13	32	45
Empididae ***Hemerodromia***	-	-	1
MISC. INSECT TAXA			
Elmidae ***Stenelmis***	62	16	21
Odonata	-	1	-
Zygoptera ***Argia***	2	-	-
Nymphulinae ***Petrophila***	-	1	2
NON-INSECT TAXA			
Isopoda ***Gammarus***	4	2	1
Sphaeridae	5	-	-
Planariidae	32	10	12
Oligochaeta	2	18	1
Nemertea	4	-	-
Hirudinea	-	7	1
Total Taxa	14	11	11
% Dominant	29	42.5	29.5
Modified EPT	1	0	0
Modified % Mayflies	0	0	0
Hilsenhoff	5.8	6.3	5.8

TABLE 7.
BENTHIC MACROINVERTEBRATE DATA
Wissahickon Creek, Montgomery County
(Strekal 1974, 1976)

Station #	1-PC	11-WC	5-WC	8-WC	10-WC	15-WC
Strekal (1976) Station	Prophecy	Wissahickon	2	3	4	5
Date	6/5-17/1974		12/29/1975			
MAYFLIES						
Baetidae ***Callibaetis***	-	-	C	C	-	-
Baetis	C	C	-	C	R	-
Cleon	-	-	-	-	-	R
Baetiscidae ***Caenis***	-	-	-	R	R	-
Heptageniidae ***Stenonema***	C	-	-	-	-	-
CADDISFLIES						
Hydroptilidae ***Hydroptila***	-	-	-	C	C	-
Hydropsychidae ***Cheumatopsyche***	R	R	-	C	A	-
Hydropsyche	A	R	-	C	A	-
Philopotamidae ***Chimarra***	-	-	-	R	C	-
TRUE FLIES						
Chironomidae	C	C	-	-	-	-
Empididae ***Hemerodromia***	-	C	-	-	-	-
Simuliidae	C	R	-	-	-	-
Tipulidae ***Antocha***	R	-	-	-	-	-
Tipula	R	-	-	-	-	-
MISC. INSECT TAXA						
Dytiscidae ***Dytiscus***	-	-	R	-	-	-
Elmidae ***Stenelmis***	C	-	-	R	C	-
Hydrophilidae ***Berosus***	-	-	C	R	R	-
Psephenidae ***Ectopria***	-	-	-	C	C	-
Psephenus	-	-	-	C	C	-
Aeschnidae ***Boyeria***	R	-	-	-	-	-
Coenagrionidae ***Argia***	-	-	R	-	-	-
Ischnura	-	-	-	-	-	R
Corydalidae ***Chauliodes***	R	-	-	-	-	-
Lepidoptera	-	R	-	-	-	-
NON-INSECT TAXA						
Asellidae ***Asellus***	R	C	-	A	C	A
Cambaridae ***Cambarus***	C	C	-	-	-	-
Gammaridae ***Gammarus***	R	-	-	-	-	-
Hirudinea	-	R	-	C	A	A
Planariidea ***Dugesia***	R	R	-	-	-	-
Physidae ***Physa***	R	A	-	-	-	-
Oligochaeta	R	R	R	R	R	R
Total Taxa	17	13	5	14	13	5

TABLE 8.
BENTHIC MACROINVERTEBRATE DATA
Wissahickon Creek, Montgomery County
(Boyer 1989, 1997)

Station	1-WC	2-WC	3-WC	4-WC	5-WC		8-WC		10-WC		13-WC		15-WC		6-SR	
Boyer (1989) station		1		2	3		4		5		6		8		7	
Boyer (1997) station	1		2			3		4		5		6		8		7
Date	8-9/1996	8-10/1988	8-9/1996	8-10/1988	8-10/1988	8-9/1996	8-10/1988	8-9/1996	8-10/1988	8-9/1996	8-10/1988	8-9/1996	8-10/1988	8-9/1996	8-10/1988	8-9/1996
MAYFLIES																
Baetidae *Baetis*	-	X	-	-	X	P	X	C	X	A	X	C	X	P	X	P
Caenidae *Caenis*	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-
Tricorythidae *Tricorythodes*	-	-	-	-	-	-	-	-	X	P	X	C	-	-	-	-
CADDISFLIES																
Hydroptilidae *Hydroptila*	-	-	-	-	-	-	-	P	-	P	-	-	X	-	-	-
Leucotrichia	-	-	-	-	-	-	-	-	-	P	-	P	-	-	-	-
Hydropsychidae *Cheumatopsyche*	C	X	-	-	-	A	-	A	X	A	X	A	X	A	X	A
Hydropsyche	-	X	-	-	X	C	X	A	X	A	X	C	X	C	X	C
Philopotamidae *Chimarra*	P	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-
TRUE FLIES																
Chironomidae	-	-	-	-	-	P	X	P	-	P	-	-	-	-	-	-
Cryptochironomus	-	-	-	-	X	-	-	-	-	-	-	P	-	-	-	P
Dicrotendipes	-	-	-	-	X	P	-	-	-	-	-	-	-	-	-	-
Endochironomus	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-
Polypedilum	P	X	-	-	X	P	X	-	X	P	X	C	X	A	X	A
Pseudochironomus	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-
Diamesinae *Diamesa*	-	-	-	-	-	P	-	P	-	-	-	-	-	-	-	-
Potthastia	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-
Orthocladiinae *Brillia*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P
Cardiocladius	-	-	-	-	-	P	X	-	-	-	-	-	-	P	X	-
Cricotopus	-	-	-	-	-	-	-	P	-	P	-	C	-	P	-	P
Eukiefferiella	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	
Orthocladius	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	
Tanypodinae *Pentaneura*	P	-	-	-	-	-	-	P	-	P	X	C	X	C	-	C
Empididae *Hemerodromia*	-	-	-	-	-	-	-	-	-	P	X	P	-	P	-	P
Simuliidae *Simulium*	-	X	-	-	X	P	X	-	X	P	X	P	X	P	-	P
Tabanidae *Tabanus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	
Tipulidae *Antocha*	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-
Tipula	-	X	-	-	X	P	-	-	X	P	-	-	-	-	-	P

TABLE 8. (CONT.)

Station	1-WC	2-WC	3-WC	4-WC	5-WC		8-WC		10-WC		13-WC		15-WC		6-SR	
Boyer (1989) station		1		2	3		4		5		6		8		7	
Boyer (1997) station	1		2			3		4		5		6		8		7
Date	8-9/1996	8-10/1988	8-9/1996	8-10/1988	8-10/1988	8-9/1996	8-10/1988	8-9/1996	8-10/1988	8-9/1996	8-10/1988	8-9/1996	8-10/1988	8-9/1996	8-10/1988	8-9/1996
MISC. INSECT TAXA																
Arrenuridae *Hydrachnidia*	-	-	-	-	-	P	-	-	-	P	-	-	-	-	-	-
Sialidae *Sialis*	P	-	-	-	-	-	X	-	X	P	-	-	-	P	-	-
Dytiscidae *Laccophilus*	-	X	P	X	-	-	-	-	-	-	-	-	-	-	-	-
Elmidae *Ancyronyx*	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-
Optioservus	-	-	-	-	X	-	-	-	-	P	-	-	-	-	-	-
Stenelmis	P	X	-	-	X	P	X	A	X	A	X	A	X	A	X	A
Oulimnius	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-
Haliplidae *Haliplus*	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-
Peltodytes	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-
Hydrophilidae *Berosus*	-	X	-	X	X	P	-	P	X	-	-	-	-	-	-	-
Helochares	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrochara	-	-	-	-	X	-	-	-	X	-	X	-	-	-	-	-
Tropisternus	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corixidae *Cenocorixa*	-	-	P	-	-	-	-	-	X	-	-	-	-	-	-	-
Psephenidae *Ectopria*	-	-	-	-	X	P	X	P	X	P	-	-	-	-	X	-
Psephenus	-	-	-	X	-	-	X	C	X	A	X	P	-	P	X	-
Coenagrionidae *Argia*	-	-	-	-	X	P	X	P	X	P	-	-	-	-	-	-
Coenagrion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corydalidae *Corydalus*	-	-	-	-	-	-	X	P	-	C	-	P	X	P	-	-
Nigronia	-	-	-	-	-	-	-	-	-	-	X	-	X	P	-	-
Lestidae *Archilestes*	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidoptera	-	X	-	-	-	-	-	-	X	-	-	-	-	-	-	-
NON-INSECT TAXA																
Cambaridae *Orconectes*	P	-	-	X	-	P	-	-	-	-	-	-	X	P	-	P
Crangonyctidae *Crangonyx*	P	-	-	-	-	C	-	-	-	P	-	-	-	-	-	-
Gammaridae *Gammarus*	-	-	-	X	-	-	-	-	-	-	-	-	-	P	-	-
Asellidae *Asellus*	C	X	-	X	X	C	X	P	X	P	-	-	X	P	X	P
Lirceus	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Planariidea *Dugesia*	-	-	-	X	X	P	-	P	-	P	-	-	-	-	-	-
Planaria	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	P
Hirudinea	-	X	-	-	X	-	X	-	X	-	-	-	X	-	X	-
Glossiphoniidae *Placobdella*	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erpobdellidae *Erpobdella*	P	-	-	-	-	P	-	P	-	-	-	P	-	P	-	P
Ancylidae *Ferrissia*	-	-	-	-	-	P	-	-	-	P	-	-	-	P	-	-
Lymnaeidae *Stagnicola*	-	-	P	-	-	C	-	-	-	-	-	-	-	-	-	-
Physidae *Physa*	-	X	-	-	-	-	X	-	X	-	X	-	-	-	X	-
Physella	P	-	P	-	-	C	-	-	-	-	-	-	-	-	-	-
Planorbidae *Planorbella*	-	-	-	-	-	C	X	P	-	-	-	P	-	-	-	-
Planorbula	P	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-
Gyraulus	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-
Sphaeriidae *Pisidium*	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-
Oligochaeta	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-
Lumbriculidae	P	-	P	-	-	P	-	P	-	P	-	P	-	P	-	P
Total Taxa	15	16	7	9	17	27	17	19	21	27	13	17	15	25	12	17

A - Abundant >100
C - Common 25-100
P - Present <25

TABLE 9.
HABITAT ASSESSMENT SUMMARY
Wissahickon Creek, Montgomery County

HABITAT PARAMETER	scoring range	August 22-23, 2005		
		9-WC	15-WC	13-WC
1. instream cover	0 - 20	14	16	16
2. epifaunal substrate	0 - 20	11	13	13
3. embeddedness	0 - 20	12	14	11
4. velocity/depth	0 - 20	14	16	16
5. channel alterations	0 - 20	18	16	18
6. sediment deposition	0 - 20	16	13	12
7. riffle frequency	0 - 20	14	11	16
8. channel flow status	0 - 20	14	15	15
9. bank condition	0 - 20	16	15	15
10. bank vegetation protection	0 - 20	16	16	17
11. grazing/disruptive pressures	0 - 20	16	17	17
12. riparian vegetation zone width	0 - 20	16	17	14
Total Score	0 - 240	177	179	180
Rating		Suboptimal	Suboptimal	Suboptimal

TABLE 10.

FISH - Species Occurrence.
Wissahickon Creek, Montgomery County
DEP (Boyer 1989)

		2-WC	3-WC	4-WC	5-WC		8-WC		10-WC		13-WC		15-WC	
Boyer (1989) station		1		2	3		4		5		6		8	
Boyer (1997) station			2			3		4		5		6		8
Date		8, 11/1988	8-9/1996	8, 11/1988	8, 11/1988	8-9/1996	8, 11/1988	8-9/1996	8, 11/1988	8-9/1996	8, 11/1988	8-9/1996	8, 11/1988	8-9/1996
Common name	Scientific name													
American eel	*Anguilla rostrata*	-	-	-	R	-	R	P	P	P	-	R	P	P
Carp	*Cyprinus carpio*	-	-	-	-	-	-	-	R	-	-	-	-	-
Golden shiner	*Notemigonus crysoleucas*	P	P	P	-	P	-	-	-	-	-	-	-	-
Satinfin shiner	*Cyprinella analostana*	-	-	-	-	-	-	P	-	-	-	P	-	P
Common shiner	*Luxilus cornutus*	-	P	-	-	P	C	A	C	C	P	C	A	P
Spotfin shiner	*Notropis spilopterus*	-	-	-	-	-	-	-	-	-	P	-	C	-
Spottail shiner	*N. hudsonius*	-	-	-	-	-	-	P	-	-	-	-	-	P
Swallowtail shiner	*N. procne*	-	-	-	-	-	-	P	P	-	R	R	P	P
Fathead minnow	*Pimephales promelas*	-	A	-	-	P	-	-	-	-	-	-	-	P
Blacknose dace	*Rhinichthys atratulus*	-	-	-	P	A	-	A	A	A	C	A	C	P
Longnose dace	*R. cataractae*	-	-	-	-	-	-	C	C	A	C	A	C	C
White sucker	*Catostomus commersoni*	P	C	C	-	P	-	C	P	A	P	P	-	A
Yellow bullhead	*Ameiurus natalis*	-	-	-	-	-	-	-	-	R	-	-	-	-
Brown bullhead	*A. nebulosus*	-	-	-	R	-	-	-	R	-	-	-	-	-
Banded killifish	*Fundulus diaphanus*	C	A	C	A	A	C	P	-	P	-	P	-	P
Mummichog	*F. heteroclitus*	-	-	P	R	P	R	-	-	-	-	-	-	-
Rock bass	*Ambloplites rupestris*	-	-	-	-	-	-	-	-	-	-	-	-	-
Redbreast sunfish	*Lepomis auritus*	-	P	-	C	C	C	P	C	P	P	P	P	P
Green sunfish	*L. cyanellus*	P	-	P	-	P	-	-	-	-	-	-	R	R
Pumpkinseed	*L. gibbosus*	P	P	-	R	-	P	P	P	-	-	-	-	-
Bluegill	*L. macrochirus*	-	-	-	-	-	R	-	-	R	P	-	-	-
Largemouth bass	*Micropterus salmoides*	-	-	-	-	-	R	-	R	-	-	-	-	R
Tessellated darter	*Etheostoma olmstedi*	-	-	-	-	P	-	P	-	C	R	C	-	P
	Total Species:	5	7	5	7	12	8	10	11	10	9	10	8	14

A-Abundant (>500); C-Common (25-49); P-Present (3-24); R-Rare (1-2)

TABLE 11.

FISH - Species Occurrence

PFBC and PWD

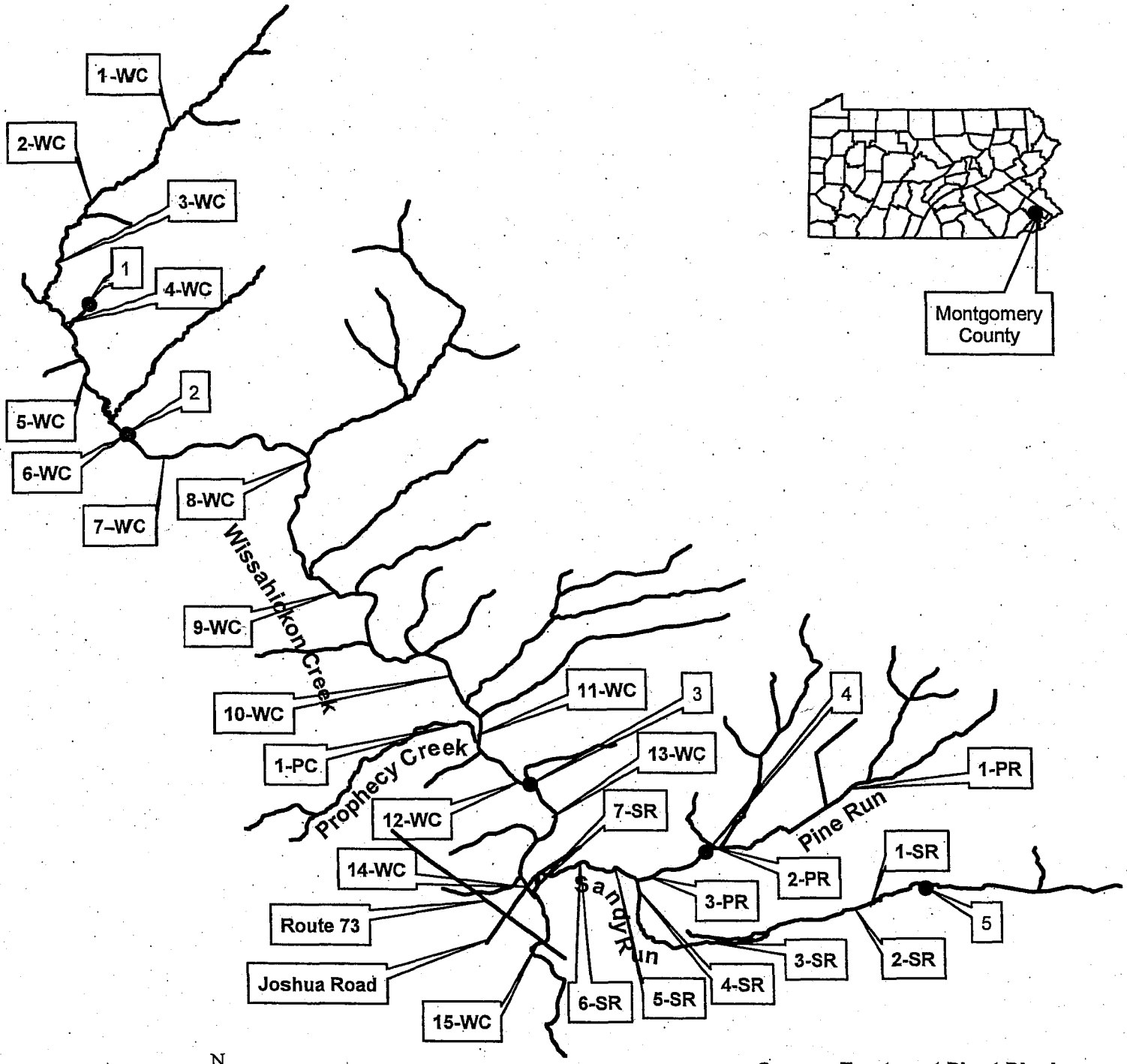
	Station	7-WC		10-WC		13-WC	15-WC			5-SR
	*	W 15	1850	W 13	1475	1210	0202	W 10	1075	W 11
Common name	Scientific name	7/2001	6/2005	7/2001	6/2005	6/2005	6/1992	7/2001	6/2005	7/2001
Brown trout	*Salmo trutta*	-	-	-	-	2	P	8	7	-
Rainbow trout	*Oncorhynchus mykiss*	-	-	-	-	3	R	-	1	-
American eel	*Anguilla rostrata*	3	X	6	X	-	P	-	-	1
Common carp	*Cyprinus carpio*	-	-	-	-	-	P	-	X	3
Golden shiner	*Notemigonus crysoleucas*	1	X	-	-	X	-	-	-	-
Satinfin shiner	*Cyprinella analostana*	-	-	32	X	X	C	103	X	114
Common shiner	*Luxilus cornutus*	332	X	116	-	X	C	149	X	34
Spotfin shiner	*Cyprinella spiloptera*	-	-	-	-	X	-	9	X	2
Spottail shiner	*Notropis hudsonius*	2	-	17	-	X	C	23	X	21
Swallowtail shiner	*N. procne*	-	-	-	-	X	-	34	X	13
Fathead minnow	*Pimephales promelas*	2	X	-	-	-	-	2	-	-
Blacknose dace	*Rhinichthys atratulus*	265	X	48	X	X	-	40	X	6
Longnose dace	*R. cataractae*	-	-	57	X	X	C	230	X	52
Banded killifish	*Fundulus diaphanus*	64	X	31	X	X	A	22	-	7
Mummichog	*F. heteroclitus*	-	-	-	-	-	-	-	-	3
Goldfish	*Carassius auratus*	-	X	-	-	-	-	-	-	-
Creek chub	*Semotilus atromaculatus*	-	-	10	-	X	-	20	-	14
White sucker	*Catostomus commersoni*	33	X	128	X	X	R	160	X	69
Yellow bullhead	*Ameiurus natalis*	-	-	-	X	X	-	9	X	1
Brown bullhead	*A. nebulosus*	-	X	-	-	-	-	-	-	-
Smallmouth bass	*Micropterus dolomieu*	-	-	12	X	X	-	-	X	-
Largemouth bass	*M. salmoides*	-	-	1	-	X	-	8	-	-
Rock bass	*Ambloplites rupestris*	-	-	1	-	X	R	2	-	1
Redbreast sunfish	*Lepomis auritus*	150	X	205	X	X	P	38	X	9
Green sunfish	*L. cyanellus*	5	X	11	X	X	R	8	X	3
Pumpkinseed	*L. gibbosus*	3	-	11	X	X	P	26	X	2
Bluegill	*L. macrochirus*	-	-	-	-	X	-	21	-	13
Tessellated darter	*Etheostoma olmstedi*	15	X	89	-	X	-	26	X	3
	Total Species:	12	12	16	11	22	14	20	17	20

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

* Stations W 10, 11, 13, and 15 and 1075, 1210, 1475, and 1850 were sampled by Philadelphia Water Department

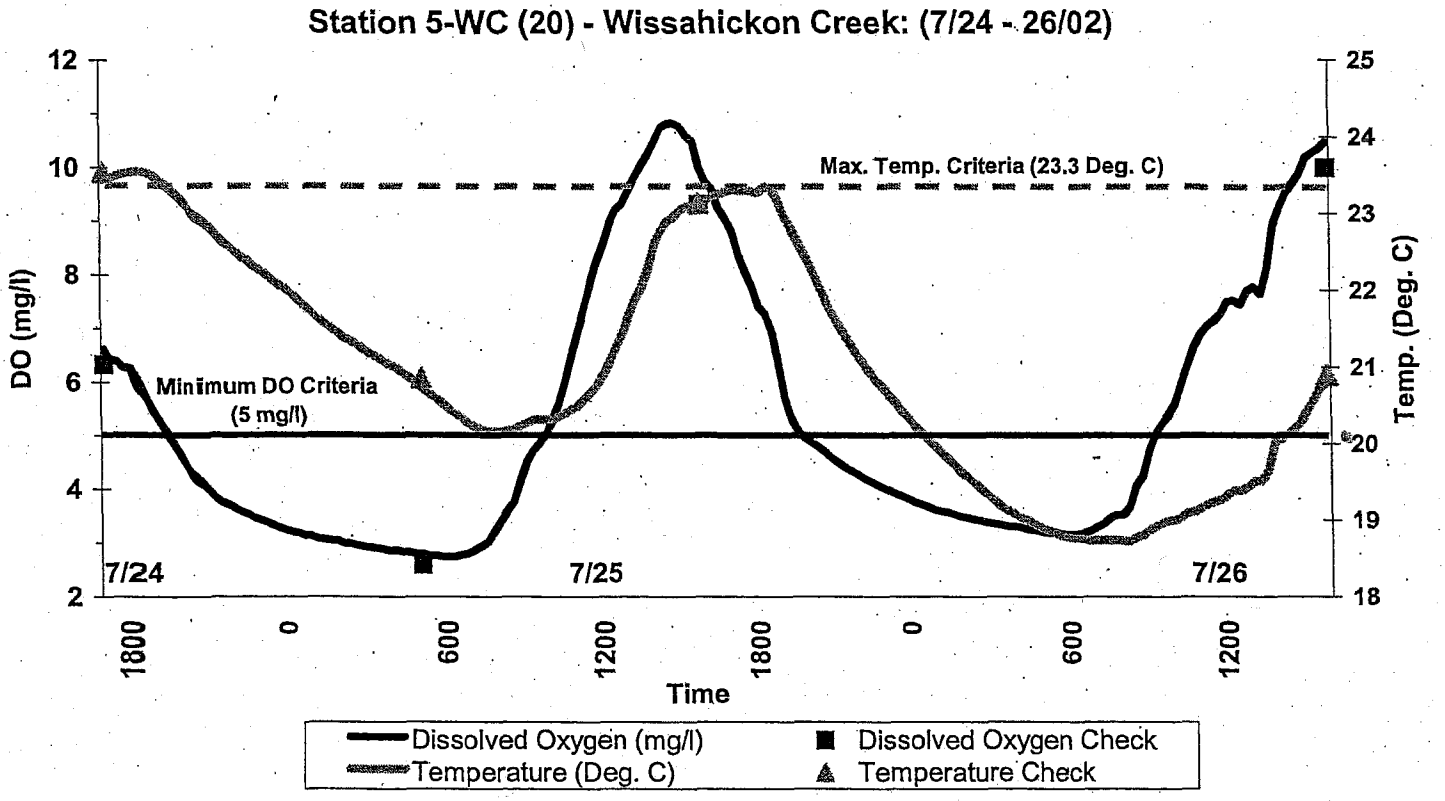
* Station 0202 was sampled by PFBC

Figure 1.
Wissahickon Creek Sampling Locations



Sewage Treatment Plant Discharges
1 - Borough of North Wales
2 - Upper Gwynedd Township
3 - Borough of Ambler
4 - Upper Dublin Township
5 - Abington Township

FIGURE 2.
WATER CHEMISTRY TEMPERATURE & DO
DEP (EVERETT 2002)



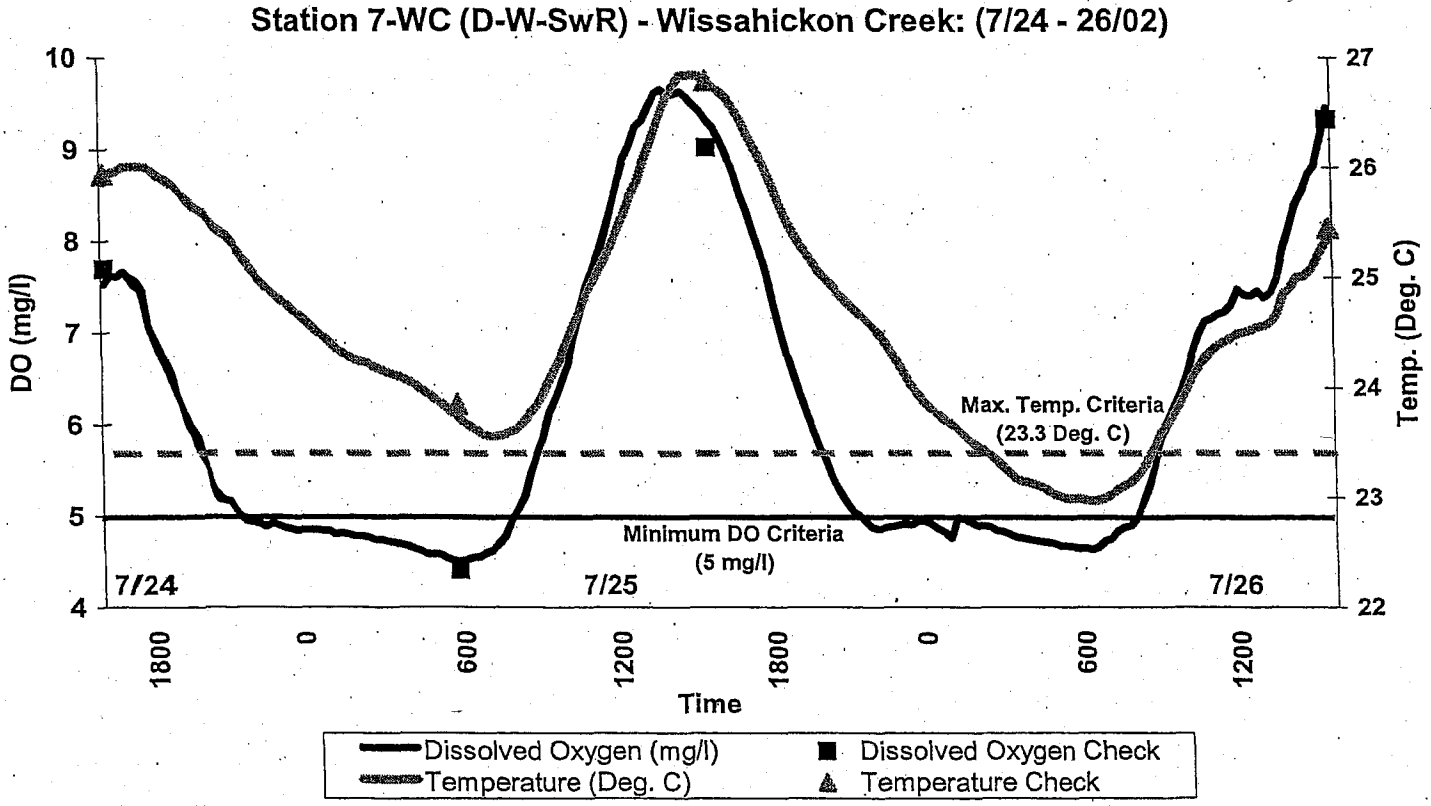
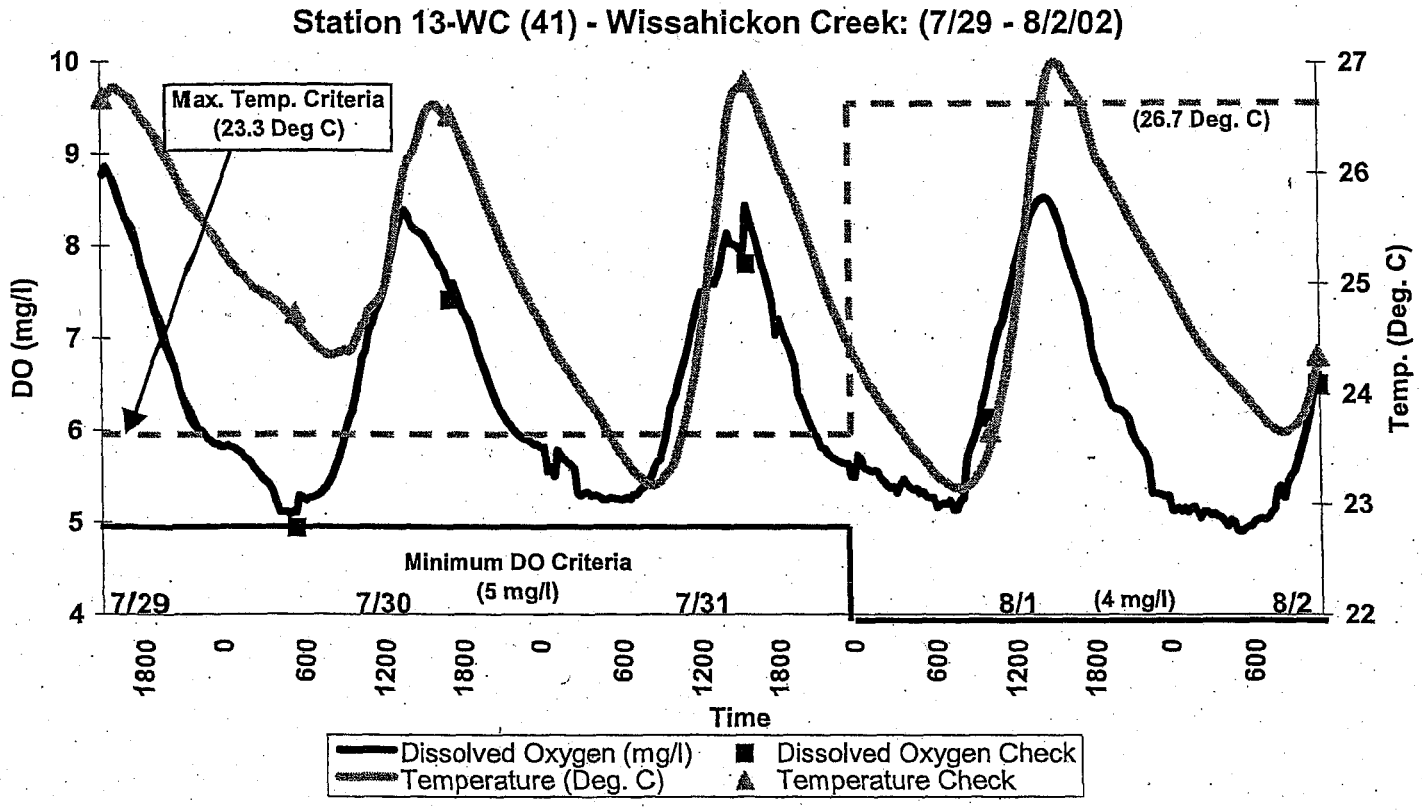


FIGURE 2. (cont.)
WATER CHEMISTRY TEMPERATURE & DO
DEP (EVERETT 2002)



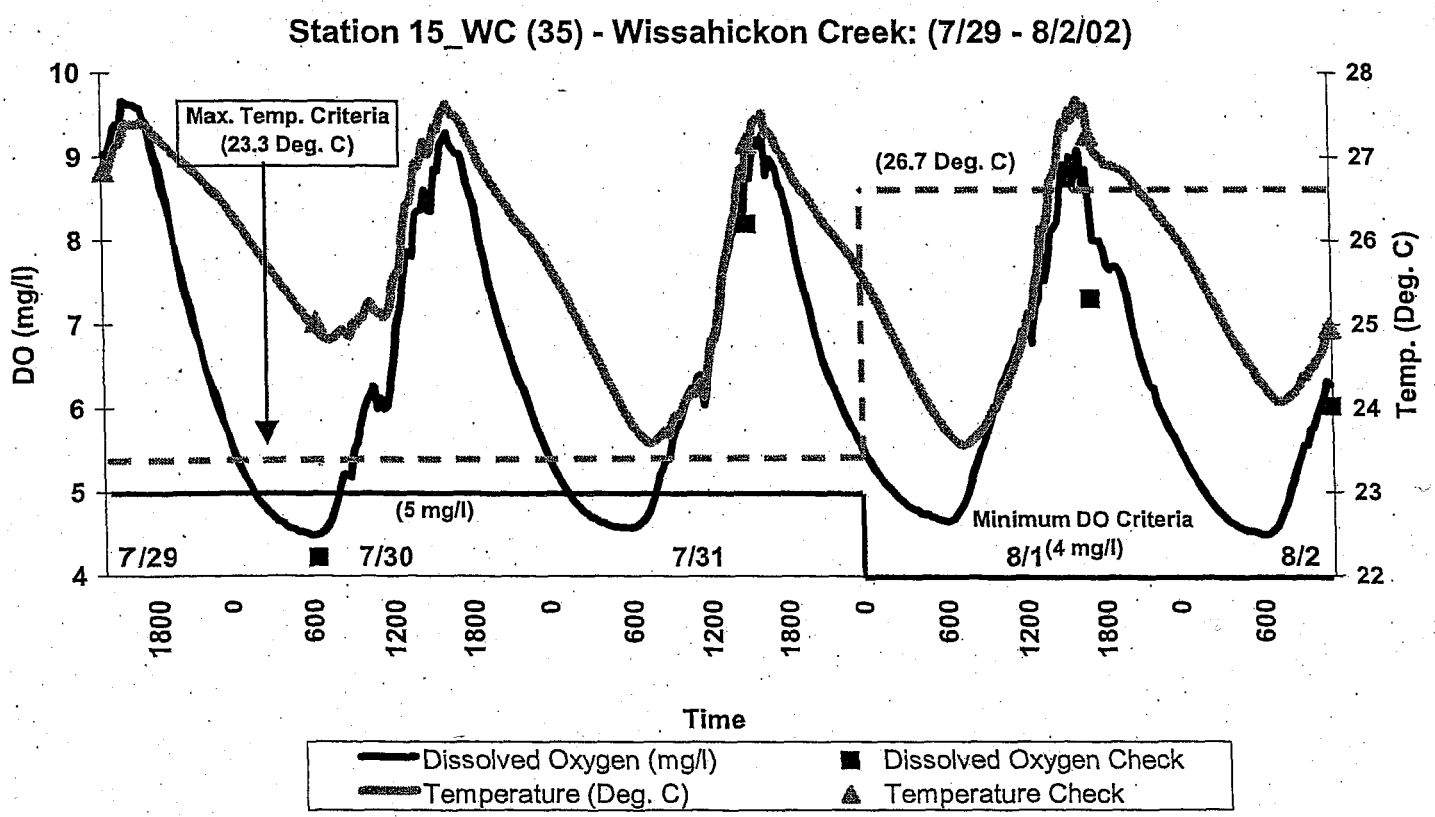
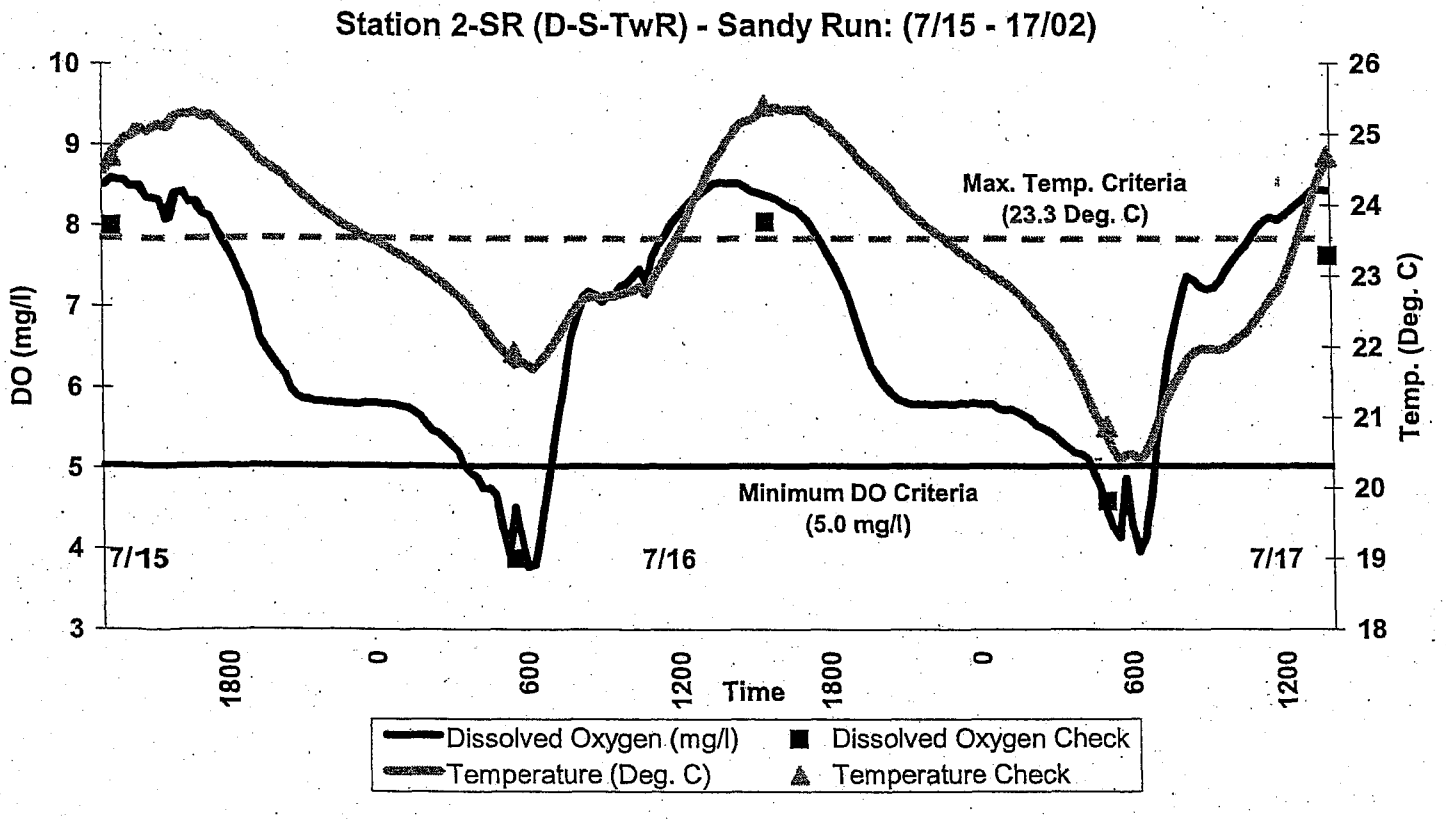


FIGURE 2. (cont.)
WATER CHEMISTRY TEMPERATURE & DO
DEP (EVERETT 2002)



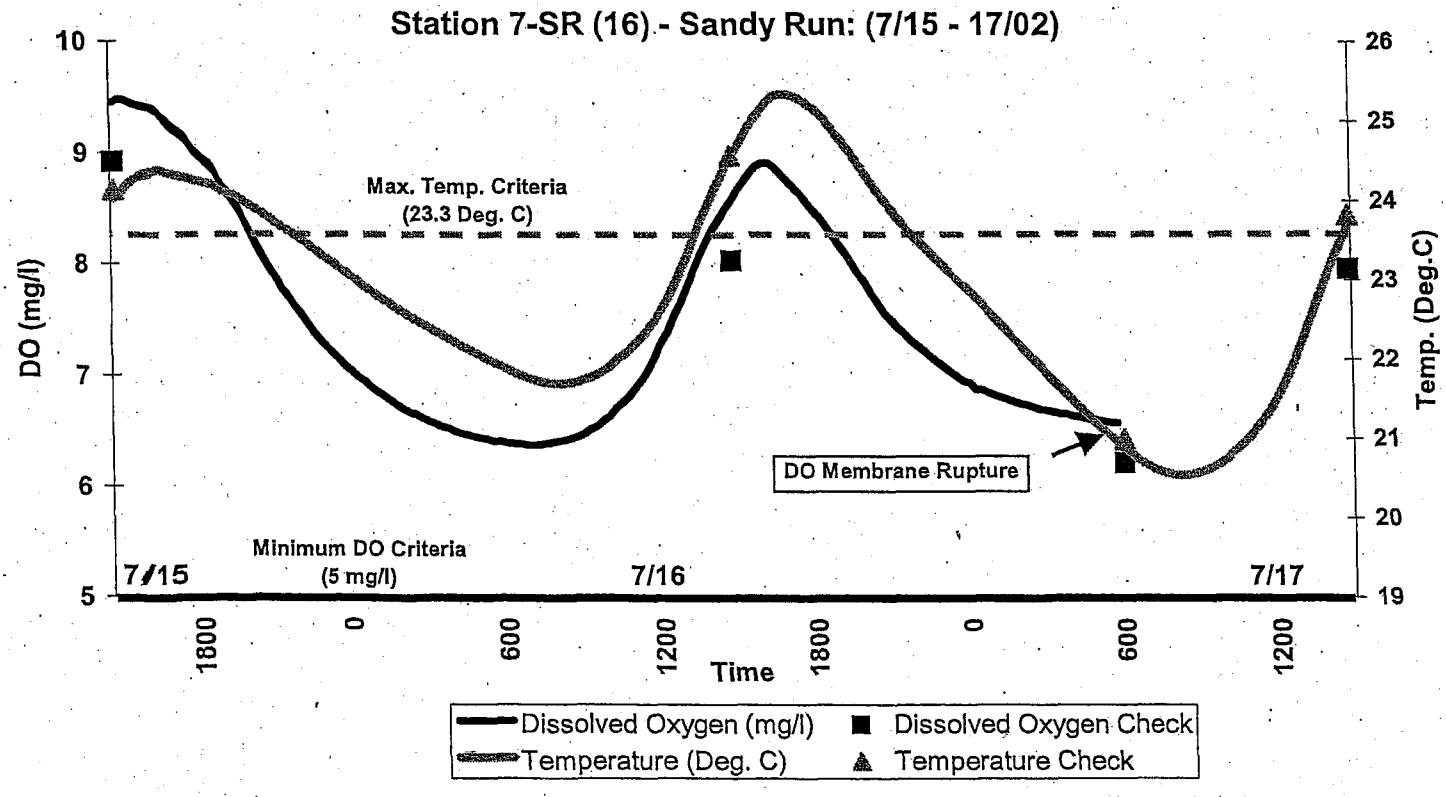
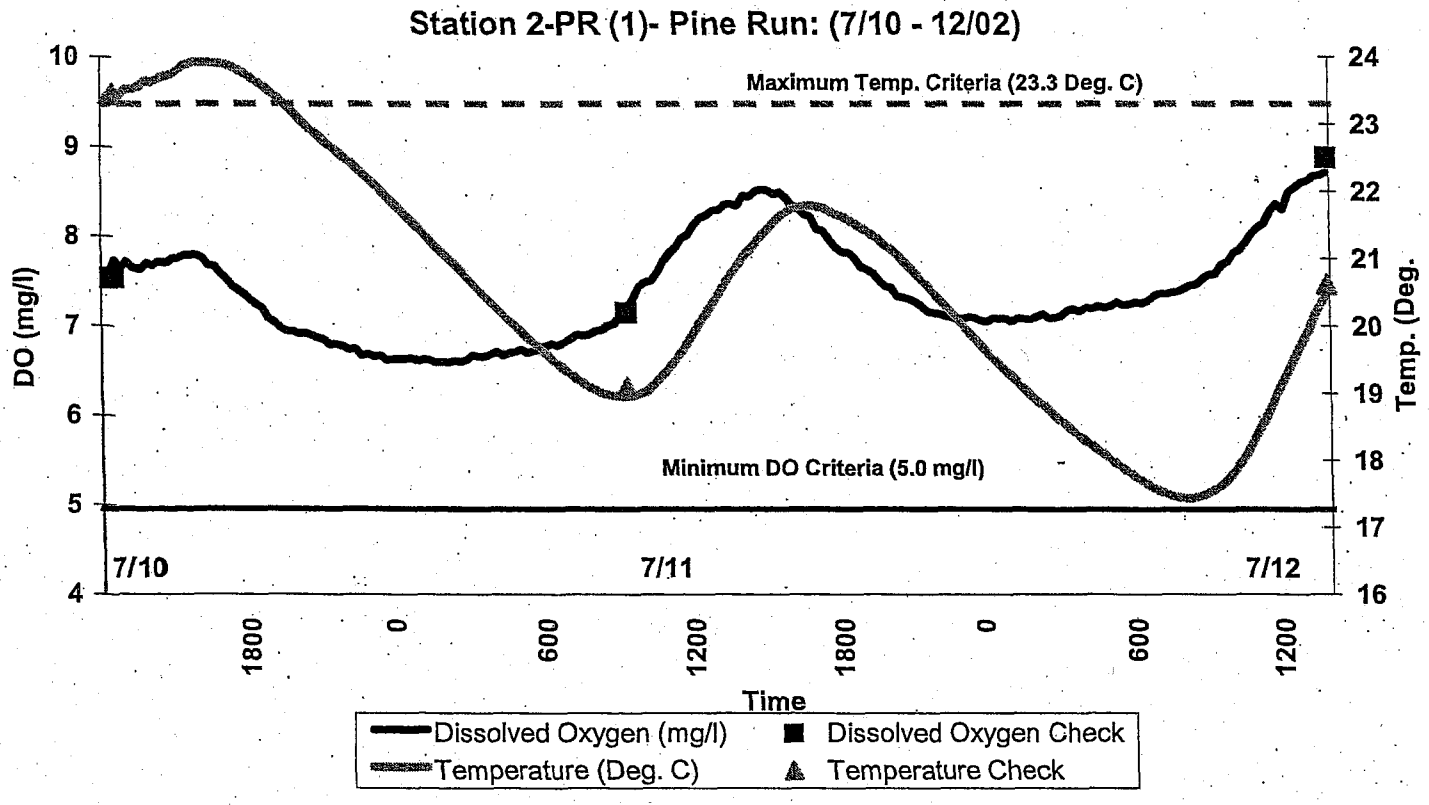
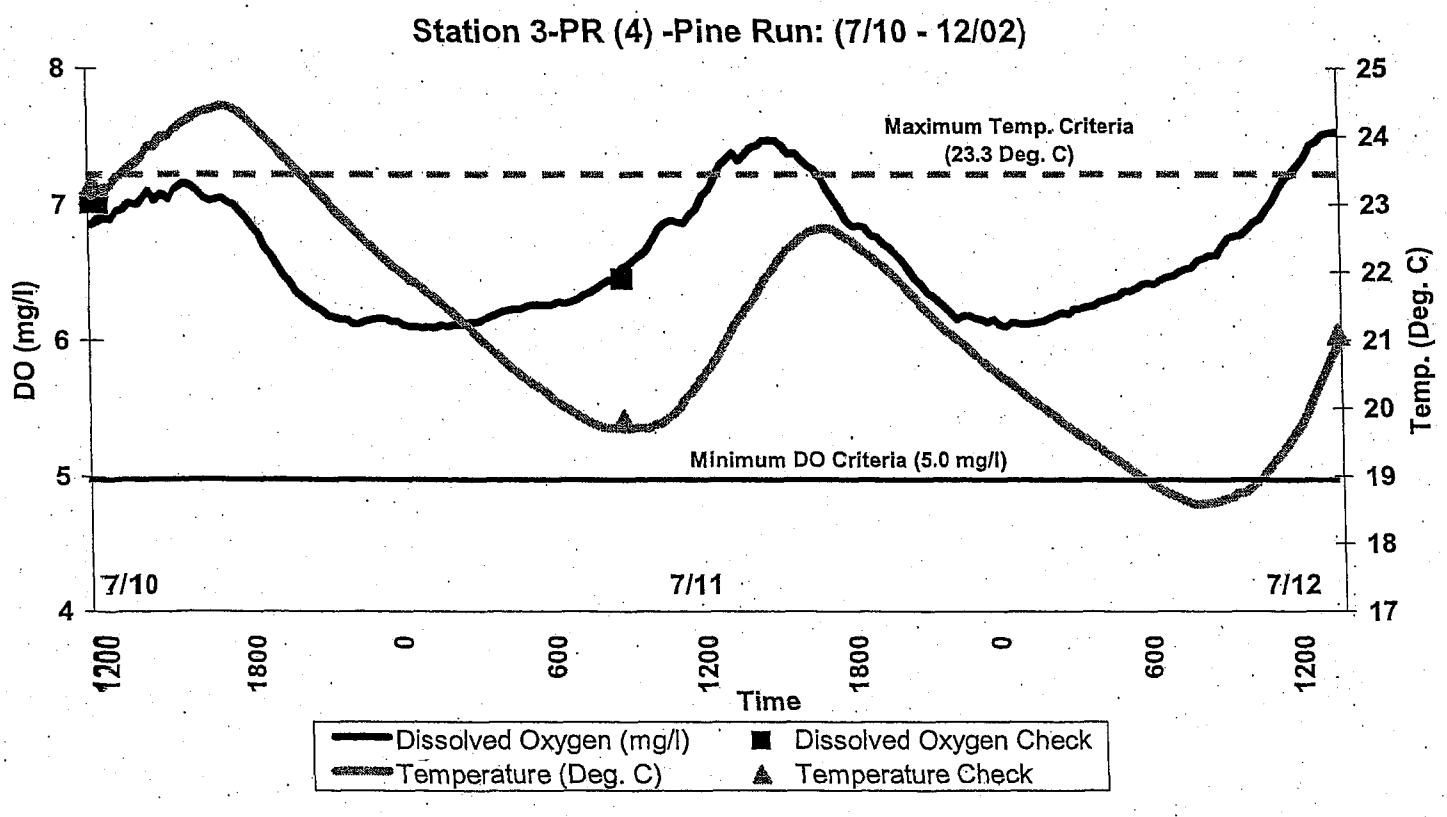


FIGURE 2. (cont.)
WATER CHEMISTRY TEMPERATURE & DO
DEP (EVERETT 2002)





BEAVER CREEK

CHESTER COUNTY

WATER QUALITY STANDARDS REVIEW
STREAM REDESIGNATION EVALUATION REPORT

Segment: Basin
Drainage List: G
Stream Code: 00297

WATER QUALITY ASSESSMENT SECTION (GLW)
DIVISION OF WATER QUALITY STANDARDS
BUREAU OF WATER STANDARDS AND FACILITY REGULATION
DEPARTMENT OF ENVIRONMENTAL PROTECTION

OCTOBER 2006

INTRODUCTION:

Beaver Creek, a freestone stream, is a tributary to the East Branch Brandywine Creek in East and West Brandywine and Caln Townships of Chester County. The current land use in the watershed consists mostly of agriculture (45%) and forest (41%), along with some single-family residential development (10.9%). There are 10 discharge permits for stormwater (3), single residence sewage treatment (2), non-publicly owned sewage treatment (4), drinking water treatment (1) and one surface water withdrawal (irrigation) permit for the basin. The designated use of the upper Beaver Creek basin (upstream of the East Brandywine/Caln Township border) is not defined in Chapter 93, whereas downstream of the referenced border, the designated use is Trout Stocking, Migratory Fishes (TSF, MF).

In order to correct this omission, DEP and Pennsylvania Fish & Boat Commission (PFBC) staff conducted numerous field surveys between May 2000 and July 2001. In addition, PFBC staff had previously conducted an electrofishing survey in August 1994. The United States Geological Survey (USGS) also collected water temperature data between July 1998 and September 1999. This evaluation is based on field surveys conducted on May 24, June 26, July 14, 2000, and July 10, 2001 and data from the earlier PFBC and USGS surveys.

FINDINGS:

A total of 5 sites were surveyed between May 2000 and July 2001. Southeast Regional Office (SERO) and Central Office (CO) DEP staff, along with PFBC staff, surveyed two upper sites, at Hadfield Road (1BC) and Osborne Road (2BC) (Figure 1, Table 1) on May 24, 2000. On June 26, 2000 two more sites were added downstream, one near Meadow Drive (3BC) and one downstream of Lloyd Avenue in Downingtown (4BC) (Figure 1, Table 1). On July 14, 2000 SERO and PFBC staff returned to Beaver Creek and resampled sites 1BC and 3BC. On July 10, 2001 SERO and CO staff added a station at Manor Avenue in Downingtown (5BC) and resurveyed 4BC (Figure 1, Table 1).

During the May 2000 survey, five wild brown trout, one wild brook trout, and a stocked brook trout were collected upstream from 2BC (Table 2). A total of 13 wild brown trout were collected below the East Brandywine and Caln Township border at stations 2BC, 3BC, 4BC and 5BC during May, June, July 2000 and July 2001 surveys. During PFBC's 1994 survey, brown trout were also found further upstream from 2BC near the village of Bondsville, above the East Brandywine and Caln Township border and downstream from an impoundment at SR 4015 (Bondsville Road). Further upstream, at 1BC nine fish species including blacknose dace, creek chub, and white sucker were collected (Table 2), but no trout, during the May and July 2000 surveys. Since this station is located above the impoundment at Bondsville Road, this on-stream impoundment probably excludes trout from this segment.

American eel were found at all 5 sample stations and on every survey date during the 2000 and 2001 surveys (Table 2). Despite the impoundment at Bondsville Road, American eel was found at 1BC, indicating the impoundment is not a barrier to upstream migration of this species.

Temperature data was collected periodically by USGS from July 1998 to September 1999 at 4BC (Table 3). Temperature data was also collected during DEP and PFBC surveys in 1994, 2000 and 2001 at some sites (Table 3). Instream temperatures for each of the survey periods varied from the low 60's (°F) to the mid 70's (°F). The temperature regime at 4BC, as documented by USGS in 1999, frequently exceeded Chapter 93 temperature criteria for CWF (Table 3). Though these temperature regimes provide marginal conditions for reproducing trout populations, it has not prevented the establishment of a modest reproducing brown trout population in the lower reaches of the basin.

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 Daily Local News (West Chester) on April 21, 2000. In addition, East Brandywine Township was notified of the evaluation in a letter dated April 19, 2000. The Chester County Planning Commission was also notified at the same time. The Chester County Planning Commission provided some field chemistry and bacteriological data collected by the U.S. Geological Survey near the mouth of Beaver Creek. In addition, a representative of Trout Unlimited indicated that Beaver Creek supports a reproducing trout population. In response to this information, the Department sampled the fish community in Beaver Creek at two locations on May 24, 2000 and again at two different locations on July 10, 2001, as noted in the body of this report. The presence of a reproducing trout population was confirmed by these surveys.

RECOMMENDATIONS:

Field survey data and temperature conditions of Beaver Creek indicate that the resident trout population is surviving and reproducing, despite the periodic occurrence of temperatures that approach the upper tolerance limits for trout. Based on these survey findings and data made available to the Department, the Department recommends that the Beaver Creek basin be designated Cold Water Fishes, Migratory Fishes (CWF, MF).

FIGURE 1
STATION LOCATIONS
BEAVER CREEK
CHESTER COUNTY
May 24, 2000 thru July 10, 2001

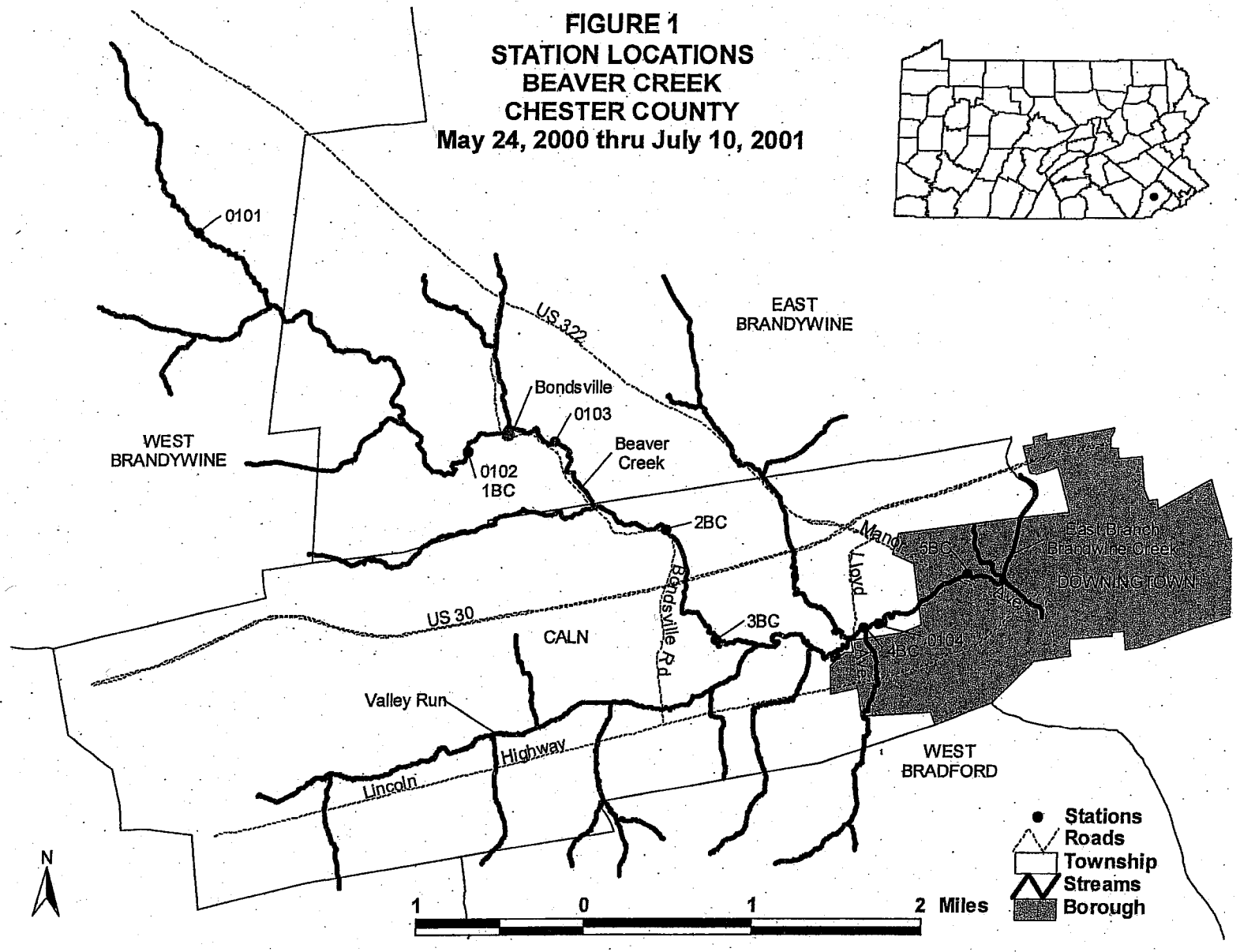


TABLE 1
STATION LOCATIONS
BEAVER CREEK
CHESTER COUNTY
May 24, 2000 thru July 10, 2001

Station Label*	Station Location Descriptions
0101[1]	Upstream of Swineheart Road (SR 4011) bridge.
1BC	Upstream of Hadfield Road (T-415), west of Bondsville in East Brandywine Township. This station was the uppermost DEP site on Beaver Creek.
0102[1]	Upstream of Hadfield Road (T-415).
2BC	Upstream of Osborn Road (T-424), between the East Brandywine/Caln Township Boundary and US Route 30.
0103[1]	Downstream of bridge on private road approximately 640 meters downstream of bridge on Bondsville Road (SR 4015).
3BC	Near Meadow Drive, off PA Route 340 (Bondsville Road) in Downingtown, PA.
4BC	Downstream of Lloyd Avenue in Downingtown, PA.
0104[1]	Downstream from bridge on Lloyd Avenue (T-430).
5BC	Downstream of US 322 (Manor Avenue) in Downingtown, PA. This station was nearest the mouth of Beaver Creek where it empties into East Branch Brandywine Creek.

*All stations were re-labeled after the July 10th survey to simplify station identification; however, the station locations and descriptions remain the same.
[1]PFBC 1994 survey stations.

TABLE 2
FISH DATA
BEAVER CREEK, CHESTER COUNTY
May 24, 2000 thru July 10, 2001

Species (Common Name)	July 14, 2000	May 24, 2000^		July 14, 2000	June 26, 2000		July 10, 2001	
	1BC	1BC*	2BC*	3BC	3BC*	4BC*	4BC**	5BC*
Trout (*Salmonidae*)								
Brook trout (stocked) *Salvelinus fontinalis*			1 (13")					
Brook trout (wild) *Salvelinus fontinalis*			1 (7")					
Brown trout (stocked) *Salmo trutta*				8		8 (9-13")	6	1
Brown trout (wild) *Salmo trutta*			5 (3-12")	3 (13.7,3.4,8.9)	1 (8")	3 (6,7,12")		1 (~ 5")
Rainbow trout (stocked) *Oncorhynchus mykiss*				2		2 (8,12")	4	
Bass and Sunfish (*Centrarchidae*)								
Smallmouth bass *Micropterus dolomieui*			1	1		3	R	1
Rock bass *Ambloplites rupestris*	13	1	2	1	3	6	P	10
Redbreast sunfish *Lepomis Auritus*			1					1
Pumpkinseed *Lepomis gibbosus*				3	2	3	P	1
Bluegill *Lepomis macrochirus*		4	5	4	6	15	R	
Minnows (*Cyprinidae*)								
Common shiner *Luxilus cerasinus*	25	3		13	18	1	P	2
Golden shiner *Notemigonus crysoleucas*					1			
Satinfin shiner *Cyprinella analostana*					1			
Swallowtail shiner *Notropis procne*								3
Blacknose dace *Rhinichthys atratulus*	200	>25	>25	73	>40		C	25
Longnose dace *Rhinichthys cataractae*				6	14	5		20
Rosyside dace *Clinostomus funduloides*	29	8	10	5	7			1
Cutlips minnow *Exoglossum maxillingua*	4		4	31	5	15	P	11
Fallfish *Semotilus corporalis*			>20	23	>30		P	1
Creek chub *Semotilus atromaculatus*	15	1		4	5			
Perches and Darters (*Percidae*)								
Tessellated darter *Etheostoma olmstedi*	24			15	13	1	R	11
Suckers (*Catostomidae*)								
White sucker *Catostomus commersoni*	17	8	>20	39	>30	18	P	9
Northern hog sucker *Hypentelium nigricans*					3	1	R	
Catfishes (*Ictaluridae*)								
Brown bullhead *Ameiurus nebulosus*	1	1		1		2	R	
Pikes (*Esocidae*)								
Redfin pickerel *Esox americanus*							C	

Species (Common Name)	July 14, 2000	May 24, 2000^		July 14, 2000	June 26, 2000		July 10, 2001	
	1BC	1BC*	2BC*	3BC	3BC*	4BC*	4BC**	5BC*
Eels (*Anguillidae*)								
American eel *Anguilla rostrata*	11	3	2	3	5	5	C	4

* Approximate number of individuals captured and estimated length.

** Relative abundances estimated for captured individuals; A = Abundant (>25); C = Common (10-24); P = Present (3-9); R = Rare (<3).

^ Note: Stream was turbid from rain the preceding night, and flow was increased; Estimated to be ~ 20 to 30 cfs. Capturing fish was difficult.

TABLE 3
TEMPERATURE[1] AND FISH OCCURANCE[2]
BEAVER CREEK
CHESTER COUNTY

	Station ⇒		1BC	dam		2BC	3BC	4BC	5BC
	PFBC	0101	0102		0103			0104	
Date ⇓	Ch 93 CWF/TSF criterion (^{0}F)								
8/2/94	66/80	**68**						**68**	
8/3/94	"				**76**				
8/4/94	"		**72**						
7/28/98	66/74							**66.2**	
6/2/99	60/70							**69.8**	
7/20/99	66/87							**70.7**	
8/3/99	66/80							**68.9**	
8/17/99	66/87							**68.9**	
8/26/99	"							**67.1**	
9/14/99	64/84							63.5	
6/26/00	64/72						**69.6**	**68.4**	
7/14/00	66/74						62.6		
7/10/01	"							**70**	**70**
Brook[2]		-	-		-	S W		S	-
Brown[2]		-	-		W	W	S W	S W ***S***	S W
Rainbow[2]		-	-		-	-	W	S ***S***	-
American eel			X ***X***		X ***X***	X	X	X ***X***	X

1 – Temperature data (^{0}F)– Bold type = exceeds CFW temperature criterion

2 - DEP '00, '01 surveys – S (stocked), W (wild), X (present)
PFBC '94 survey – ***S*** (stocked), ***W*** (wild), ***X*** *(present)*

FURNACE RUN

LANCASTER & LEBANON COUNTIES

WATER QUALITY STANDARDS REVIEW

STREAM REDESIGNATION EVALUATION

Segment: Basin

Stream Code: 07693

Drainage List O

ASSESSMENT SECTION (TES)
DIVISION OF WATER STANDARDS
BUREAU OF WATER STANDARDS AND FACILITY REGULATION
DEPARTMENT OF ENVIRONMENTAL PROTECTION

OCTOBER 2006

INTRODUCTION

Furnace Run is currently designated Trout Stocking (TSF). A mix of open fields, wood lots, light agriculture, and low-density residential land uses characterizes the lower portion of the watershed. However, the presence of well-established riparian cover, high gradient stream flow, and the relatively undisturbed natural setting of its headwaters, suggest that Furnace Run may support cold water fishes. The Lancaster County Conservation District collected low numbers of trout during an electrofishing survey of Furnace Run in July 2000 and notified the Pennsylvania Fish & Boat Commission (PFBC). Since the Department was reviewing a proposal to discharge treated sewage to Furnace Run, the Department requested PFBC to conduct a fisheries survey of the basin to clarify its existing use.

PFBC biologists conducted the survey in August 2000 and confirmed the presence of wild trout in the headwaters. During the course of that survey, PFBC observed that the indigenous benthic macroinvertebrate community was diverse and abundant and requested that the Department consider Furnace Run as a candidate for High Quality (HQ) or Exceptional Value Waters (EV) designation.

In order to resolve the existing use issue for the pending NPDES application, the Department conducted its survey on October 30, 2000. Results of this survey documented that the existing use for the upper reaches of Furnace Run is Cold Water Fishes (CWF). These results were then posted for public notification on the Department's "existing use" web page. In response to this existing use determination and local issues surrounding the permit application, a group of students from Conestoga Valley High School began a study of Furnace Run in April 2001. Based on the students' findings, their teacher—Kerrie Snavely, submitted a petition to the Department on their behalf requesting that Furnace Run be redesignated to EV. The Environmental Quality Board (EQB) accepted the students' petition on September 18, 2001.

GENERAL WATERSHED DESCRIPTION

Furnace Run originates in Heidelberg Township, Lebanon County and flows through Elizabeth and Clay Townships, Lancaster County where it enters Middle Creek. Furnace Run is locally viewed as a tributary to Segloch Run and was considered as such by the Smithsonian Environmental Research Center (SERC) as part of a Chesapeake Bay Watershed study. However, the Pennsylvania Gazetteer of Streams (DEP 1989) and federal 7.5' topographic maps (United States Geological Survey) officially depict Segloch Run as a tributary to Furnace Run. The designated use for the Furnace Run basin is Trout Stocking (TSF), except for Segloch Run, which is designated EV.

Furnace Run is a small stream that drains approximately 8.1 sq. mi. Most of the watershed is situated north of the Pennsylvania Turnpike (I-76). The land use in the headwaters consists of forestlands with some small rural/low-density residential open areas along PA Rt 501. There are several small ponds located in the headwaters as well. A portion of the petitioned area in the vicinity of I-76 is actively managed for commercial Christmas tree production. Most of the lower portion of the basin consists of rural, open fields bounded on the southern edge by low-density residential use along US-322. A very small portion of this

lower basin area near the mouth of Furnace Run supports some modest agriculture-related activity.

Because of the relatively undisturbed nature of Furnace Run, the basin has been the subject of several stream ecology studies and projects. The Hopewell Farm (Center for Education and Conservation) is located in the basin and local high school and college student groups frequent the stream for educational purposes (Hopewell Farm, 2001).

WATER QUALITY AND USES

Surface Water

There is limited water quality data available for Furnace Run. SERC had a monitoring station at the mouth of Furnace Run in the mid-90's as part of a study of Chesapeake Bay tributaries and collected nutrient and pH data. From mid 1994-mid 1996, total nitrates and pH ranged from approximately 1.35-2.5 mg/l and 7.4-7.9, respectively. Dissolved phosphates and ammonia ranged from .002-.05 mg/l and .02-.065 mg/l, respectively. No other long-term water quality chemistry data were available to allow a direct comparison to water quality criteria.

There are no existing point source discharges in the study area. Water withdrawals in the Furnace Run basin are limited to several wells serving domestic and local business needs.

Aquatic Biota

In the absence of sufficient chemical data, the indigenous aquatic community can be used as an indicator of long-term water quality conditions and as a measure of ecological significance. Habitat and benthic macroinvertebrate data were collected from three stations on Furnace Run and one reference station on Segloch Run on January 23, 2002.

Habitat. Instream habitat conditions were evaluated at each station where benthic macroinvertebrates were sampled by rating twelve habitat parameters to derive a station habitat score. Total habitat scores for Furnace Run (Table 1) ranged from 169-201 with the highest habitat score (201) found at the headwater station (1FR). The habitat scores of the lower stations - 176 at 1.5FR and 169 at 2aFR, were similar to that of Segloch Run (179).

Benthos. Furnace Run supports a diverse benthic macroinvertebrate population. Benthic macroinvertebrate samples were collected using the PA-DEP RBPIII benthic sampling methodology. Furnace Run macroinvertebrate communities sampled in January 2002 (Table 2) yielded 23-25 taxa compared to 26 collected from Segloch Run. Most of the macroinvertebrates collected are indicators of good-to-excellent water quality. The macroinvertebrate communities found at all stations were healthy, diverse, and contained a number of pollution sensitive genera - indicating the stream has not been subjected to chronic or acute degradation.

Fish. Twenty-two species of fish were captured in Furnace Run during a PFBC August 2000 survey that intensively sampled three stations along the length of Furnace Run (0101, 0102, & 0201) and included a cursory survey in the headwaters (Figure 1). The fish

occurrence results are presented in Table 3 and are consistent with fish community trends found naturally along an upstream-downstream gradient. Typically, fewer species and individuals are found in headwater areas and those numbers usually increase at sites further downstream. The PFBC collected 5 species from the uppermost station (0101), 13 from the intermediate station (0102), and 20 at the lowermost station (0201).

The most significant PFBC finding was the presence of a small, naturally reproducing brook trout population at Stations 0101 and 0102, confirmed by DEP at Station 1FR in October 2000. The sustained presence of trout indicates long-term water quality conditions better than normally associated with TSF designated waters.

The DEP sampling of the headwaters yielded 8 taxa but at least five species (green sunfish, bluegill, largemouth bass, pumpkinseed, and golden shiner) are not indigenous to cold water, high gradient mountain streams. They most probably escaped from local headwater ponds.

BIOLOGICAL USE QUALIFICATIONS

This assessment of Furnace Run included a biological metric scoring test employing the following benthic macroinvertebrate indicators: taxa richness, modified EPT index, modified HBI, percent dominant taxon, and modified percent mayflies (Table 2). Comparisons of integrated benthic macroinvertebrate metric scores were made between Furnace Run stations and a reference station on Segloch Run. Segloch Run is an EV stream and was used as a reference because it is an adjacent watershed with the same geologic setting and similar drainage area to the upper reaches of Furnace Run. Further, Segloch Run had served as an EV reference stream in several other Departmental surveys.

Biological Assessment. Results of biological metrics comparisons based on January 2002 data are presented in Table 2. The HQ integrated benthic macroinvertebrate scoring criterion of >83% was met at Station 1FR (86.7%). This score indicates that the upper portion of Furnace Run exceeds the 83% comparability required to redesignate the stream segment as High Quality Waters.

The October 2000 score for Station 2FR was less than 83% and thus, did not meet the HQ requirements. However, after the October 2000 survey, it was determined that 2FR was situated in the middle of a stream restoration project. In order to better characterize the natural conditions of this lower reach, Stations 1.5- and 2aFR were established at points upstream from the restored stream section and sampled in January of 2002. The percent comparison values for the lower mainstem stations (1.5FR & 2aFR) were 60 and 67%, respectively. These scores do not qualify these segments of Furnace Run for the High Quality (HQ) protected use designation under the Department's regulations and support the original conclusion drawn from Station 2FR.

The January 2002 result (86.7%) for the upper section of Furnace Run (1FR) differs from the October 2000 result (66.7%) at the same station. The metric comparison score from October 30, 2000 did not support an HQ or EV recommendation. However, the presence of naturally reproducing brook trout in this section indicated that a CWF designation was more appropriate than the current TSF designation. The January 2002 survey indicated

that existing use had improved to HQ-CWF. This more recent data supercede previous results and are used to support the HQ recommendation.

No special conditions were found during this survey that would qualify Furnace Run as Exceptional Value waters under § 93.4b(b).

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 October 7, 2000 (29 Pa.B 5199). A similar notice was also published in the Lebanon Daily News newspaper on October 13, 2000. In addition, Heidelberg (Lebanon Co.) and Elizabeth (Lancaster Co.) Townships were notified of the evaluation in a letter dated September 26, 2000. The Lebanon and Lancaster County Planning Commissions were also notified at the same time.

While no data on Furnace Run were received in immediate response to these notices, some water chemistry, instream habitat, and aquatic community information came forward from sources supporting Conestoga Valley High School's petition efforts.

CONCLUSIONS AND RECOMMENDATIONS

The Department concludes that the existing use of the upper portion of the Furnace Run basin is High Quality – Cold Water Fishes (HQ-CWF). The reasons for this conclusion are the presence of an established, naturally reproducing brook trout population and an aquatic macroinvertebrate community that qualifies this portion of the stream based on biological evaluation metric scoring comparisons at § 93.4b(a)(2)(i)(A).

Based on applicable regulatory definitions and requirements of §93.4b, the Department recommends that the protected use of the upper portion of the Furnace Run basin from its source to the SR 1026 road crossing be changed from Trout Stocking (TSF) to High Quality - Cold Water Fishes (HQ-CWF). The portion of Furnace Run downstream from SR 1026 should remain TSF. This recommendation provides protection commensurate with the significance of the aquatic resources as defined by the aquatic biota documented in the upper reaches.

This recommendation would affect approximately 5.5 miles of the upper Furnace Run basin.

REFERENCES

Department of Environmental Protection. 1989. Pennsylvania Gazetteer of Streams. (Formerly Department of Environmental Resources). DER #456-11/89. 323 pp.

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Pennsylvania Fish & Boat Commission. 2000. Furnace Run (607J) Fisheries Management August 30, 2000 Survey. File information.

TABLE 1
HABITAT ASSESSMENT SUMMARY
FURNACE RUN, LANCASTER/LEBANON COUNITES
January 23, 2002

HABITAT PARAMETER	scoring range	STATIONS			
		1FR	1.5FR	2aFR	Segloch Run
1 . instream cover	0 - 20	16	16	11	12
2 . epifaunal substrate	0 - 20	17	16	14	17
3 . embeddedness	0 - 20	13	12	11	11
4 . velocity/depth	0 - 20	15	10	12	11
5 . channel alterations	0 - 20	18	17	18	18
6 . sediment deposition	0 - 20	16	13	11	12
7 . riffle frequency	0 - 20	18	15	12	18
8 . channel flow status	0 - 20	17	18	16	16
9 . bank condition	0 - 20	18	18	14	17
10 . bank vegetation protection	0 - 20	17	16	16	16
11 . grazing/disruptive pressures	0 - 20	18	12	16	18
12 . riparian vegetation zone width	0 - 20	18	13	18	13
Total Score [1]	0 - 240	201	176	169	179

1 - 240-181: OPTIMAL
180-121: SUB-OPTIMAL
120-61: MARGINAL
<=60: POOR

TABLE 2. SEMI-QUANTITATIVE BENTHIC MACROINVERTEBRATE DATA AND RBP METRIC COMPARISONS: FURNACE RUN, LANCASTER / LEBANON COUNTIES

		Segloch Run		Furnace Run				
		Reference		1FR		1.5FR	2aFR	2FR
		10/30/00	1/23/02	10/30/00	1/23/02	1/23/02	1/23/02	10/30/00
MAYFLIES								
Baetidae		-	-	-	-	-	-	1
Ameletidae	***Ameletus***	-	1	-	2	-	-	-
Ephemerellidae	***Ephemerella***	8	15	1	16	-	-	-
	Eurylophella	-	1	-	-	-	-	-
	Serratella	-	-	-	-	6	2	-
Ephemeridae	***Ephemera***	-	-	-	-	-	1	-
Heptageniidae	***Epeorus***	23	21	1	8	-	1	-
	Heptagenia	-	-	-	-	-	1	-
	Rhithrogena	-	1	-	-	-	-	-
	Stenonema	-	2	-	2	8	11	2
	Stenacron	-	-	-	1	-	-	-
Isonychiidae	***Isonychia***	-	-	-	-	-	4	4
Leptophlebiidae	***Habrophlebiodes***	-	-	-	-	1	-	-
	Paraleptophlebia	18	10	5	1	-	-	1
STONEFLIES								
Capniidae	***Allocapnia***	2	-	4	1	1	-	1
Chloroperlidae	***Alloperla*** n.r.	1	-	-	-	-	-	-
	Sweltsa		-		-	1	1	-
Nemouridae			1		-	-	-	-
	Prostoia	-	-	-	16	3	10	-
Peltoperlidae	***Tallaperla***		1		-	-	-	-
Perlidae	***Acroneuria***	1	1	-	-	2	-	-
	Isoperla	-	4	-	2	-	-	-
Taeniopterygidae	***Strophopteryx***		2		-	11	14	-
	Taeniopteryx	12	1	33	2	1	1	2
CADDISFLIES								
Glossosomatidae	***Glossosoma***	-	-	-	-	-	-	1
Hydropsychidae	***Cheumatopsyche***	-	2	6	4	18	19	39
	Diplectrona	9	4	9	3	-	-	-
	Hydropsyche	1	3	11	7	14	12	33
Lepidostomatidae	***Lepidostoma***	1	-	-	-	-	-	-
Limnephilidae	***Pycnopsyche***	2	1	-	-	-	-	-
Philopotamidae	***Chimarra***	-	-	1	-	13	7	9
	Dolophilodes	6	3	9	6	-	-	-
Psycomyidae	***Lype***	-	-	-	-	-	1	-
Rhyacophilidae	***Rhyacophila***	1	1	4	5	2	2	-
Uenoidae	***Neophylax***	-	-	-	-	1	1	-
TRUE FLIES								
Ceratopogonidae		2	-	-	1	-	-	-
Chironomidae		1	6	5	3	16	8	15
Simuliidae	***Prosimulium***	-	13	-	7	-	1	-
	Simulium	1	-	-	-	-	1	-
Tipulidae	***Antocha***	-	-	-	-	1	1	6
	Dicranota	-	1	-	-	2	3	-
	Hexatoma	13	3	1	-	-	2	-
	Limonia n.r.	-	-	1	-	-	-	-
	Limnophila n.r.	1	-	-	-	-	-	-
	Tipula	1	-	2	-	-	-	-
MISC. INSECT TAXA								
Gomphidae	***Stylogomphus***	-	-	-	1	-	-	-
Elmidae	***Optioservus***	-	1	2	3	13	3	3
	Oulimnius	8	15	5	8	1	-	-
	Promoresia	-	6	3	16	1	-	-
	Stenelmis	-	-	-	-	2	5	4
Psephenidae	***Ectopria***	-	-	-	1	-	-	4
	Psephenus	-	-	-	-	5	3	-
Ptilodactylidae	***Anchytarsus***	-	-	-	-	1	-	-
NON-INSECT TAXA								
Gastropoda - Physidae		-	-	-	-	-	-	1
Oligochaeta - Lumbriculidae		1	-	-	-	-	-	-
Metric								
T Rich.		21	26	18	23	23	25	16
score (c/r)		-	-	0.857	0.885	0.885	0.962	0.714
bc score		6	6	6	6	6	6	4
mEPT		12	17	9	13	11	14	7
score (c/r)		-	-	0.75	0.765	0.647	0.824	0.58
bc score		6	6	4	4	4	6	2
mHBI		1.58	2.06	2.6	2.28	4.19	3.9	5.041
score (c-r)		-	-	1.02	0.220	2.130	1.840	3.46
bc score		6	6	4	6	0	0	0
%dom		20.35	17.5	32.04	13.8	14.5	16.5	31.97
score (c-r)		-	-	11.69	-3.700	-3.000	-1.000	11.62
bc score		6	6	4	6	6	6	4
m %Mayfly		43.36	42.5	6.8	25.9	11.3	17.4	5.74
score (r-c)		-	-	36.56	16.6	31.2	25.1	37.62
bc score		6	6	2	4	2	2	2
BCS total		30	30	20	26	18	20	12
as cand/ref %		-	-	66.7	86.7	60.0	66.7	40.0
Ch 93 recommendation		-	-	NC	HQ	NC	NC	NC

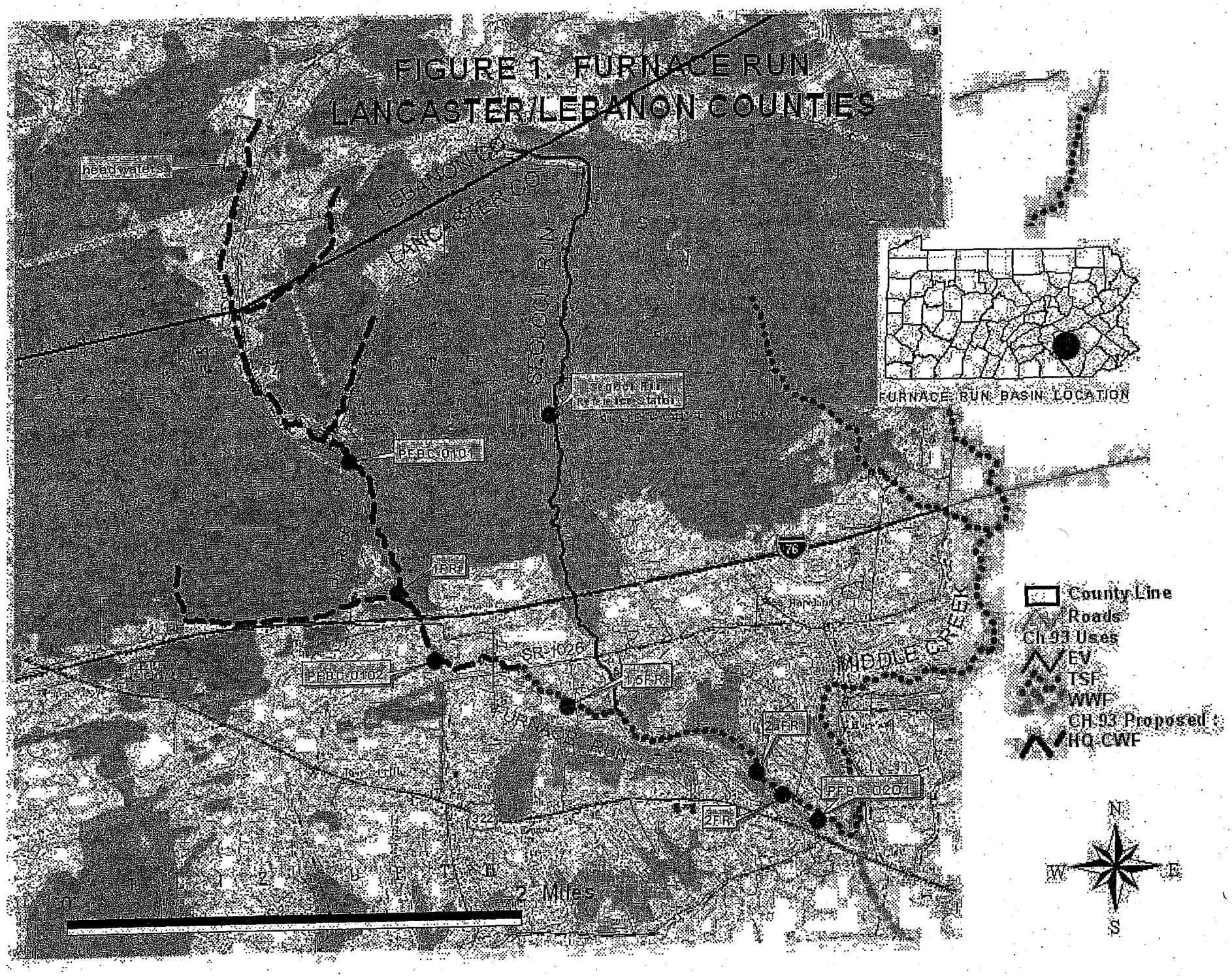
TABLE 3. FISH OCCURRENCE [1]

FURNACE RUN, LANCASTER/LEBANON COUNTIES

	station	headwaters	0101	1FR	0102	0201
	data source [2]	PFBC	PFBC	DEP	PFBC	PFBC
Salvelinus fontinalis ,	**brook trout**	-	5/5 [3]	**2/1** [3]	2/0 [3]	-
Exoglossum maxillingua ,	**cutlips minnow**	-	-	**R**	P	P
Notropis cornutus ,	**common shiner**	-	-	**P**	C	A
N. hudsonius ,	**spottail shiner**	-	-	-	-	R
N. procne ,	**swallowtail shiner**	-	-	-	-	R
Rhinichythys atratulus ,	**blacknose dace**	X	A	**A**	A	A
R. cataractae ,	**longnose dace**	-	-	**P**	C	C
Semotilus corporalis ,	**fallfish**	-	-	-	-	A
S. atromaculatus ,	**creek chub**	X	A	**A**	A	C
Catastomus commersoni ,	**white sucker**	X	P	**R**	P	A
Hypentelium nigricans ,	**N. hogsucker**	-	-	-	P	P
Noturus insignis ,	**margined madtom**	-	-	-	-	P
Ambloplites rupestris ,	**rock bass**	-	-	-	-	R
Micropterus dolomieui ,	**smallmouth bass**	-	-	-	-	2
M. salmoides ,	**largemouth bass**	X	-	-	4	4
Etheostoma olmstedi ,	**tessellated darter**	-	-	**R**	C	C
Lepomis cyanellus ,	**green sunfish**	X	-	-	R	P
L. macrochirus ,	**bluegill**	X	-	-	P	P
L. gibbosus ,	**pumpkinseed**	X	P	-	R	P
Notemigonus crysoleucas ,	**golden shiner**	X	-	-	-	-
Fundulus diaphanus ,	**banded killifish**	-	-	-	-	P
Pimephales notatus ,	**bluntnose minnow**	-	-	-	-	A
	TOTAL TAXA	8	5	8	13	20

1 - X = ocurrence; R - rare, P - present, C - common, A - abundant; counts for significant game fish indicated
2 - DEP: 10/30/00; PFBC: 8/30/00
3 - juvenile/adult

FIGURE 1. FURNACE RUN
LANCASTER/LEBANON COUNTIES



STONE CREEK

BEDFORD COUNTY

Water Quality Standards Review
Stream Designation Evaluation Report

Segment: Basin
Drainage List: N
Stream Code: 14907

WATER QUALITY MONITORING SECTION (APF)
DIVISION OF WATER QUALITY STANDARDS
BUREAU OF WATER STANDARDS AND FACILITY REGULATION
DEPARTMENT OF ENVIRONMENTAL PROTECTION

OCTOBER 2006

INTRODUCTION

During the compilation of Chapter 93, the Stone Creek basin was not assigned a "designated use." The designated use listed for the next order stream, Dunning Creek, is Warm Water Fishes (WWF) but does not include Stone Creek. The purpose of this report is to review information and data gathered during this investigation in order to determine the proper Chapter 93 designated use for Stone Creek. The Department's Central Office staff conducted aquatic life use stream survey work in the Stone Creek basin on July 20, 2001, August 9, 2001 and May 11, 2005.

GENERAL WATERSHED DESCRIPTION

Stone Creek is a second order tributary to Dunning Creek at river mile index (RMI) 13.21 in East St. Clair Township, Bedford County near Reynoldsdale (Alum Bank quadrangle) and drains 3.36 mi^2 of land (Figure 1). Land use consists of light residential, forest, and agriculture. Beginning in June and continuing through summer, Stone Creek is normally dry above the confluence with its unnamed tributary (UNT 14908) at RMI 0.34. UNT 14908 (Spring Meadow Spring) is entirely spring fed. The Pennsylvania Fish and Boat Commission (PFBC) operates the Reynoldsdale Fish Culture Station, which captures all of the flow from Spring Meadow Spring, and has a NPDES permit (PA0044059) to discharge into UNT 14908. This discharge is continuous and represents "overtop" wastewater from the hatchery operation. A study conducted by the Department's South Central Regional Office on October 28, 1999 found that UNT 14908 was severely impacted by organic enrichment from the Reynoldsdale Fish Culture Station (DEP 2000). At the time of this 1999 field investigation, the hatchery had no treatment capability for this overtop wastewater. As a result, given the hatchery's flow-through design, the untreated discharge provided 100% of the downstream flow in UNT 14908. The Stone Creek basin is listed on Pennsylvania's 303(d) list as impaired due to nutrient enrichment and siltation from agriculture and "other" sources. In October 2003, the Reynoldsdale Fish Culture Station started discharging waste water directly to Dunning Creek while maintaining a 20% flow bypass from the spring into UNT 14908. Since this represented a significant change in hatchery operations, UNT 14908 was resurveyed to see if water quality conditions have improved.

WATER QUALITY AND USES

Surface Water

Water temperature data was collected from Spring Meadow Spring by the PFBC from November 1998 through April 2005. Temperatures, ranging from 50 – 55°F, indicate consistent cold water habitat conditions are being maintained by the spring (Table 1). There is no historical data to adequately characterize the long-term water quality conditions of the Stone Creek basin. However, grab-samples taken August 9, 2001 and May 11, 2005 from two stations in the watershed (Table 2), revealed water quality typical of the spring-fed streams in this area that are characterized by relatively high alkalinities and hardness (Table 3). Because of the instantaneous nature of grab-

samples, the indigenous aquatic community is a better indicator of long-term conditions and is used to assess aquatic life use.

The only other water user documented in the Stone Creek basin is Fishertown Water Association, which has a permitted water withdraw for a groundwater spring source in the Stone Creek tributary 14912 basin.

Aquatic Biota

Biological and habitat data were collected on July 20, 2001, August 9, 2001 and May 11, 2005 at 2 locations within the Stone Creek basin.

Habitat. An assessment of the physical habitat on the mainstem of Stone Creek revealed optimal/suboptimal habitat conditions for aquatic biota while the station on UNT 14908 revealed suboptimal conditions (Table 4).

Benthos. Benthic macroinvertebrate data collected during the Department's May 2005 survey revealed similar degraded conditions that were found in 1999.

Fish. Fish were sampled on 2 different occasions within the Stone Creek basin. An electrofishing survey was conducted by the Department on July 20, 2001. A 100-meter reach starting approximately 200 meters upstream from the mouth of Stone Creek was sampled using backpack electrofishing unit. UNT 14908 was sampled for fish using a backpack electrofisher on May 5, 2005. A 100-meter reach was sampled in an area below the PFBC Reynoldsdale Fish Culture Station. Eight fish species were collected in the reach on Stone Creek and 3 species were collected on UNT 14908 (Table 5).

The use of the stream as a water resource for the propagation of hatchery-raised brook trout, a cold water fish species, indicates that at a minimum, its existing aquatic life use would be Cold Water Fishes (CWF). Because of the impaired nature of this stream below the hatchery, the aquatic community is missing the more sensitive cold water fish species that could naturally occur – considering the good overall habitat score of the sampled station. As the water quality impacts of the hatchery are addressed, Stone Creek and its tributaries will be re-evaluated to determine their appropriate existing use.

The intermittent nature of the remainder of the Stone Creek basin (the upper mainstem and tributaries upstream of UNT 14908) precluded biological sampling in these reaches. The lack of cold water springs (like that found with UNT 14908) along with intermittent summer base flow indicates that the existing use of these stream segments is Warm Water Fishes (WWF).

PUBLIC RESPONSE AND PARTICIPATION SUMMARY

The Department provided public notice of this designation evaluation and requested any technical data from the general public through publication in the Pennsylvania Bulletin on September 29, 2001 (39 Pa.B 5503) and by notifying the East St. Clair Township

and the Bedford County Planning Commission in a letter dated September 12, 2001. A similar notice was published in a local newspaper. No data were received in response to these notices.

RECOMMENDATIONS

Based on applicable regulatory criteria, the Department recommends that the Stone Creek basin (including UNTs 14910, 14911, and 14912), from Stone Creek's source to its confluence with UNT 14908 at RMI 0.34, be designated in Chapter 93 as warm water fishes (WWF). Since these stream segments are normally dry during the summer, they cannot support any higher aquatic life use. The Department recommends that the remainder of Stone Creek (UNT 14908 basin and Stone Creek mainstem below 14908 to the mouth) be designated CWF. This recommendation is based on the cold water temperature regime emerging from Spring Meadow Spring and the established use of the Reynoldsdale Hatchery for the maintenance and propagation of brook trout, which indicates a coldwater fishery use. This recommendation designates approximately 3.9 miles of stream as WWF and 2.5 miles as CWF.

REFERENCES

Department of Environmental Protection. 2000. *Aquatic Biological Investigation; Dunning Creek, UNT Stone Creek.* South Central Regional Office Memorandum; February 14, 2000 (on 7/28- and 10/28/99 surveys).

FIGURE 1. STONE CREEK
BEDFORD COUNTY

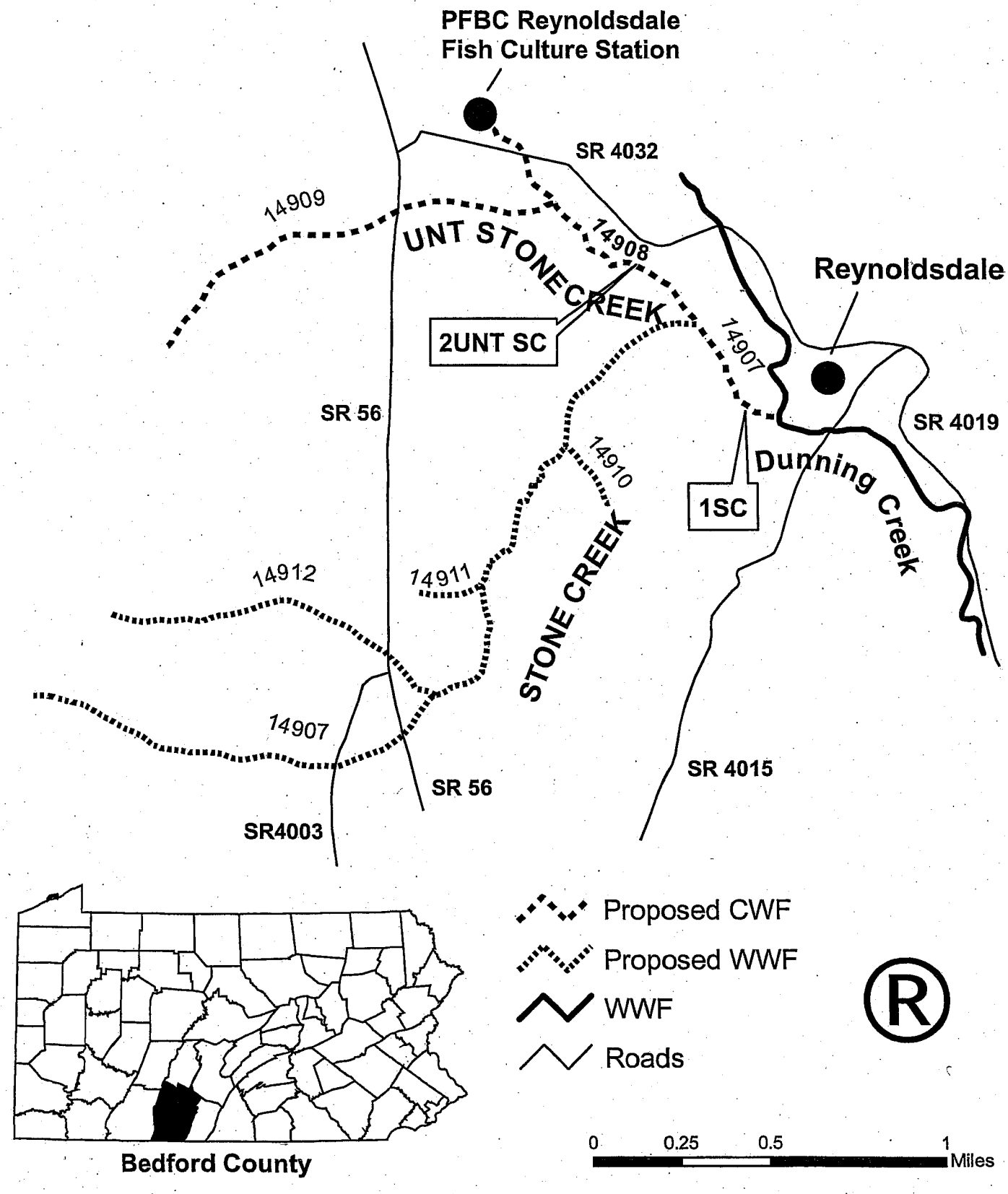


TABLE 1.
TEMPERATURE RECORDS FOR SPRING MEADOW SPRING
NOVEMBER 1998 - 2005
PFBC

Date	Temp °F	Date	Temp °F	Date	Temp °F	Date	Temp °F
18-Nov-98	52	31-Dec-98	51	12-Feb-99	51	27-Mar-99	52
19-Nov-98	52	1-Jan-99	51	13-Feb-99	51	28-Mar-99	52
20-Nov-98	52	2-Jan-99	51	14-Feb-99	51	29-Mar-99	52
21-Nov-98	51	3-Jan-99	51	15-Feb-99	51	30-Mar-99	52
22-Nov-98	52	4-Jan-99	51	16-Feb-99	51	31-Mar-99	52
23-Nov-98	52	5-Jan-99	51	17-Feb-99	51	1-Apr-99	52
24-Nov-98	52	6-Jan-99	51	18-Feb-99	51	2-Apr-99	52
25-Nov-98	52	7-Jan-99	51	19-Feb-99	51	3-Apr-99	52
26-Nov-98	52	8-Jan-99	51	20-Feb-99	51	4-Apr-99	52
27-Nov-98	52	9-Jan-99	51	21-Feb-99	51	5-Apr-99	52
28-Nov-98	52	10-Jan-99	51	22-Feb-99	51	6-Apr-99	52
29-Nov-98	52	11-Jan-99	51	23-Feb-99	51	7-Apr-99	52
30-Nov-98	52	12-Jan-99	51	24-Feb-99	51	8-Apr-99	52
1-Dec-98	52	13-Jan-99	51	25-Feb-99	52	9-Apr-99	52
2-Dec-98	52	14-Jan-99	51	26-Feb-99	52	10-Apr-99	52
3-Dec-98	52	15-Jan-99	51	27-Feb-99	52	11-Apr-99	52
4-Dec-98	52	16-Jan-99	51	28-Feb-99	52	12-Apr-99	52
5-Dec-98	52	17-Jan-99	51	1-Mar-99	52	13-Apr-99	52
6-Dec-98	52	18-Jan-99	51	2-Mar-99	52	14-Apr-99	52
7-Dec-98	52	19-Jan-99	51	3-Mar-99	52	15-Apr-99	52
8-Dec-98	52	20-Jan-99	51	4-Mar-99	52	16-Apr-99	52
9-Dec-98	51	21-Jan-99	51	5-Mar-99	52	17-Apr-99	52
10-Dec-98	51	22-Jan-99	51	6-Mar-99	52	18-Apr-99	52
11-Dec-98	51	23-Jan-99	51	7-Mar-99	52	19-Apr-99	52
12-Dec-98	51	24-Jan-99	51	8-Mar-99	52	20-Apr-99	52
13-Dec-98	51	25-Jan-99	51	9-Mar-99	52	21-Apr-99	52
14-Dec-98	51	26-Jan-99	51	10-Mar-99	52	22-Apr-99	52
15-Dec-98	51	27-Jan-99	51	11-Mar-99	52	23-Apr-99	52
16-Dec-98	51	28-Jan-99	51	12-Mar-99	52	24-Apr-99	52
17-Dec-98	51	29-Jan-99	51	13-Mar-99	52	25-Apr-99	52
18-Dec-98	51	30-Jan-99	51	14-Mar-99	52	26-Apr-99	52
19-Dec-98	51	31-Jan-99	51	15-Mar-99	52	27-Apr-99	52
20-Dec-98	51	1-Feb-99	51	16-Mar-99	52	28-Apr-99	52
21-Dec-98	52	2-Feb-99	51	17-Mar-99	52	29-Apr-99	52
22-Dec-98	51	3-Feb-99	51	18-Mar-99	52	30-Apr-99	52
23-Dec-98	51	4-Feb-99	51	19-Mar-99	52	1-May-99	52
24-Dec-98	51	5-Feb-99	51	20-Mar-99	52	2-May-99	52
25-Dec-98	51	6-Feb-99	51	21-Mar-99	52	3-May-99	52
26-Dec-98	51	7-Feb-99	51	22-Mar-99	52	4-May-99	52
27-Dec-98	51	8-Feb-99	51	23-Mar-99	52	5-May-99	52
28-Dec-98	51	9-Feb-99	51	24-Mar-99	52	6-May-99	51
29-Dec-98	51	10-Feb-99	51	25-Mar-99	52	7-May-99	52
30-Dec-98	51	11-Feb-99	51	26-Mar-99	52	8-May-99	52

TABLE 1 (cont.).
TEMPERATURE RECORDS FOR SPRING MEADOW SPRING
NOVEMBER 1998 - 2005
PFBC

Date	Temp °F	Date	Temp °F	Date	Temp °F	Date	Temp °F
9-May-99	51	22-Jun-99	52	5-Aug-99	52	18-Sep-99	52
10-May-99	52	23-Jun-99	52	6-Aug-99	52	19-Sep-99	52
11-May-99	52	24-Jun-99	52	7-Aug-99	52	20-Sep-99	52
12-May-99	52	25-Jun-99	52	8-Aug-99	52	21-Sep-99	52
13-May-99	51	26-Jun-99	52	9-Aug-99	52	22-Sep-99	51
14-May-99	51	27-Jun-99	52	10-Aug-99	52	23-Sep-99	52
15-May-99	52	28-Jun-99	52	11-Aug-99	52	24-Sep-99	52
16-May-99	52	29-Jun-99	52	12-Aug-99	52	25-Sep-99	52
17-May-99	52	30-Jun-99	52	13-Aug-99	52	26-Sep-99	52
18-May-99	52	1-Jul-99	52	14-Aug-99	52	27-Sep-99	52
19-May-99	52	2-Jul-99	52	15-Aug-99	52	28-Sep-99	52
20-May-99	52	3-Jul-99	52	16-Aug-99	52	29-Sep-99	52
21-May-99	52	4-Jul-99	52	17-Aug-99	52	30-Sep-99	52
22-May-99	52	5-Jul-99	52	18-Aug-99	52	1-Oct-99	52
23-May-99	52	6-Jul-99	52	19-Aug-99	52	2-Oct-99	52
24-May-99	52	7-Jul-99	52	20-Aug-99	52	3-Oct-99	52
25-May-99	52	8-Jul-99	52	21-Aug-99	52	4-Oct-99	52
26-May-99	52	9-Jul-99	52	22-Aug-99	53	5-Oct-99	51
27-May-99	52	10-Jul-99	52	23-Aug-99	53	6-Oct-99	51
28-May-99	52	11-Jul-99	52	24-Aug-99	53	7-Oct-99	51
29-May-99	52	12-Jul-99	52	25-Aug-99	52	8-Oct-99	51
30-May-99	52	13-Jul-99	52	26-Aug-99	53	9-Oct-99	52
31-May-99	52	14-Jul-99	52	27-Aug-99	53	10-Oct-99	52
1-Jun-99	52	15-Jul-99	52	28-Aug-99	54	11-Oct-99	52
2-Jun-99	52	16-Jul-99	52	29-Aug-99	54	12-Oct-99	51
3-Jun-99	52	17-Jul-99	52	30-Aug-99	52	13-Oct-99	52
4-Jun-99	52	18-Jul-99	52	31-Aug-99	52	14-Oct-99	51
5-Jun-99	52	19-Jul-99	52	1-Sep-99	52	15-Oct-99	51
6-Jun-99	52	20-Jul-99	52	2-Sep-99	53	16-Oct-99	51
7-Jun-99	52	21-Jul-99	52	3-Sep-99	52	17-Oct-99	52
8-Jun-99	52	22-Jul-99	52	4-Sep-99	53	18-Oct-99	51
9-Jun-99	52	23-Jul-99	52	5-Sep-99	53	19-Oct-99	51
10-Jun-99	52	24-Jul-99	52	6-Sep-99	53	20-Oct-99	51
11-Jun-99	52	25-Jul-99	52	7-Sep-99	53	21-Oct-99	51
12-Jun-99	52	26-Jul-99	52	8-Sep-99	53	22-Oct-99	50
13-Jun-99	52	27-Jul-99	52	9-Sep-99	52	23-Oct-99	51
14-Jun-99	52	28-Jul-99	52	10-Sep-99	53	24-Oct-99	51
15-Jun-99	52	29-Jul-99	52	11-Sep-99	52	25-Oct-99	51
16-Jun-99	52	30-Jul-99	52	12-Sep-99	52	26-Oct-99	51
17-Jun-99	52	31-Jul-99	52	13-Sep-99	52	27-Oct-99	50
18-Jun-99	52	1-Aug-99	52	14-Sep-99	52	28-Oct-99	50
19-Jun-99	52	2-Aug-99	52	15-Sep-99	52	29-Oct-99	51
20-Jun-99	52	3-Aug-99	52	16-Sep-99	52	30-Oct-99	51
21-Jun-99	52	4-Aug-99	52	17-Sep-99	52	31-Oct-99	51

TABLE 1 (cont.).
TEMPERATURE RECORDS FOR SPRING MEADOW SPRING
NOVEMBER 1998 - 2005
PFBC

Date	Temp °F	Date	Temp °F	Date	Temp °F	Date	Temp °F
1-Nov-99	52	15-Dec-99	52	28-Jan-00	51	12-Mar-00	52
2-Nov-99	51	16-Dec-99	51	29-Jan-00	52	13-Mar-00	52
3-Nov-99	51	17-Dec-99	52	30-Jan-00	52	14-Mar-00	52
4-Nov-99	52	18-Dec-99	52	31-Jan-00	52	15-Mar-00	52
5-Nov-99	52	19-Dec-99	52	1-Feb-00	52	16-Mar-00	52
6-Nov-99	52	20-Dec-99	51	2-Feb-00	52	17-Mar-00	52
7-Nov-99	52	21-Dec-99	51	3-Feb-00	52	18-Mar-00	51
8-Nov-99	52	22-Dec-99	51	4-Feb-00	52	19-Mar-00	52
9-Nov-99	52	23-Dec-99	51	5-Feb-00	52	20-Mar-00	52
10-Nov-99	52	24-Dec-99	51	6-Feb-00	52	21-Mar-00	52
11-Nov-99	52	25-Dec-99	51	7-Feb-00	52	22-Mar-00	52
12-Nov-99	52	26-Dec-99	51	8-Feb-00	52	23-Mar-00	52
13-Nov-99	52	27-Dec-99	51	9-Feb-00	52	24-Mar-00	52
14-Nov-99	52	28-Dec-99	51	10-Feb-00	52	25-Mar-00	52
15-Nov-99	51	29-Dec-99	51	11-Feb-00	52	26-Mar-00	52
16-Nov-99	51	30-Dec-99	51	12-Feb-00	52	27-Mar-00	52
17-Nov-99	52	31-Dec-99	51	13-Feb-00	52	28-Mar-00	52
18-Nov-99	52	1-Jan-00	52	14-Feb-00	52	29-Mar-00	51
19-Nov-99	52	2-Jan-00	52	15-Feb-00	52	30-Mar-00	52
20-Nov-99	52	3-Jan-00	52	16-Feb-00	52	31-Mar-00	52
21-Nov-99	52	4-Jan-00	51	17-Feb-00	52	1-Apr-00	52
22-Nov-99	52	5-Jan-00	51	18-Feb-00	52	2-Apr-00	52
23-Nov-99	52	6-Jan-00	51	19-Feb-00	52	3-Apr-00	52
24-Nov-99	52	7-Jan-00	51	20-Feb-00	52	4-Apr-00	52
25-Nov-99	52	8-Jan-00	51	21-Feb-00	52	5-Apr-00	51
26-Nov-99	52	9-Jan-00	51	22-Feb-00	52	6-Apr-00	52
27-Nov-99	52	10-Jan-00	51	23-Feb-00	52	7-Apr-00	52
28-Nov-99	51	11-Jan-00	51	24-Feb-00	52	8-Apr-00	52
29-Nov-99	52	12-Jan-00	51	25-Feb-00	52	9-Apr-00	51
30-Nov-99	51	13-Jan-00	51	26-Feb-00	52	10-Apr-00	52
1-Dec-99	52	14-Jan-00	51	27-Feb-00	52	11-Apr-00	52
2-Dec-99	52	15-Jan-00	51	28-Feb-00	52	12-Apr-00	52
3-Dec-99	52	16-Jan-00	51	29-Feb-00	52	13-Apr-00	52
4-Dec-99	52	17-Jan-00	51	1-Mar-00	52	14-Apr-00	52
5-Dec-99	52	18-Jan-00	51	2-Mar-00	52	15-Apr-00	52
6-Dec-99	51	19-Jan-00	51	3-Mar-00	52	16-Apr-00	52
7-Dec-99	51	20-Jan-00	51	4-Mar-00	52	17-Apr-00	52
8-Dec-99	52	21-Jan-00	51	5-Mar-00	52	18-Apr-00	52
9-Dec-99	52	22-Jan-00	51	6-Mar-00	52	19-Apr-00	52
10-Dec-99	51	23-Jan-00	51	7-Mar-00	52	20-Apr-00	52
11-Dec-99	51	24-Jan-00	51	8-Mar-00	52	21-Apr-00	52
12-Dec-99	52	25-Jan-00	51	9-Mar-00	52	22-Apr-00	52
13-Dec-99	52	26-Jan-00	52	10-Mar-00	52	23-Apr-00	52
14-Dec-99	52	27-Jan-00	51	11-Mar-00	52	24-Apr-00	52

TABLE 1 (cont.).
TEMPERATURE RECORDS FOR SPRING MEADOW SPRING
NOVEMBER 1998 - 2005
PFBC

Date	Temp °F	Date	Temp °F	Date	Temp °F	Date	Temp °F
25-Apr-00	52	9-Jun-00	52	24-Jul-00	52	30-May-01	51
26-Apr-00	52	10-Jun-00	52	25-Jul-00	52	6-Jun-01	51
27-Apr-00	52	11-Jun-00	52	26-Jul-00	52	13-Jun-01	52
28-Apr-00	52	12-Jun-00	52	9-Aug-00	52	20-Jun-01	52
29-Apr-00	52	13-Jun-00	52	16-Aug-00	52	27-Jun-01	52
30-Apr-00	52	14-Jun-00	52	23-Aug-00	52	4-Jul-01	52
1-May-00	52	15-Jun-00	52	30-Aug-00	52	11-Jul-01	52
2-May-00	52	16-Jun-00	52	6-Sep-00	52	18-Jul-01	52
3-May-00	52	17-Jun-00	52	13-Sep-00	52	25-Jul-01	52
4-May-00	52	18-Jun-00	52	20-Sep-00	52	8-Aug-01	52
5-May-00	52	19-Jun-00	52	27-Sep-00	52	15-Aug-01	52
6-May-00	52	20-Jun-00	52	4-Oct-00	52	22-Aug-01	52
7-May-00	52	21-Jun-00	52	11-Oct-00	52	29-Aug-01	52
8-May-00	52	22-Jun-00	52	18-Oct-00	52	5-Sep-01	52
9-May-00	52	23-Jun-00	52	25-Oct-00	52	12-Sep-01	52
10-May-00	52	24-Jun-00	52	1-Nov-00	52	19-Sep-01	52
11-May-00	52	25-Jun-00	52	8-Nov-00	52	26-Sep-01	52
12-May-00	52	26-Jun-00	52	15-Nov-00	52	3-Oct-01	52
13-May-00	52	27-Jun-00	52	22-Nov-00	51	10-Oct-01	52
14-May-00	52	28-Jun-00	52	29-Nov-00	51	17-Oct-01	52
15-May-00	52	29-Jun-00	52	6-Dec-00	51	24-Oct-01	52
16-May-00	52	30-Jun-00	52	16-Dec-00	51	31-Oct-01	52
17-May-00	52	1-Jul-00	52	20-Dec-00	51	7-Nov-01	52
18-May-00	52	2-Jul-00	52	27-Dec-00	51	14-Nov-01	52
19-May-00	52	3-Jul-00	52	3-Jan-01	51	21-Nov-01	52
20-May-00	52	4-Jul-00	52	10-Jan-01	51	28-Nov-01	52
21-May-00	52	5-Jul-00	52	17-Jan-01	51	5-Dec-01	51
22-May-00	52	6-Jul-00	52	26-Jan-01	51	12-Dec-01	52
23-May-00	52	7-Jul-00	52	31-Jan-01	51	19-Dec-01	51
24-May-00	52	8-Jul-00	52	7-Feb-01	51	27-Dec-01	51
25-May-00	52	9-Jul-00	52	14-Feb-01	51	2-Jan-02	51
26-May-00	52	10-Jul-00	52	21-Feb-01	51	9-Jan-02	51
27-May-00	52	11-Jul-00	52	28-Feb-01	51	16-Jan-02	51
28-May-00	52	12-Jul-00	52	7-Mar-01	51	23-Jan-02	51
29-May-00	52	13-Jul-00	52	14-Mar-01	51	30-Jan-02	51
30-May-00	52	14-Jul-00	52	21-Mar-01	51	5-Feb-02	52
31-May-00	52	15-Jul-00	52	28-Mar-01	51	13-Feb-02	51
1-Jun-00	52	16-Jul-00	52	4-Apr-01	51	20-Feb-02	51
2-Jun-00	52	17-Jul-00	52	11-Apr-01	51	27-Feb-02	51
3-Jun-00	52	18-Jul-00	52	18-Apr-01	51	6-Mar-02	52
4-Jun-00	52	19-Jul-00	52	25-Apr-01	51	13-Mar-02	52
5-Jun-00	52	20-Jul-00	52	2-May-01	51	20-Mar-02	51
6-Jun-00	52	21-Jul-00	52	9-May-01	51	27-Mar-02	52
7-Jun-00	52	22-Jul-00	52	16-May-01	51	3-Apr-02	52
8-Jun-00	52	23-Jul-00	52	23-May-01	51	10-Apr-02	52

TABLE 1 (cont.).
TEMPERATURE RECORDS FOR SPRING MEADOW SPRING
NOVEMBER 1998 - 2005
PFBC

Date	Temp °F	Date	Temp °F	Date	Temp °F	Date	Temp °F
17-Apr-02	52	26-Feb-03	51	11-Feb-04	51	29-Dec-04	52
24-Apr-02	51	5-Mar-03	51	18-Feb-04	51	5-Jan-05	53
1-May-02	52	12-Mar-03	51	24-Feb-04	51	12-Jan-05	51
8-May-02	52	19-Mar-03	52	3-Mar-04	51	19-Jan-05	51
15-May-02	52	26-Mar-03	52	10-Mar-04	51	26-Jan-05	52
22-May-02	52	2-Apr-03	52	17-Mar-04	51	2-Feb-05	52
29-May-02	52	9-Apr-03	51	24-Mar-04	51	9-Feb-05	53
5-Jun-02	52	16-Apr-03	52	31-Mar-04	51	16-Mar-05	52
12-Jun-02	52	23-Apr-03	52	7-Apr-04	51	23-Feb-05	52
19-Jun-02	52	30-Apr-03	51	14-Apr-04	51	2-Mar-05	52
26-Jun-02	52	14-May-03	51	21-Apr-04	51	8-Feb-05	51
3-Jul-02	52	21-May-03	52	28-Apr-04	51	16-Mar-05	52
10-Jul-02	52	28-May-03	52	5-May-04	51	23-Mar-05	52
17-Jul-02	52	4-Jun-03	51	12-May-04	52	30-Mar-05	52
24-Jul-02	52	11-Jun-03	53	19-May-04	52	6-Apr-05	52
31-Jul-02	52	18-Jun-03	55	28-May-04	52	13-Apr-05	52
7-Aug-02	52	25-Jun-03	52	3-Jun-04	52	20-Apr-05	53
14-Aug-02	52	9-Jul-03	52	8-Jun-04	52	28-Apr-05	53
22-Aug-02	52	23-Jul-03	52	16-Jun-04	52		
29-Aug-02	52	30-Jul-03	52	23-Jun-04	52		
4-Sep-02	52	6-Aug-03	52	30-Jun-04	52		
11-Sep-02	52	13-Aug-03	52	7-Jul-04	52		
18-Sep-02	52	20-Aug-03	52	14-Jul-04	52		
25-Sep-02	52	29-Aug-03	52	26-Jul-04	53		
2-Oct-02	52	3-Sep-03	52	28-Jul-04	53		
9-Oct-02	52	10-Sep-03	52	4-Aug-04	55		
16-Oct-02	52	17-Sep-03	52	11-Aug-04	55		
23-Oct-02	52	24-Sep-03	52	19-Aug-04	55		
30-Oct-02	52	1-Oct-03	52	25-Aug-04	55		
6-Nov-02	52	15-Oct-03	52	1-Sep-04	55		
13-Nov-02	52	22-Oct-03	52	9-Sep-04	54		
20-Nov-02	52	4-Nov-03	54	22-Sep-04	55		
27-Nov-02	52	12-Nov-03	53	29-Sep-04	55		
4-Dec-02	52	20-Nov-03	53	6-Oct-04	55		
11-Dec-02	52	26-Nov-03	52	14-Oct-04	53		
18-Dec-02	51	3-Dec-03	51	20-Oct-04	55		
25-Dec-02	51	10-Dec-03	51	27-Oct-04	53		
1-Jan-03	52	17-Dec-03	51	5-Nov-04	51		
8-Jan-03	51	24-Dec-03	51	10-Nov-04	54		
15-Jan-03	51	31-Dec-03	51	16-Nov-04	54		
22-Jan-03	51	7-Jan-04	50	29-Nov-04	53		
29-Jan-03	51	14-Jan-04	51	1-Dec-04	53		
5-Feb-03	51	21-Jan-04	51	8-Dec-04	53		
12-Feb-03	51	28-Jan-04	51	15-Dec-04	52		
19-Feb-03	51	5-Feb-04	51	22-Dec-04	53		

TABLE 2
STATION LOCATIONS
STONE CREEK, BEDFORD COUNTY

STATION	LOCATION
1SC	Stone Creek 200 m upstream from confluence with Dunning Creek. Lat: 40° 08' 43" Long: 78° 33' 51" RMI: 0.1
2 UNTSC	Unnamed tributary Stone Creek (14908). Lat: 41° 40' 06" Long: 75° 15' 18" RMI: 0.4

TABLE 3.
STONE CREEK, BEDFORD COUNTY

STATION	1SC	2UNT SC
DATE	8/9/2001	5/11/2005
Field Parameters		
Temp (°C)	-	19.5
pH	-	6.69
Cond (umhos)	-	336
Diss. O_2	-	10.06
Laboratory Parameters		
pH	7.6	7.8
Alkalinity	74	71
Acidity	0	-
Hardness	193.9	-
T Diss. Sol.	312	2
Susp. Sol.	28	-
NH_3-N	0.76	0.02
NO_2-N	0.09	<.01
NO_3-N	0.65	1.04
T KJEL N	-	<1.00
Total P	0.31	0.081
Ca	55.8	-
Mg	13.2	-
Cl	2	2.9
SO_4	103.9	-
As*	<4.0	-
As Diss*	<4.0	-
Cd*	<0.2	-
Cd Diss*	<0.2	-
hex Cr*	<10.0	-
Cr*	<10	-
Cu*	<4	-
Cu Diss*	<4	-
Fe*	1170	-
Pb*	1.1	-
Pb Diss.*	<1	-
Mn*	159	-
Ni*	<4.0	-
Ni Diss.*	<4.0	-
Zn*	13.8	-
Zn Diss*	<5.0	-
Al*	631	-
fecal coliforms	1800/100ml	-

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

TABLE 4.
HABITAT ASSESSMENT SUMMARY
STONE CREEK, BEDFORD COUNTY

HABITAT PARAMETER	scoring range	1SC 8/9/2001	2UNT SC 5/11/2005
1. instream cover	0 - 20	17	6
2. epifaunal substrate	0 - 20	16	9
3. embeddedness	0 - 20	11	12
4. velocity/depth	0 - 20	15	7
5. channel alterations	0 - 20	16	11
6. sediment deposition	0 - 20	12	17
7. riffle frequency	0 - 20	17	5
8. channel flow status	0 - 20	16	17
9. bank condition	0 - 20	15	18
10. bank vegetation protection	0 - 20	16	16
11. grazing/disruptive pressures	0 - 20	16	17
12. riparian vegetation zone width	0 - 20	15	18
Total Score	0 - 240	182	153
		Optiomal/ Suboptiomal	Suboptiomal

TABLE 5.
FISH[1]
STONE CREEK, BEDFORD COUNTY

	Station	
	1SC	2UNT SC
Fish Species	8/9/2001	5/11/2005
Catastomus commersoni, **white sucker**	C	P
Rhinichythys atratulus, **blacknose dace**	C	C
R. cataractae, **longnose dace**	R	-
Semotilus atromaculatus, **creek chub**	P	C
Exoglossum maxillingua, **cutlips minnow**	P	-
Notropis atherinoides, **emerald shiner**	C	-
Etheostoma olmstedi, **tessellated darter**	P	-
Noturus insignis, **margined madtom**	R	-
TOTAL TAXA	8	3

[1] - Occurrence: R - rare (<3), P - present (3-9), C - common (10-24),

CLARION RIVER

CLARION COUNTY

Water Quality Standards Review
Stream Redesignation Evaluation

Segment: Mainstem, inlet of Piney Lake to mouth
Stream Code: 49224
Drainage List: R

WATER QUALITY MONITORING SECTION (APF)
DIVISION OF WATER QUALITY STANDARDS
BUREAU OF WATER STANDARDS AND FACILITY REGULATION
DEPARTMENT OF ENVIRONMENTAL PROTECTION

OCTOBER 2006

INTRODUCTION

The Clarion River main stem from the confluence of the East and West Branches downstream to the mouth is currently designated Cold Water Fishes (CWF). The section of the Clarion River from the inlet of Piney Lake (River Mile Index 37.4) to the mouth was evaluated for redesignation as Warmwater Fishes (WWF) based on a petition submitted jointly by the Iron Furnace Chapter of Trout Unlimited, the Alliance for Wetlands and Wildlife, the Commissioners of Clarion County, and Reliant Energy Mid-Atlantic Power Holding LLC on February 9, 2004. The petitioners requested redesignation of the stream reach from the inlet to Piney Lake downstream to the mouth on the basis of historical and present water quality and aquatic life data. The Environmental Quality Board (EQB) accepted the petition for further study on April 20, 2004. This report is based on surveys conducted by several organizations including Pennsylvania Department of Environmental Protection (DEP), Pennsylvania Fish and Boat Commission (PFBC), and Normandeau Associates.

GENERAL WATERSHED DESCRIPTION

The Clarion River is a large tributary to the Allegheny River located in the Ohio River watershed. The river originates at the confluence of its East and West Branches in Johnsonburg, Pennsylvania and flows for 102.6 miles in a southwesterly direction to its mouth near Parker, Pennsylvania and has a drainage area of approximately 1,252 square miles. This report covers the main stem of the Clarion River from the inlet of Piney Lake downstream to the mouth (Figure 1). The river flows through or borders the Clarion County townships of Clarion, Highland, Monroe, Paint, Piney, Beaver, Licking, Perry and Richland and is located in close proximity to Clarion and Callensburg boroughs. Most of the land use is characterized as rural, with forested, steep hillsides and intermittent agricultural areas. There is little industrial, commercial, or urbanized land use adjacent to the river, except for Clarion and Callensburg boroughs. Seasonal and year-round residences are located in valley low lands, with some development found on upland slopes. Inactive/abandoned strip mines exist in the lower reaches of the watershed as well as active and inactive oil and gas wells.

Two tributaries of the Clarion River that are heavily impacted by acid mine drainage (AMD), Deer Creek and Piney Creek, enter below Piney Lake at RMI 23.16 and RMI 23.50, respectively. These tributaries combine to drain 12% of the Clarion River basin. At base flow, their overall, combined impact on the Clarion River is diluted within several hundred yards below the lower Deer Creek tributary. At higher flows dilution occurs sooner. AMD abatement projects on Deer Creek and Piney Creek are ongoing. Other AMD impacted tributaries include Toby Creek and Mill Creek, which empty directly into Piney Lake at RMI 32.28 and RMI 37.36 respectively.

At RMI 26.2, Piney Hydroelectric Dam ("The Piney Project" operated by Reliant Energy) impounds approximately 16 miles of the Clarion River forming Piney Lake, an 800-acre lake with a normal maximum pool elevation of 1,093ft-msl. Completed circa 1924, the

dam is constructed of reinforced concrete and has a maximum height and total length of 139ft and 771ft, respectively. The maximum depth of Piney Lake at the dam is 89ft. Since 1995, the project has maintained a continuous minimum flow release of 100cfs during periods of no power generation from May 1 to October 31, and a twice daily 4 hour pulsed release during all other times to maintain about 500cfs minimum during winter.

In 1999, during periods of power generation (2.1 hr/day in August to 9.6 hr/day in May), the mean hourly discharge ranged from 2,107cfs to 3,215cfs. Discharge exceeds 3,750cfs approximately 10 percent of the time (GPU Genco, 1998). Clarion River flow below the dam can fluctuate from 100cfs to about 5,000cfs in approximately 15 minutes. The average daily lake draw down from power generation is 2ft in summer and 3ft in winter (Normandeau, 2000a).

At 100cfs base flow, a gated top release is the main source of water at the tailrace of the Clarion River below Piney Dam. During periods of power generation, the practice of releasing water from both the top and from mid-depth causes downstream DO concentrations to sag somewhat while water temperature remains relatively uniform. Because of thermal stratification, conditions for anoxia at lower depths of Piney Lake can exist—especially during periods of low inflow. Power generation seems to use water in the upper two-thirds of the water column, which results in releases of water lower in DO than with a top release. DO levels at the tailrace remain higher than the minimum WWF criterion (4.0mg/l); usually closer to the average criterion of 5mg/l.

WATER QUALITY AND USES

SURFACE WATER QUALITY

Water quality data has been collected monthly from several Department Water Quality Network stations (WQN) on the river (Figure 1). Temperature data from two WQN stations (843 and 821) and one US Army Corps of Engineers (COE) station were submitted by the petitioners for review. WQN 843 is an active monitoring station at Callensburg (RMI 16.5) and WQN 821 (RMI 23.7) is an inactive station near the town of Piney. The COE station is located 0.3 miles downstream of Piney Dam (RMI 26). Data from WQN 843 (Callensburg) for the period January 1991 to January 2001, when compared to criteria shows temperatures in excess of CWF criteria 52.3% of the time (Table 1). Warm Water Fishes (WWF) temperature criteria were exceeded six times at Callensburg during this period (5.6%). Data collected from other WQN stations proximal to Piney Dam between 1962 and 1991 show that CWF temperature criteria were exceeded 54.9% of the time below the dam (WQN 821 – Piney) and 46.7% of the time above the lake (WQN 822 – Cooksburg) (Table 2). Data collected by the Corps of Engineers from immediately below Piney Lake from 1981 to 1992 show that CWF criteria were exceeded 44.6% of the time while WWF criteria were violated 2 times (0.7%) (Table 3). Water quality parameters are also collected at WQN 843 and 821 (Tables 4-5).

Lake profiles from August 1995 and May - October 1999 for Piney Lake near the dam showed that criteria were violated for temperature and DO when compared to both the CWF and WWF criteria (Figures 2 and 3). Temperatures from upper lake stations showed numerous violations (Figure 4). Historical temperature profile data from 1980 indicated similar conditions with numerous CWF temperature violations (Table 6). Similarly, dissolved oxygen (DO) values both near the dam and at upper lake stations often violated CWF standards and, to a lesser extent, WWF standards (Figures 2-4). Anoxic conditions were often evident near the bottom in the summer months.

A review of the Department's discharger database revealed several NPDES permitted facilities that discharge directly into the Clarion River. The Clarion Municipal Sewage Treatment Plant discharges into Piney Lake at RMI 29.62. The Piney Project discharges industrial wastewater used for cooling and other electricity producing processes into Piney Lake near RMI 27.29. The Pennsylvania-American Water Company discharges industrial wastewater under permit # PA0000345 into Piney Lake in the vicinity of Clarion Borough.

Department records indicate that the Piney Project is the only surface water withdrawal on the Clarion River. It withdraws at RMI 27.33 for electric generation use.

AQUATIC BIOTA

Habitat. An assessment of the physical habitat the lower Clarion River was conducted by Normadeau Associates (2000b) in 1999 using EPA's Rapid Bioassessment Protocol (Barbour 1999). Based out of a maximum score of 200, the scores for the river ranged from 118 (at Piney Bridge, suboptimal) to 154 (at Callensburg, optimal/suboptimal) (Table 7). It was noted that iron precipitate (ferric hydroxide), which originates from AMD and coats much of the substrate at stations below the dam, is the primary reason the habitat assessments were lower in this section of the river.

Other than metal precipitates, sedimentation is not a significant problem in this stretch of river. Much of the river's suspended sediments are effectively removed by the Piney Lake impoundment. The tailrace area of the dam is clean of finer silt and smaller substrates because of scouring from flow releases during power generation activity (typically between 1,500cfs and 4,500cfs). A study conducted by Harza Engineering (2000) using mathematical simulation, predicts that high flow resulting from water releases during power generation does not possess significant scouring potential. Normandeau (2000b) found that within 10 miles downstream of the project, approximately 90% of the substrate was composed of gravel 2 inches or greater in size. The Harza Engineering models predicted scouring effects influence substrate up to 1.38 inches, which suggests some habitat loss for benthic macroinvertebrates in the river to nearly a mile below the dam during a power generation peak flow of 6,200cfs.

Benthos. Benthic macroinvertebrate data are collected yearly at WQN stations 843 (Callensburg) and 822 (located near Cooksburg, which is several miles above Piney Lake). The data for the 2 stations were compared using WQN 822 as a control station.

Data collected from 1999 and 2000 show a healthy macroinvertebrate community at Cooksburg, and a severely impacted community at Callensburg (Table 8). When the two stations were compared using selected metrics, WQN 843 had lower values for taxa richness, modified EPT index, and percent modified mayflies and higher values for modified HBI index when compared to WQN 822. This impacted community is a reflection of the epifaunal substrate embeddedness caused by iron precipitate and fluctuations in chemical water quality. The PFBC (1998) collected benthic macroinvertebrate data at Cooksburg (CR01) and two locations below Piney Dam (CR01A and CR03A) in August 1998 and Normandeau (2000b) collected data on several sites in the lower Clarion River and Piney Lake. These data also show similar benthic quality results as the WQN 822 and WQN 843 station data.

Fish. Normandeau Associates and the PFBC collected fisheries data from the study area (Figure 5). The documented fish community below Piney Lake is composed of at least 37 species while Piney Lake supports at least 30 species (Table 9). Piney Lake is dominated by fish species typically found in warmwater systems. The PFBC manages Piney Lake for warmwater species through supplemental stocking of walleye, tiger muskellunge, and channel catfish (Table 10). Normandeau (2000b) provided seasonal (spring, summer, and fall) fish length frequency data collected by use of electrofishing, seining, and gill nets (Tables 11-13). PFBC provided length frequency data derived from April gill netting (Table 14). The resident fish community in Piney Lake is comprised primarily of warmwater fish species such as yellow and brown bullheads, pumpkinseed, bluegill and largemouth bass. There are self-sustaining populations of several game species including yellow perch, smallmouth and largemouth bass, crappies, and assorted other panfish within Piney Lake. Cold water salmonids such as rainbow, brook and brown trout have been collected from Piney Lake but only during spring sampling (Normandeau 2000b). The PFBC also collected salmonids in their April gill net sampling however they did not take any other seasonal samples. These salmonids likely originated from upstream areas on the Clarion River or from some of its tributaries as many salmonids are stocked in upstream segments of the Clarion River and many of its tributaries. Salmonids may use Piney Lake during the late fall, winter, and spring, but it is unlikely that they are present in the lake during the summer as temperatures and DO levels are usually outside normal tolerances for these cold water fishes.

The PFBC provided electrofishing data collected at the Piney Dam spillway, Piney Creek, and Callensburg from 1995 –1998 (Tables 15-21). Normandeau Associates provided seasonal electrofishing data from the spillway, Piney bridge, Canoe Ripple, Callensburg, and St. Petersburg (Tables 22-24). The fish community found in the Clarion River below Piney Dam consists primarily of warmwater species. The presence of shiners and darters below the dam is likely due to the riverine nature of this stretch. Length frequency data indicate that there is the probability of natural reproduction of warmwater species. It is also likely that some fish immigrate into the area either from Piney Lake or the Allegheny River. Of note was the presence of 3 brown trout captured at the spillway in July of 1997. These fish most likely represent hold-over from stocking that year. At no other time do the data show trout maintenance in the Clarion River below the dam despite brook and brown trout stocking in Piney Creek, Canoe Creek,

and Turkey Run—tributaries of the Clarion River below Piney Lake. This indicates that the lower section of the Clarion River does not support the maintenance and propagation of cold-water fish communities.

Historical data was also provided by surveys conducted in 1969 (Brezina 1970). Data for macroinvertebrates for the Clarion River below Piney Dam indicated severely polluted conditions mainly due to AMD inputs. Fish surveys were also conducted; however, no fish were found in the section below Piney Dam.

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 May 15, 2004 (34 Pa. B 2644). A similar notice was also published in Clarion News newspaper of Clarion, PA, dated May 20, 2004. In addition, the Township Supervisors from Beaver, Clarion, Farmington, Highland, Licking, Millcreek, Monroe, Paint, Perry, Piney and Richland townships were notified of the evaluation in a letter dated April 30, 2004 and the Borough Councils from Callensburg, Clarion, St. Petersburg, and Strattanville were notified of the evaluation in a letter dated May 6, 2004. No additional information was provided in response to these notifications.

RECOMMENDATIONS

A review of available data indicates the existing use for the Clarion River from the inlet of Piney Lake downstream to the mouth is WWF. This is based on the combination of data that shows that the Clarion River in and below the impoundment created by Piney Dam has been used almost exclusively by warmwater fish species and frequently exceeds CWF criteria. This redesignation is supported by historical temperature data (Table 2) that suggests that the existing use of this section of the Clarion River prior to November 28, 1975 was more appropriately WWF and has remained so to the present.

It is the Department's conclusion that: 1) the designated use of this portion of the Clarion River is more restrictive than its existing use; 2) the designated use of CWF cannot be attained by implementing effluent limits required under sections 301(b) and 306 of the Federal Clean Water Act (33 U.S.C.A. §§ 1331(b) and 1316); 3) its current use designation cannot be attained by implementing cost-effective and reasonable best management practices (BMPs) for nonpoint source control; and 4) the conditions existing in Piney Dam are the result of limnological processes that occur naturally in impoundments and it is not feasible to restore the Clarion River to its original condition by removing Piney Dam or manage it in a way that would result in the attainment of its designated use.

Based on these findings, the Department recommends that the designated use of the Clarion River from the inlet of Piney Lake downstream to the mouth be changed from its current CWF designation to WWF. This recommendation is based on the physical characteristics of the water body, dominance of warm water fish species, and the management and stocking of warm water fish by the PFBC. The redesignation affects 37.4 miles of stream including the 800-acre Piney Lake. All tributaries to the Clarion River from the inlet of Piney Lake downstream to the mouth will retain their current designations.

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TABLE 1.
TEMPERATURE RECORDS FOR WQN 843 CALLENSBURG
JANUARY 1991 - 2001
PA DEP

Date	Temp °C	Date	Temp °C	Date	Temp °C
3-Jan-91	***4.0***	7-Jun-94	***18.9***	4-Nov-97	***8.3***
7-Feb-91	2.0	5-Jul-94	***23.8***	8-Dec-97	3.4
6-Mar-91	3.0	11-Aug-94	***20.4***	8-Jan-98	***8.0***
2-Apr-91	6.7	8-Sep-94	***18.3***	4-Feb-98	2.4
6-May-91	***14.0***	4-Oct-94	10.7	19-Mar-98	4.2
5-Jun-91	***19.0***	8-Nov-94	6.7	23-Apr-98	9.5
10-Jul-91	***23.0***	6-Dec-94	***6.1***	5-May-98	***13.4***
6-Aug-91	***24.0***	10-Jan-95	0.3	3-Jun-98	***20.1***
10-Sep-91	***22.0***	1-Feb-95	1.6	6-Jul-98	***24.7***
2-Oct-91	***17.0***	7-Mar-95	3.5	4-Aug-98	***26.1***
5-Nov-91	5.0	3-Apr-95	7.8	20-Oct-98	***13.0***
10-Dec-91	3.5	9-May-95	***12.3***	7-Dec-98	***9.8***
7-Jan-92	2.0	13-Jun-95	***15.9***	19-Jan-99	1.0
12-Feb-92	0.0	5-Jul-95	***21.4***	1-Mar-99	2.3
4-Mar-92	4.0	8-Aug-95	***26.0***	10-May-99	***15.3***
9-Apr-92	6.5	5-Sep-95	***24.6***	13-Jul-99	***22.3***
6-May-92	8.5	11-Oct-95	***14.9***	8-Nov-99	***7.8***
3-Jun-92	***18.0***	2-Nov-95	***14.2***	10-Feb-00	1.5
13-Jul-92	***21.8***	4-Dec-95	2.7	20-Apr-00	***11.6***
12-Aug-92	16.5	16-Jan-96	0.3	5-Jun-00	***16.1***
2-Sep-92	16.0	15-Feb-96	1.0	10-Aug-00	***20.9***
6-Oct-92	11.0	12-Mar-96	0.6	7-Sep-00	***22.9***
3-Nov-92	***8.0***	9-Apr-96	5.9	12-Oct-00	11.6
17-Dec-92	3.0	8-May-96	10.1	6-Dec-00	0.3
6-Jan-93	***5.0***	5-Jun-96	***17.4***	8-Jan-01	1.4
2-Feb-93	1.4	10-Jul-96	***20.4***		
8-Mar-93	2.5	14-Aug-96	***22.5***		
6-Apr-93	5.5	17-Sep-96	15.3		
11-May-93	***18.6***	3-Oct-96	***12.7***		
2-Jun-93	***16.6***	7-Nov-96	***8.0***	Total Exceeded	
6-Jul-93	***25.6***	4-Dec-96	***5.0***		
3-Aug-93	***21.0***	8-Jan-97	2.2	CWF	
1-Sep-93	***22.6***	3-Feb-97	0.8	52.3%	
14-Oct-93	7.4	12-Mar-97	3.5		
1-Nov-93	6.1	24-Apr-97	8.6	WWF	
7-Dec-93	***5.9***	7-May-97	10.6	5.6%	
12-Jan-94	0.7	10-Jun-97	***17.1***		
15-Feb-94	1.0	8-Jul-97	***20.9***		
7-Mar-94	1.6	14-Aug-97	***21.0***		
5-Apr-94	7.4	9-Sep-97	***20.2***		
2-May-94	***13.5***	7-Oct-97	***16.1***		

* Bold and italicized values indicate CWF criteria violations
* Bold and italicized and underlined values indicate WWF criteria violations

TABLE 2.
TEMPERATURE RECORDS FOR WQN 821 & WQN 822
WQN 821, Piney
June 1962 - November 1987
PADEP

Date	Temp °C *	Date	Temp °C *	Date	Temp °C *
4-Jun-62	***25.0***	18-Sep-72	***22.0***	16-Nov-83	***6.0***
5-Sep-62	***21.0***	18-Dec-72	3.0	7-Feb-84	1.0
5-Dec-62	2.0	7-Jun-73	***20.0***	17-May-84	11.0
14-Mar-63	3.0	4-Oct-73	***19.0***	29-Aug-84	18.0
21-Oct-63	2.5	18-Dec-73	2.0	19-Nov-84	2.0
9-Dec-63	3.0	1-Apr-74	5.0	11-Feb-85	1.0
17-Mar-64	***6.0***	24-Jun-74	***20.0***	14-Mar-85	3.5
27-May-64	***19.0***	18-Sep-74	***19.0***	6-May-85	***17.0***
25-Aug-64	***23.0***	13-Dec-74	***6.0***	7-Aug-85	***23.0***
16-Nov-64	***12.0***	10-Mar-75	3.0	14-Nov-85	***10.0***
16-Feb-65	3.0	23-Dec-75	1.0	19-Feb-86	1.5
12-May-65	***17.0***	9-Feb-76	0.0	8-May-86	***13.8***
17-Aug-65	***23.0***	12-May-76	10.0	13-Aug-86	***20.0***
5-Nov-65	***9.0***	16-Aug-76	17.5	5-Nov-86	***8.5***
9-Feb-66	3.0	16-Nov-76	***7.0***	11-Feb-87	0.0
3-May-66	9.0	24-May-77	***17.0***	14-May-87	***15.0***
22-Jul-66	***25.0***	30-Aug-77	***21.0***	19-Aug-87	***21.2***
21-Oct-66	***12.0***	29-Nov-77	5.2	12-Nov-87	7.2
17-Jan-67	1.0	8-Feb-78	1.0		
10-Apr-67	***9.0***	23-May-78	13.0		
11-Jul-67	***21.5***	9-Aug-78	***24.0***		
11-Oct-67	***12.3***	13-Nov-78	***8.3***	Total Exceeded	
12-Jan-68	2.0	21-Feb-79	0.5		
1-Apr-68	***10.0***	9-May-79	***14.5***	CWF	
25-Jul-68	***20.0***	23-Aug-79	***21.0***	54.9%	
23-Sep-68	***22.0***	7-Nov-79	***8.0***		
16-Dec-68	1.0	20-Feb-80	1.0	WWF	
21-Mar-69	3.0	21-May-80	13.5	2.9%	
26-Jun-69	***23.0***	27-Aug-80	***21.8***		
29-Sep-69	***18.0***	24-Nov-80	4.5		
22-Dec-69	1.0	18-Feb-81	1.2		
26-Mar-70	2.0	14-May-81	12.2		
22-Jun-70	***19.5***	17-Aug-81	***20.0***		
30-Sep-70	***18.0***	4-Nov-81	***10.0***		
23-Dec-70	2.0	3-Feb-82	0.0		
26-Mar-71	3.0	13-May-82	***16.0***		
21-Jun-71	***20.5***	23-Aug-82	***19.0***		
13-Sep-71	***23.5***	29-Sep-82	15.0		
14-Dec-71	***6.5***	16-Nov-82	***7.0***		
15-Mar-72	3.0	16-Feb-83	0.0		
20-Jul-72	***25.5***	9-May-83	12.0		
15-Aug-72	***19.0***	24-Aug-83	***26.0***		

* Bold and italicized values indicate CWF criteria violations
* Bold and italicized and underlined values indicate WWF criteria violations

TABLE 2 (continued).
TEMPERATURE RECORDS FOR WQN 821 & WQN 822
WQN 822 Cooksburg
June 1962 - December 1991
PADEP

Date	Temp °C *	Date	Temp °C *	Date	Temp °C *	Date	Temp °C *
4-Jun-62	***25.0***	20-Jul-72	***26.0***	3-Nov-83	***10.0***	2-Nov-89	***7.8***
5-Sep-62	***19.0***	15-Aug-72	***26.0***	28-Feb-84	1.0	6-Dec-89	0.5
6-Dec-62	1.0	19-Sep-72	***24.0***	22-May-84	***20.0***	4-Jan-90	1.3
14-Mar-63	3.0	18-Dec-72	0.5	30-Aug-84	12.0	7-Feb-90	***4.5***
21-Oct-63	2.2	8-Mar-73	***7.0***	19-Nov-84	3.0	7-Mar-90	1
9-Dec-63	1.0	7-Jun-73	***20.0***	13-Mar-85	4.0	10-Apr-90	7.5
28-Feb-64	1.0	4-Oct-73	***17.0***	14-May-85	***17.5***	9-May-90	***14***
18-May-64	***18.0***	18-Dec-73	2.0	20-Aug-85	***22.5***	14-Jun-90	***22***
17-Aug-64	***19.0***	1-Apr-74	4.4	18-Nov-85	***7.5***	5-Jul-90	***26.3***
9-Nov-64	7.0	24-Jun-74	***19.0***	18-Feb-86	1.5	7-Aug-90	***19***
16-Feb-65	1.0	18-Sep-74	***19.0***	19-May-86	***20.4***	6-Sep-90	***23.4***
25-May-65	17.0	13-Dec-74	***5.0***	14-Aug-86	***23.0***	11-Sep-90	16.3
17-Aug-65	***28.0***	10-Feb-75	3.0	6-Nov-86	5.5	3-Oct-90	11.5
5-Nov-65	7.0	25-Jun-75	***20.0***	18-Feb-87	0.8	6-Nov-90	***8.4***
9-Feb-66	2.0	22-Dec-75	0.0	14-May-87	***16.0***	4-Dec-90	2.7
3-May-66	9.5	16-Aug-76	16.0	20-Aug-87	***21.5***	10-Jan-91	1
2-Aug-66	***21.0***	16-Nov-76	4.0	12-Nov-87	6.0	11-Feb-91	1.5
26-Oct-66	7.0	24-May-77	***20.0***	21-Jan-88	0.3	12-Mar-91	0.9
16-Jan-67	1.0	18-Aug-77	***19.0***	17-Feb-88	0.5	3-Apr-91	3
11-Apr-67	8.0	30-Sep-77	13.0	8-Mar-88	2	8-May-91	10.5
11-Jul-67	***21.0***	29-Nov-77	2.2	7-Apr-88	***10.2***	6-Jun-91	***17***
10-Oct-67	12.0	23-May-78	14.0	9-May-88	***15***	9-Jul-91	***23.5***
18-Jan-68	3.0	9-Aug-78	***22.0***	7-Jun-88	***19.5***	7-Aug-91	***20***
5-Apr-68	***9.0***	28-Nov-78	2.4	6-Jul-88	***23.3***	4-Sep-91	***19***
24-Jun-68	***23.5***	9-May-79	***20.3***	10-Aug-88	***27.8***	3-Oct-91	***18.1***
26-Sep-68	***21.0***	9-Aug-79	***21.0***	18-Aug-88	***26.5***	7-Nov-91	3
17-Dec-68	0.5	7-Nov-79	6.0	13-Sep-88	***21.5***	12-Dec-91	4
21-Mar-69	5.5	20-Feb-80	1.0	18-Oct-88	***13***		
26-Jun-69	***23.0***	20-May-80	14.2	7-Nov-88	5.6		
18-Jul-69	***27.0***	20-Aug-80	***20.5***	14-Dec-88	0		
29-Sep-69	15.5	6-Nov-80	6.0	5-Jan-89	0	Total Exceeded	
19-Dec-69	0.5	17-Dec-80	0.5	8-Feb-89	1		
26-Mar-70	2.0	4-Feb-81	0.3	2-Mar-89	0.8	CWF	
22-Jun-70	***24.0***	13-May-81	11.0	6-Apr-89	8	46.7%	
30-Sep-70	***16.5***	4-Nov-81	***9.0***	15-May-89	9.2		
24-Dec-70	2.5	20-May-82	***16.0***	13-Jun-89	***15.8***	TSF	
26-Mar-71	3.5	18-Aug-82	***22.0***	6-Jul-89	18.5	5.3%	
22-Jun-71	***23.0***	15-Nov-82	4.0	1-Aug-89	***19***		
13-Sep-71	***21.5***	7-Feb-83	0.0	3-Aug-89	***24.2***		
14-Dec-71	3.0	12-May-83	***13.0***	5-Sep-89	17		
15-Mar-72	2.5	23-Aug-83	***26.0***	10-Oct-89	5		

* Bold and italicized values indicate CWF criteria violations

* Bold and italicized and underlined values indicate TSF criteria violations

TABLE 3.
TEMPERATURE RECORDS
0.33 MILES DOWNSTREAM OF PINEY DAM
January 1981 - December 1992
COE

Date	Temp °C	Date	Temp °C	Date	Temp °C	Date	Temp °C
12-Jan-81	1.1	14-Dec-82	***6.1***	8-Oct-84	***15.6***	8-Sep-86	***18.3***
26-Jan-81	0.0	27-Dec-82	3.3	22-Oct-84	***15.0***	22-Sep-86	***18.9***
9-Mar-81	2.2	10-Jan-83	1.1	14-Nov-84	***8.3***	13-Oct-86	***14.4***
13-Apr-81	6.7	24-Jan-83	0.0	26-Nov-84	3.9	27-Oct-86	9.4
27-Apr-81	5.0	15-Feb-83	0.0	10-Dec-84	2.2	10-Nov-86	***8.9***
11-May-81	12.2	1-Mar-83	2.8	24-Dec-84	3.9	25-Nov-86	3.9
25-May-81	***15.0***	14-Mar-83	***6.7***	14-Jan-85	3.3	8-Dec-86	3.3
8-Jun-81	***20.0***	30-Mar-83	3.9	28-Jan-85	1.1	22-Dec-86	3.3
13-Jul-81	***22.2***	18-Apr-83	7.8	25-Feb-85	1.1	12-Jan-87	1.1
27-Jul-81	***23.3***	25-Apr-83	5.6	11-Mar-85	4.4	26-Jan-87	1.1
10-Aug-81	***19.4***	10-May-83	12.2	25-Mar-85	4.4	9-Feb-87	2.0
24-Aug-81	***21.1***	24-May-83	13.3	8-Apr-85	7.2	23-Feb-87	1.0
28-Sep-81	***15.6***	25-May-83	12.8	29-Apr-85	***14.4***	9-Mar-87	2.2
12-Oct-81	10.0	13-Jun-83	***18.9***	13-May-85	***17.2***	13-Apr-87	***10.0***
21-Oct-81	***11.1***	28-Jun-83	***22.8***	27-May-85	***19.4***	27-Apr-87	***12.8***
27-Oct-81	***15.0***	11-Jul-83	***21.1***	10-Jun-85	***18.9***	11-May-87	***17.8***
29-Oct-81	***10.1***	26-Jul-83	***22.2***	8-Jul-85	***19.4***	1-Jun-87	***19.4***
9-Nov-81	***7.8***	8-Aug-83	***23.3***	22-Jul-85	***21.1***	8-Jun-87	***20.6***
23-Nov-81	***5.6***	23-Aug-83	***23.3***	12-Aug-85	***22.2***	22-Jun-87	***21.1***
14-Dec-81	2.2	12-Sep-83	***23.3***	26-Aug-85	***22.2***	14-Jul-87	***21.1***
28-Dec-81	2.2	26-Sep-83	***18.3***	9-Sep-85	***21.1***	27-Jul-87	***21.1***
11-Jan-82	1.1	10-Oct-83	***15.6***	23-Sep-85	***17.8***	10-Aug-87	***25.6***
25-Jan-82	1.1	31-Oct-83	10.0	14-Oct-85	***16.1***	24-Aug-87	***22.8***
8-Feb-82	1.1	14-Nov-83	***7.8***	29-Oct-85	***13.3***	21-Sep-87	***16.7***
22-Feb-82	1.1	28-Nov-83	***7.8***	11-Nov-85	***10.0***	28-Sep-87	14.4
8-Mar-82	1.1	12-Dec-83	3.9	29-Nov-85	***7.8***	12-Oct-87	11.7
22-Mar-82	4.4	26-Dec-83	0.0	9-Dec-85	3.3	26-Oct-87	10.0
14-Apr-82	4.4	9-Jan-84	0.6	23-Dec-85	1.1	10-Nov-87	***8.9***
27-Apr-82	10.0	23-Jan-84	0.0	27-Jan-86	0.6	23-Nov-87	***6.1***
28-Apr-82	***12.6***	6-Feb-84	0.6	10-Feb-86	2.2	14-Dec-87	4.4
11-May-82	***15.0***	27-Feb-84	***4.4***	24-Feb-86	3.3	28-Dec-87	3.3
24-May-82	***16.7***	12-Mar-84	2.2	10-Mar-86	2.2	11-Jan-88	1.7
15-Jun-82	***15.6***	9-Apr-84	6.1	24-Mar-86	***6.1***	25-Jan-88	3.3
29-Jun-82	***20.0***	18-Apr-84	9.9	15-Apr-86	***8.9***	8-Feb-88	0.6
19-Jul-82	***25.6***	23-Apr-84	8.9	28-Apr-86	11.1	22-Feb-88	1.1
26-Jul-82	***25.6***	21-May-84	13.9	8-May-86	***13.8***	14-Mar-88	4.4
5-Aug-82	***23.4***	28-May-84	***15.6***	9-May-86	***13.2***	28-Mar-88	4.4
9-Aug-82	***24.4***	11-Jun-84	***18.9***	12-May-86	***15.6***	11-Apr-88	***10.0***
23-Aug-82	***21.1***	25-Jun-84	***17.8***	26-May-86	***16.7***	26-Apr-88	9.4
13-Sep-82	***20.0***	9-Jul-84	16.7	9-Jun-86	***18.9***	4-May-88	8.6
28-Sep-82	***16.1***	24-Jul-84	***18.9***	23-Jun-86	***18.3***	9-May-88	***16.7***
11-Oct-82	***17.8***	12-Aug-84	***22.8***	14-Jul-86	***22.2***	23-May-88	14.4
25-Oct-82	***12.2***	27-Aug-84	***20.0***	28-Jul-86	***23.3***	13-Jun-88	***18.9***
8-Nov-82	***7.8***	10-Sep-84	***20.0***	11-Aug-86	***22.2***	27-Jun-88	***21.1***
22-Nov-82	4.4	1-Oct-84	***17.2***	25-Aug-86	***22.2***	11-Jul-88	***25.0***

TABLE 3. (cont.)
TEMPERATURE RECORDS
0.33 MILES DOWNSTREAM OF PINEY DAM
January 1981 - December 1992

Date	Temp °C	Date	Temp °C	Date	Temp °C
25-Jul-88	***24.4***	27-Aug-90	17.8	8-Jun-92	10.0
22-Aug-88	***22.8***	10-Sep-90	15.6	22-Jun-92	10.0
22-Aug-88	***22.8***	24-Sep-90	12.8	13-Jul-92	***20.0***
12-Sep-88	***19.4***	8-Oct-90	12.2	10-Aug-92	18.3
26-Sep-88	13.9	29-Oct-90	5.0	24-Aug-92	***20.0***
10-Oct-88	11.1	12-Nov-90	3.9	28-Sep-92	12.8
25-Oct-88	***12.8***	26-Nov-90	3.3	14-Oct-92	10.0
15-Nov-88	***7.8***	10-Dec-90	3.3	26-Oct-92	8.9
28-Nov-88	***8.9***	24-Dec-90	2.8	9-Nov-92	4.4
26-Dec-88	1.7	14-Jan-91	0.6	23-Nov-92	***8.3***
9-Jan-89	1.1	29-Jan-91	0.6	15-Dec-92	1.1
23-Jan-89	1.1	11-Feb-91	1.1	28-Dec-92	1.7
13-Feb-89	1.1	26-Feb-91	2.2		
27-Feb-89	0.0	11-Mar-91	4.4		
13-Mar-89	0.0	25-Mar-91	3.3		
27-Mar-89	***7.2***	8-Apr-91	6.1	Total Exceeded	
10-Apr-89	4.4	22-Apr-91	7.8		
24-Apr-89	10.0	13-May-91	8.9	CWF	
8-May-89	5.0	27-May-91	14.4	44.6%	
22-May-89	12.2	10-Jun-91	***15.6***		
26-Jun-89	15.6	25-Jun-91	***20.0***	WWF	
10-Jul-89	***20.0***	8-Jul-91	***20.6***	0.7%	
24-Jul-89	***21.1***	22-Jul-91	***21.1***		
16-Aug-89	***21.1***	5-Aug-91	***21.1***		
25-Oct-89	7.2	26-Aug-91	***21.1***		
28-Nov-89	4.4	9-Sep-91	***20.0***		
11-Dec-89	1.7	30-Sep-91	10.0		
27-Dec-89	0.0	10-Oct-91	8.3		
8-Jan-90	0.0	28-Oct-91	8.3		
23-Jan-90	0.6	11-Nov-91	6.7		
12-Feb-90	1.1	25-Nov-91	3.3		
26-Feb-90	0.6	9-Dec-91	3.3		
12-Mar-90	1.7	23-Dec-91	3.3		
26-Mar-90	3.3	13-Jan-92	2.8		
9-Apr-90	4.4	27-Jan-92	3.3		
23-Apr-90	7.2	10-Feb-92	0.6		
11-May-90	11.7	24-Feb-92	***3.9***		
15-May-90	10.0	9-Mar-92	4.4		
28-May-90	10.0	23-Mar-92	3.3		
7-Jun-90	***15.6***	15-Apr-92	4.4		
11-Jun-90	12.2	27-Apr-92	7.2		
25-Jun-90	12.8	11-May-92	8.9		
22-Aug-90	***20.3***	26-May-92	7.2		

* Bold and italicized values indicate CWF criteria violations
* Bold and italicized and underlined values indicate WWF criteria violations

Table 4.
Water Quality
DEP WQN 843

	Units	Date											
		20-Feb-02	24-Apr-02	12-Jun-02	14-Aug-02	20-Nov-02	16-Jan-03	19-Mar-03	10-Jun-03	15-Jul-03	17-Sep-03	15-Oct-03	18-Dec-03
Field Paramters													
Water Temp	C	3.2	12.7	20	28	7.1	0.81	5.94	14	26.6	16.5	11	1.5
pH	pH units	6.56	7	6	7.4	7.3	7.5	6.4	7.6	6.6	7.08	7.5	6.3
Specific Conductance	µmhos/cm	243	151	183.8	232	263	179	110	206	408	188	307	182
Oxygen, Dissolved	mg/l	12.3	7.18	9.33	9.4	10.92	13.85	18.62	10.7	8.2	8.5	10.4	13.6
Laboratory Parameters													
pH	pH units	6.3	6.4	6.2	6.6	7.1	6.4	6.3	6.9	6.1	6.9	6.4	6.6
Alkalinity	mg/l	7.4	7.4	5.2	16.2	22	8.4	5.2	11.4	5.2	9.6	7.8	5.4
Hardness, Total	mg/l	67	49	63	112	83	56	32	70	153	62	108	57
Total Dissolved Solids	mg/l	148	116	132	268	210	168	1364	188	314	158	244	414
Suspended Solid, Total	mg/l	18	<2	10	4	10	<2	22	<2	<2	<2	32	4
Aluminum, Total	µg/l	586	431	954	<200	458	307	714	206	<200	<200	1340	566
Nitrogen, Ammonia, Total	mg/l	0.04	0.04	<0.02	0.04	0.06	0.06	0.02	0.03	0.03	0.03	0.03	0.05
Nitrate Nitrogen, Total	mg/l	0.47	0.28	0.24	0.22	0.42	0.39	0.41	0.44	0.39	0.19	0.48	0.44
Nitrite Nitrogen, Total	mg/l	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Nitrogen, Total	mg/l	-	0.41	0.69	0.41	0.89	0.48	0.55	0.72	0.5	0.4	0.93	0.4
Phosphate, Ortho, Total	mg/l	-	0.02	0.012	<0.01	0.016	<0.01	0.024	<0.01	<0.01	<0.01	0.028	<0.01
Phosphorus, Total	mg/l	0.02	0.01	0.02	<0.01	0.022	<0.01	0.024	0.016	0.02	0.016	0.033	0.011
Calcium, Total	mg/l	16.4	11.8	14.5	26	20.2	13.5	8.07	17	34.3	14.8	23.8	13.2
Magnesium, Total	mg/l	6.39	4.64	6.51	11.4	7.98	5.3	2.92		16.4	6.02	11.7	5.936
Sulfate	mg/l	60.4	46.3	63.9	125	84.1	51.1	27.5	66.2	155	56.5	111	59.1
Copper, Total	µg/l	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Iron, Total	µg/l	1180	660	1130	125	1100	574	1190	394	158	318	2928	811
Lead, Total	µg/l	1.28	<1	1.1	<1	<1	<1	1.4	<1	<1	<1	<1	18
Manganese, Total	µg/l	1200	637	885	1080	881	580	559	795	1890	752	1957	855
Nickel, Total	µg/l	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Zinc, Total	µg/l	40	23	85	14	38	35	35	14	39	15	148	86
Organic Carbon, Total	mg/l	1.6	1.7	2.4	2.5	3.1	1.6	2.2	1.8	1.3	2.1	3.8	1.5
Specific Conductance	µmhos/cm	196.8	149.9	284	393	280	168.5	108	205	410	178.7	301	178.9

Table 5.
Water Quality
DEP WQN 821

	Units	Date										
		17-Jan-67	10-Apr-67	11-Jul-67	11-Oct-67	24-May-77	30-Aug-77	29-Nov-77	11-Feb-87	14-May-87	19-Aug-87	12-Nov-87
Field Paramters												
Temperature	C	1.00	9.00	21.50	12.29	17.00	21.00	5.20	0.00	15.00	21.20	7.20
pH		6.00	5.30	4.80	5.10	6.90	5.60	5.10	6.50	5.80	6.00	7.45
Oxygen, Dissolved	mg/l	11.00	9.00	7.00	10.00	8.10	7.30	11.40	13.00	9.60	7.10	11.60
Laboratory Parameters												
pH		5.50	4.60	4.60	5.20	5.40	5.60	5.90	6.30	6.30	6.00	6.40
Alkalinity, Total	mg/l	11	5	4	6	3	18	3	17	6	10	10
Acidity	mg/l	6	8	10	12	-	3	2	257	37	20	0
Hardness, Total	mg/l	112	78	92	80	60	62	62	79	50	73	68
Aluminum, Total	µg/l	96	70	220	910	-	250	300	570	570	150	170
Ammonia, Unionzed	mg/l	-	-	-	-	0	0	0	0	0	0	0
Nitrogen, Ammonia, Total	mg/l	-	-	-	-	0.06	0.08	0.10	0.12	0.10	0.12	0.08
Nitrate Nitrogen, Total	mg/l	-	-	-	-	0.23	0.37	0.70	0.36	0.26	0.20	0.20
Nitrite Nitrogen, Total	mg/l	-	-	-	-	<0.01	<0.01	<0.01	0.02	0.01	0.00	0.00
Phosphate, Ortho	mg/l	0.00	0.00	0.00	0.00	-	-	-	-	-	0.03	-
Phosphorus, Total	mg/l	-	-	-	-	0.06	0.01	0.02	0.01	0.01	-	0.02
Calcium, Dissolved	mg/l	-	-	-	-	13.60	32.10	10.40	-	10.00	17.35	15.88
Magnesium, Dissolved	mg/l	-	-	-	-	6.30	5.40	8.80	8.60	5.30	7.40	6.99
Chloride, Total	mg/l	23	10	17	9	14	12	-	-	7	11	11
Sulfate, Total	mg/l	36	66	81	59	46	40	30		65	83	71
Arsenic, Total	µg/l	-	-	-	-	-	-	-	-	-	4	-
Cadmium, Total	µg/l	-	-	-	-	-	1.00	9.00	15.10	-	0.27	-
Chromium, Total	µg/l	-	-	-	-	-	<10	-	-	-	4	-
Copper, Total	µg/l	-	-	-	-	-	20	-	-	-	50	-
Iron, Total	µg/l	600	800	400	600	350	650	620	1370	480	410	440
Lead, Total	µg/l	-	-	-	-	-	<10	-	-	-	4	-
Manganese, Total	µg/l	-	-	-	-	-	960	-	-	-	1440	-
Mercury, Total	µg/l	-	-	-	-	-	-	-	-	-	1	-
Nickel, Total	µg/l	-	-	-	-	-	50	-	-	-	50	-
Zinc, Total	µg/l	-	-	-	-	-	120	-	-	-	30	-
Specific Conductance	µmhos/cm	-	-	-	-	240	180	124	219	147	230	200
BOD, 5 Day, 20 C	mg/l	4.2	0.9	1.2	3.0	-	-	-	-	-	-	-

TABLE 6.
WATER CHEMISTRY
DISSOLVED OXYGEN PROFILES - Piney Lake
April - October 1980
Kodrich and Moore 1980

Depth (meter)	25-Apr-80 °C	22-May-80 °C	19-Jun-80 °C	16-Jul-80 °C	19-Aug-80 °C	9-Sep-80 °C	8-Oct-80 °C
0	***14.0***	***16.0***	**18.2**	***25.1***	***21.7***	***23.5***	***16.5***
5	***14.0***	***14.9***	16.1	***22.4***	***19.8***	***23.0***	***17.0***
10	***14.0***	14.0	15.0	***20.7***	***19.0***	***21.5***	***17.0***
15	***13.0***	***14.5***	12.9	14.7	18.8	***19.5***	***17.0***
20	11.0	***14.5***	11.6	12.0	13.3	15.3	***15.1***
25	11.0	14.0	11.0	11.7	12.5	13.0	***13.8***

* Bold and itacilized values indicate CWF violations

TABLE 7.
HABITAT ASSESSMENT SUMMARY

Clarion River 1999

Normandeau 2000b

HABITAT PARAMETER	scoring range	Tailrace	Piney Bridge	Canoe Ripple	Callensburg	St. Petersburg
1 . Epifaunal Substrate/ Available Cover	0 - 20	8	9	10	10	9
2 . Riffle Quality	0 - 20	13	7	17	18	14
3 . Embeddedness	0 - 20	3	3	3	3	3
4 . Channel Alteration	0 - 20	20	18	18	19	20
5 . Sediment Deposition	0 - 20	20	13	18	18	18
6 . Frequency of Riffles (or bends)/ Velocity-Depth Combinations	0 - 20	12	3	18	18	18
7 . Channel Flow Status	0 - 20	8	18	18	18	20
8 . Bank Vegetative Protection						
Left Bank	0 - 10	9	9	9	9	7
Right Bank	0 - 10	9	9	9	9	7
9 . Bank Stability						
Left Bank	0 - 10	9	9	9	9	7
Right Bank	0 - 10	9	9	9	9	7
10 . Riparian Vegetative Zone Width						
Left Bank	0 - 10	4	7	5	5	4
Right Bank	0 - 10	4	4	9	9	4
Total Score		128	118	152	154	138
Habitat Quality:		suboptimal	suboptimal	suboptimal/ optimal	suboptimal/ optimal	suboptimal

TABLE 8.
BENTHIC MACROINVERTEBRATE TAXA LIST
CLARION RIVER, CLARION COUNTY
WQN Stations 843 and 822
1999 and 2000

	WQN 843 7/8/1999	WQN 843 9/8/2000	WQN 822 8/5/1999	WQN 822 9/26/2000
MAYFLIES				
Baetidae ***Baetis***	-	-	-	1
Heptageniidae ***Leucrocuta***	-	-	-	1
Stenonema	-	6	8	23
Isonychidae ***Isonychia***	-	-	30	36
Leptohyphidae ***Tricorythodes***	-	-	-	1
STONEFLIES				
Perlidae ***Acroneuria***	1	-	-	-
CADDISFLIES				
Brachycentridae ***Brachycentrus***	-	-	46	12
Hydropsychidae ***Cheumatopsyche***	37	2	1	8
Hydropsyche	42	60	3	3
Macrostemum	3	46	2	1
Hydroptilidae ***Hydroptila***	-	-	2	-
Philopotamidae ***Chimarra***	-	1	-	-
Polycentropodidae ***Polycentropus***	2	-	-	-
Neureclipsis	-	-	-	3
TRUE FLIES				
Chironomidae	14	-	6	3
MISC. INSECT TAXA				
Corydalidae ***Corydalus***	-	2	-	-
Nigronia	4	-	-	-
Cordulegastridae ***Cordulegaster***	-	-	-	-
Elmidae ***Optioservus***	-	3	2	5
Gomphidae	-	-	3	1
NON-INSECT TAXA				
Ancylidae ***Ferrissia***	-	-	-	4
Bivalvia ***Sphaeriidae***	-	-	-	3
Oligochaeta	-	-	1	6
Total Number of Taxa	7	7	11	16
Metrics Comparison				
1. TAXA RICHNESS	7	7	11	16
2. MODIFIED EPT INDEX	2	3	4	6
3. MODIFIED HBI	5.29	4.1	2.55	3.97
4. % DOMINANT TAXA	40.8	50	44.2	32.4
5. % MODIFIED MAYFLIES	0	5	36.5	55

TABLE 9.
FISH SPECIES OCCURRENCE
PINEY LAKE AND CLARION RIVER DOWNSTREAM OF PINEY DAM
PFBC (1995-1997) AND NORMANDEAU (1999)

Common Name	Scientific Name	Piney Lake	Clarion River Downstream of Piney Lake
Mountain brook lamprey	*Ichthyomyzon greeleyi*	-	X
Common carp	*Cyprinus carpio*	X	X
Streamline chub	*Erimystax dissimilis*	-	X
Striped shiner	*Luxilus chrysocephalus*	X	-
River chub	*Nocomis micropogon*	X	X
Golden shiner	*Notemigonus crysoleucas*	X	X
Common shiner	*Notropis cornutus*	X	-
Silver shiner	*N. photogenis*	X	X
Rosyface shiner	*N. rubellus*	X	X
Mimic shiner	*N. volucellus*	X	X
Bluntnose minnow	*Pimephales notatus*	X	X
Creek chub	*Semotilus atromaculatus*	-	X
White sucker	*Catostomus commersoni*	X	X
Northern hog sucker	*Hypentelium nigricans*	X	X
Silver redhorse	*Moxostoma anisurum*	-	X
Golden redhorse	*M. erythrurum*	X	X
Yellow bullhead	*Ameiurus natalis*	X	X
Brown bullhead	*A. nebulosus*	X	X
Channel catfish	*Ictalurus punctatus*	X	X
Stonecat	*Noturus flavus*	-	X
Muskellunge	*Esox masquinongy*	-	X
Tiger muskellunge	*E. lucius x E. masqu. (hybrid)*	X	-
Rainbow trout	*Oncorhynchus mykiss*	X	-
Brown trout	*Salmo trutta*	X	X
Brook trout	*Salvelinus fontinalis*	X	-
Mottled sculpin	*Cottus bairdi*	-	X
Rock bass	*Ambloplites rupestris*	X	X
Green sunfish	*Lepomis cyanellus*	-	X
Pumpkinseed	*L. gibbosus*	X	X
Bluegill	*L. macrochirus*	X	X
Sunfish hybrid		-	X
Smallmouth bass	*Micropterus dolomieu*	X	X
Largemouth bass	*M. salmoides*	X	X
Black crappie	*Pomoxis nigromaculatus*	X	X
White crappie	*P. annularis*	X	-
Greenside darter	*Etheostoma blennioides*	X	X
Rainbow darter	*E. caeruleum*	-	X
Johnny darter	*E. nigrum*	-	X
Variegate darter	*E. variatum*	-	X
Banded darter	*E. zonale*	-	X
Yellow perch	*Perca flavescens*	X	X
Logperch	*Percina caprodes*	X	X
Blackside darter	*P. maculata*	-	X
Walleye	*Sander vitreum*	X	X
		30	37

TABLE 10.
PINEY LAKE - FISH STOCKING HISTORY
PFBC

Year	Species	Lifestage	Number Stocked
2004	Tiger Muskellunge	Fingerling	1,350
2004	Walleye	Fry	500,000
2004	Walleye	Phase 1	6,485
2003	Channel Catfish	Fingerling	1,350
2003	Tiger Muskellunge	Fingerling	1,350
2003	Walleye	Fry	500,000
2003	Walleye	Phase 1	6,500
2002	Tiger Muskellunge	Fingerling	1,347
2002	Walleye	Fry	500,000
2002	Walleye	Phase 1	6,500
2001	Tiger Muskellunge	Fingerling	1,349
2001	Walleye	Fry	500,000
2001	Walleye	Phase 1	6,500
2000	Channel Catfish	Fingerling	5,200
2000	Tiger Muskellunge	Fingerling	1,350
2000	Walleye	Fry	1,000,000
2000	Walleye	Phase 1	6,500
1999	Walleye	Fry	500,000
1999	Walleye	Fingerling	6,500
1999	Tiger Muskellunge	Fingerling	1,350
1998	Tiger Muskellunge	Fingerling	1,350
1998	Walleye	Fry	500,000
1997	Walleye	Phase 1	6,500
1997	Walleye	Fry	500,000
1997	Tiger Muskellunge	Fingerling	1,300
1996	Walleye	Fry	500,000
1996	Walleye	Fingerling	6,500
1996	Tiger Muskellunge	Fingerling	1,300
1995	Walleye	Fry	1,000,000
1995	Tiger Muskellunge	Fingerling	11,000
1977	Walleye	Phase 2	7,025

TABLE 11. FISH

Piney Lake; Spring 1999

Normandeau; Electrofishing, gill nets, and seine

Length group mm	Common carp	Striped shiner	Golden shiner	Silver shiner	Rosyface shiner	Mimic shiner	Bluntnose minnow	White sucker	Northern hogsucker	Golden redhorse	Yellow bullhead	Brown bullhead	Channel catfish	Tiger muskellunge
1 - 50	-	2	-	15	1	66	3	-	-	1	-	-	-	-
51 - 60	-	3	1	3	3	17	2	-	-	3	-	-	-	-
61 - 70	-	1	-	10	-	2	2	2	4	3	-	-	-	-
71 - 80	-	-	1	14	-	-	1	1	-	2	-	-	-	-
81 - 90	-	-	1	3	-	-	1	4	-	2	-	-	-	-
91 - 100	-	-	1	4	-	-	1	3	1	2	-	-	-	-
101 - 110	-	-	-	-	-	-	-	5	-	2	-	-	-	-
111 - 120	-	-	-	-	-	-	-	-	-	7	-	-	-	-
121 - 130	-	-	-	-	-	-	-	4	-	36	-	-	-	-
131 - 140	-	-	-	-	-	-	-	1	1	45	-	-	-	-
141 - 150	-	-	-	-	-	-	-	1	2	54	-	-	-	-
151 - 160	-	-	-	-	-	-	-	-	5	40	-	-	-	-
161 - 170	-	-	1	-	-	-	-	-	4	27	1	-	-	-
171 - 180	-	-	-	-	-	-	-	-	1	14	1	1	-	-
181 - 190	-	-	5	-	-	-	-	1	3	15	2	2	-	-
191 - 200	-	-	7	-	-	-	-	1	-	3	2	2	-	-
201 - 225	-	-	16	-	-	-	-	7	-	-	3	5	-	-
226 - 250	-	-	1	-	-	-	-	29	-	3	4	3	-	-
251 - 275	-	-	-	-	-	-	-	6	-	2	11	16	-	-
276 - 300	-	-	-	-	-	-	-	1	-	3	2	19	1	2
301 - 400	-	-	-	-	-	-	-	223	1	49	2	35	30	3
401 - 500	-	-	-	-	-	-	-	20	-	7	-	1	27	-
>501	1	-	-	-	-	-	-	-	-	-	-	-	5	8
Total	1	6	34	49	4	85	10	309	22	320	28	84	63	13

TABLE 11. FISH (cont.)

Piney Lake; Spring 1999

Normandeau; Electrofishing, gill nets, and seine

Length group mm	Brown trout	Brook trout	Rock bass	Pumpkinseed	Bluegill	Smallmouth bass	Largemouth bass	Black crappie	White crappie	Yellow perch	Logperch	Walleye
1 - 50	-	-	-	1	1	-	-	-	-	-	-	-
51 - 60	-	-	-	2	1	-	-	-	-	-	-	-
61 - 70	-	-	-	5	-	-	-	-	-	1	6	-
71 - 80	-	-	-	6	-	-	-	-	-	6	3	-
81 - 90	-	-	-	14	-	-	-	-	-	26	-	-
91 - 100	-	-	1	19	1	-	-	1	1	9	1	-
101 - 110	-	-	2	25	1	-	-	-	-	-	2	-
111 - 120	-	-	3	28	-	-	-	-	-	-	1	-
121 - 130	-	-	1	7	1	1	1	-	-	2	1	-
131 - 140	-	-	3	9	2	2		-	-	14	-	-
141 - 150	-	-	3	14	1	-	2	4	-	38	-	-
151 - 160	-	-	3	8	1	-	1	4	-	86	-	-
161 - 170	-	-	1	7	1	3	2	4	-	81	-	-
171 - 180	-	-	-	8	-	4	1	-	1	42	-	-
181 - 190	-	-	1	-	-	2	-	-	1	36	-	-
191 - 200	-	-	9	-	-	1	-	-	-	26	-	-
201 - 225	-	-	20	-	-	1	7	8	1	45	-	-
226 - 250	1	-	-	-	-	-	11	3	-	8	-	-
251 - 275	-	2	-	-	-	1	6	1	-	3	-	-
276 - 300	2	-	-	-	-	2	2	-		1	-	-
301 - 400	-	1	-	-	-	-	1	-	1	1	-	36
401 - 500	-	-	-	-	-	-	-	-	-	-	-	7
>501	-	-	-	-	-	-	-	-	-	-	-	2
Total	3	3	47	153	10	17	34	25	5	425	14	45

TABLE 12. FISH

Piney Lake; Summer 1999

Normandeau; Electrofishing, gill nets, and seine

Length group mm	Golden shiner	Silver shiner	Mimic shiner	Bluntnose minnow	White sucker	Northern hogsucker	Golden redhorse	Yellow bullhead	Brown bullhead	Channel catfish	Tiger muskellunge	Rock bass	Pumpkinseed
1 - 50	5	-	1	5	-	2	-	2	12	-	-	-	4
51 - 60	3	-	-	1	-	35	-	-	2	1	-	-	-
61 - 70	-	1	-	-	-	11	-	-	-	-	-	-	10
71 - 80	-	-	-	-	-	-	-	-	-	-	-	-	6
81 - 90	-	-	-	-	-	-	-	-	-	-	-	-	4
91 - 100	-	1	-	-	-	-	-	-	-	-	-	2	8
101 - 110	-	5	-	-	-	-	-	-	-	-	-	1	4
111 - 120	-	-	-	-	-	1	-	-	-	-	-	3	21
121 - 130	-	-	-	-	-	1	2	-	-	-	-	2	26
131 - 140	-	-	-	-	-	-	-	1	-	-	-	4	21
141 - 150	-	-	-	-	-	1	1	-	-	-	-	2	7
151 - 160	-	-	-	-	-	-	1	-	-	-	-	-	2
161 - 170	-	-	-	-	-	-	1	-	-	1	1	1	1
171 - 180	5	-	-	-	1	-	3	5	-	-	-	-	1
181 - 190	3	-	-	-	-	1	5	3	-	-	1	-	2
191 - 200	5	-	-	-	-	-	19	1	1	-	-	-	-
201 - 225	6	-	-	-	1	6	87	2	3	-	-	3	-
226 - 250	1	-	-	-	-	1	25	10	3	-	-	-	-
251 - 275	-	-	-	-	3	-	4	1	6	-	-	-	-
276 - 300	-	-	-	-	5	1	1	1		-	-	-	-
301 - 400	-	-	-	-	61	2	38	2	11	14	2	-	-
401 - 500	-	-	-	-	1	-	14	-	-	5	4	-	-
>501	-	-	-	-	-	-	1	-	-	2	-	-	-
Total	28	7	1	6	72	62	202	28	38	23	8	18	117

TABLE 12. FISH (cont.)

Piney Lake; Summer 1999

Normandeau; Electrofishing, gill nets, and seine

Length group mm	Bluegill	Smallmouth bass	Largemouth bass	Black crappie	White crappie	Yellow perch	Logperch	Walleye
1 - 50	11	1	-	-	1	-	1	-
51 - 60	-	2	-	2	1	4	6	-
61 - 70	-	3	1	-	-	-	-	-
71 - 80	-	3	7	-	-	-	-	-
81 - 90	1	1	8	-	-	-	1	-
91 - 100	1	-	7	-	-	3	4	-
101 - 110	3	-	3	-	-	22	4	-
111 - 120	1	-	1	-	-	16	4	-
121 - 130	-	1	-	-	-	11	-	-
131 - 140	-	-	-	1	1	3	1	-
141 - 150	-	-	-	1	1	6	-	-
151 - 160	1	5	-	1	3	8	-	-
161 - 170	-	-	-	-	12	12	-	-
171 - 180	-	1	-	-	1	20	-	-
181 - 190	-	-	3	1	-	8	-	-
191 - 200	-	-	2	2	1	15	-	-
201 - 225	-	1	8	2	3	13	-	-
226 - 250	-	2	1	2	11	7	-	-
251 - 275	-	-	1	-	2	-	-	-
276 - 300	-	-	1	-	-	-	-	-
301 - 400	-	1	3	-	-	-	-	7
401 - 500	-	2	-	-	-	-	-	4
>501	-	-	-	-	-	-	-	-
Total	18	23	46	12	37	148	21	11

TABLE 13. FISH

Piney Lake; Fall 1999

Normandeau; Electrofishing, gill nets, and seine

Length group mm	Common carp	Golden shiner	Common shiner	Silver shiner	White sucker	Northern hogsucker	Golden redhorse	Yellow bullhead	Brown bullhead	Channel catfish	Tiger muskellunge	Rock bass	Pumpkinseed
1 - 50	-	-	-	1	-	1	-	-	-	-	-	-	13
51 - 60	-	-	-	-	-	-	-	-	-	-	-	-	2
61 - 70	-	-	-	-	-	1	2	-	-	-	-	-	1
71 - 80	-	-	1	1	-	10	2	-	-	-	-	-	10
81 - 90	-	-	1	1	-	7	-	-	-	-	-	-	8
91 - 100	-	1	-	6	-	4	-	-	-	-	-	-	8
101 - 110	-	-	-	4	-	-	-	-	-	-	-	-	11
111 - 120	-	-	-	2	-	1	-	-	-	-	-	1	18
121 - 130	-	-	-	-	-	1	-	-	-	-	-	2	18
131 - 140	-	-	-	-	-	4	-	-	-	-	-	2	11
141 - 150	-	-	-	-	-	5	-	-	-	-	-	6	4
151 - 160	-	-	-	-	1	3	-	-	-	-	-	2	6
161 - 170	-	-	-	-	3	5	1	-	-	-	-	4	3
171 - 180	-	1	-	-	1	6	2	4	-	-	-	2	4
181 - 190	-	6	-	-	1	4	-	3	-	-	-	2	1
191 - 200	-	5	-	-	-	3	3	2	2	-	-	1	-
201 - 225	-	2	-	-	1	10	27	6	3	-	-	13	-
226 - 250	-	1	-	-	1	2	36	3	1	-	-	1	-
251 - 275	-	-	-	-	1	3	42	6	2	-	-	-	-
276 - 300	-	-	-	-	2	3	15	1		-	1	-	-
301 - 400	-	-	-	-	80	-	30	-	16	10	1	-	-
401 - 500	-	-	-	-	4	-	18	-	-	7	1	-	-
>501	1	-	-	-	-	-	-	-	-	6	9	-	-
Total	1	16	2	15	95	73	178	25	24	23	12	36	118

TABLE 13. FISH (cont.)
Piney Lake; Fall 1999
Normandeau; Electrofishing, gill nets, and seine

Length group mm	Bluegill	Smallmouth bass	Largemouth bass	Black crappie	White crappie	Greenside darter	Yellow perch	Logperch	Walleye
1 - 50	15	-	-	-	-	1	-	-	-
51 - 60	5	-	-	-	-	-	-	-	-
61 - 70	5	2	1	6	1	1	2	6	-
71 - 80	3	4	3	1	3	-	5	2	-
81 - 90	-	4	7	-	-	-	9	1	-
91 - 100	2	7	1	-	-	-	1	-	-
101 - 110	2	7	7	-	-	-	7	-	-
111 - 120	1	2	6	-	-	-	14	-	-
121 - 130	4	2	5	-	-	-	13	-	-
131 - 140	1	-	3	-	-	-	6	-	-
141 - 150	2	-	9	2	-	-	14	-	-
151 - 160	1	-	6	1	-	-	16	-	-
161 - 170	1	-	-	1	2	-	27	-	-
171 - 180	-	-	-	-	6	-	15	-	-
181 - 190	-	2	-	-	2	-	19	-	-
191 - 200	1	2	-	2	-	-	17	-	-
201 - 225	-	-	1	7	2	-	23	-	-
226 - 250	-	3	1	2	6	-	2	-	-
251 - 275	-	-	2	1	4	-	1	-	-
276 - 300	-	11	4	-	-	-	-	-	
301 - 400	-	29	2	-	1	-	-	-	15
401 - 500	-	11	-	-	-	-	-	-	14
>501	-	-	-	-	-	-	-	-	1
Total	43	86	58	23	27	2	191	9	30

TABLE 14. FISH
Piney Lake; April 1995
PFBC; Gill nets

Length group (mm)	Common carp	River chub	Golden shiner	Silver shiner	Creek chub	White sucker	Northern hogsucker	Golden redhorse	Yellow bullhead	Brown bullhead	Rainbow trout	Brown trout	Brook trout	Rock bass	Pumpkinseed	Black crappie	White crappie	Yellow perch
50 - 74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75 - 99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100 - 124	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	2
125 - 149	-	1	42	1	-	-	-	-	-	-	-	-	-	3	1	3	-	-
150 - 174	-	-	59	-	-	-	1	-	-	2	-	-	-	1	-	8	8	-
175 - 199	-	-	21	-	-	1	-	-	6	2	-	-	-	1	-	5	1	-
200 - 224	-	-	3	-	-	21	1	-	2	2	-	-	-	4	-	-	1	1
225 - 249	-	-	-	-	-	36	-	-	-	6	-	-	-	2	-	-	1	1
250 - 275	-	-	-	-	-	6	-	-	1	8	-	-	2	-	-	-	1	1
275 - 299	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-
300 - 324	-	-	-	-	2	8	-	-	-	3	-	-	-	-	-	-	-	-
325 - 349	1	-	-	-	-	43	-	-	-	-	-	1	-	-	-	-	-	-
350 - 374	1	-	-	-	-	47	-	1	-	-	-	-	1	-	-	-	-	-
375 - 399	2	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-
400 - 424	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-
425 - 449	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450 - 474	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
475 - 499	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
500 - 524	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
525 - 549	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Total	4	1	125	1	2	178	2	7	9	28	1	1	3	11	2	16	12	5

TABLE 15. FISH

Clarion River - Piney Creek (CR02); July 11, 1995

PFBC; Electrofishing

Length group (mm)	River chub	Golden shiner	Creek chub	White sucker	Northern hogsucker	Brown bullhead	Rock bass	Green sunfish	Pumpkinseed	Bluegill	Largemouth bass	Logperch	Blackside darter	Yellow perch
>49	-	-	-	-	-	-	-	-	2	-	-	-	-	-
50 - 74	-	-	-	-	1	-	1	1	30	7	-	-	-	-
75 - 99	-	-	-	1	1	-	-	1	4	1	1	-	-	-
100 - 124	-	-	-	-	-	-	1	-	2	-	-	-	-	-
125 - 149	-	-	-	2	-	-	-	-	-	-	-	-	-	2
150 - 174	-	-	-	-	-	-	-	-	-	-	-	-	-	1
175 - 199	1	-	-	1	-	1	-	-	-	-	-	-	-	-
200 - 224	-	-	-	2	-	-	-	-	-	-	-	-	-	-
225 - 249	-	-	-	-	-	-	-	-	-	-	-	-	-	-
250 - 275	-	-	-	-	-	-	-	-	-	-	-	-	-	-
275 - 299	-	-	-	-	-	2	-	-	-	-	-	-	-	-
300 - 324	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325 - 349	-	-	-	-	-	-	-	-	-	-	-	-	-	-
350 - 374	-	-	-	1	-	-	-	-	-	-	-	-	-	-
375 - 399	-	-	-	-	-	-	-	-	-	-	-	-	-	-
400 - 424	-	-	-	-	-	-	-	-	-	-	-	-	-	-
425 - 449	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450 - 474	-	-	-	-	-	-	-	-	-	-	-	-	-	-
475 - 499	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Total	1	1	1	8	2	3	2	2		8	1	1	1	3

TABLE 16. FISH
Clarion River - Callensburg (CR03); July 10, 1995
PFBC; Electrofishing

Length group (mm)	Northern hogsucker	Pumpkinseed	Greenside darter	Logperch	Blackside darter	Yellow perch
>49	-	-	-	-	-	-
50 - 74	-	1	-	-	-	-
75 - 99	1	2	-	-	-	-
100 - 124	-	-	-	-	-	-
125 - 149	-	-	-	-	-	1
150 - 174	-	-	-	-	-	2
175 - 199	-	-	-	-	-	1
Total	1	3	4	2	5	4

TABLE 17. FISH
Clarion River - Spillway (CR01A); September 12, 1996
PFBC; Electrofishing

Length group (mm)	River chub	Golden shiner	Unidentified shiner	Rock bass	'umpkinsee	Bluegill	Largemouth bass	Black crappie	Variegate darter	Logperch	Yellow perch
>49	-	-	-	-	-	1	-	-	-	-	-
50 - 74	-	-	-	-	-	1	1	-	-	-	-
75 - 99	1	-	-	1	5	6	-	-	-	-	-
100 - 124	-	-	-	-	-	1	1	-	-	-	1
125 - 149	-	-	-	1	-	-	1	-	-	-	-
150 - 174	-	-	-	-	-	-	-	1	-	-	1
Total	1	1	82	2	5	8	3	1	1	3	2

TABLE 18. FISH
Clarion River - Callensburg (CR03); July 18, 1996
PFBC; Electrofishing

Length group (mm)	Silver redhorse	Bluegill	Sunfish hybrid	Smallmouth bass
>49	-	-	-	-
50 - 74	-	-	-	-
75 - 99	-	-	-	-
100 - 124	-	-	-	-
125 - 149	-	-	-	-
150 - 174	-	1	1	-
175 - 199	-	-	-	-
200 - 224	-	-	-	-
225 - 249	-	-	-	-
250 - 275	-	-	-	-
275 - 299	-	-	-	-
300 - 324	-	-	-	-
325 - 349	-	-	-	-
350 - 374	-	-	-	-
375 - 399	-	-	-	-
400 - 424	-	-	-	1
425 - 449	-	-	-	-
450 - 474	1	-	-	-
475 - 499	-	-	-	-
500 - 524	1	-	-	-
Total	2	1	1	1

TABLE 19. FISH
Clarion River - Spillway (CR01A); July 18, 1997
PFBC; Electrofishing

Length group (mm)	Common carp	Northern hogsucker	Redhorse spp.	Brown bullhead	Muskellunge	Brown trout	Rock bass	Pumpkinseed	Logperch	Yellow perch	Walleye
>49	-	-	-	-	-	-	-	-	-	-	-
50 - 74	-	-	-	-	-	-	-	-	-	1	-
75 - 99	-	-	-	-	-	-	1	14	-	1	-
100 - 124	-	-	-	-	-	-	-	5	-	1	-
125 - 149	-	-	-	-	-	-	-	-	-	1	-
150 - 174	-	-	-	-	-	-	-	-	-	3	-
175 - 199	-	-	-	-	-	-	-	-	-	-	1
200 - 224	-	-	-	-	-	-	-	-	-	-	1
225 - 249	-	1	-	1	-	-	-	-	-	-	-
250 - 275	-	-	-	-	-	-	-	-	-	-	-
275 - 299	-	-	-	-	-	-	-	-	-	-	-
300 - 324	-	-	-	-	-	-	-	-	-	-	-
325 - 349	-	-	-	-	-	-	-	-	-	-	1
350 - 374	-	-	-	-	-	-	-	-	-	-	1
375 - 399	-	-	1	-	-	1	-	-	-	-	-
400 - 424	-	-	1	-	-	-	-	-	-	-	-
425 - 449	-	-	-	-	-	-	-	-	-	-	-
450 - 474	-	-	-	-	-	-	-	-	-	-	-
475 - 499	-	-	-	-	-	-	-	-	-	-	-
500 - 524	-	-	-	-	-	1	-	-		-	-
525 - 549	1	-	-	-	-	-	-	-	-	-	1
550 - 574	-	-	-	-	-	1	-	-	-	-	-
575 - 599	1	-	-	-	-	-	-	-	-	-	-
600 - 624	3	-	-	-	-	-	-	-	-	-	-
625 - 649	4	-	-	-	-	-	-	-	-	-	-
650 - 674	1	-	-	-	-	-	-	-	-	-	-
675 - 699	1	-	-	-	-	-	-	-	-	-	-
700 - 724	3	-	-	-	-	-	-	-	-	-	-
725 - 749	-	-	-	-	-	-	-	-	-	-	-
750 - 774	1	-	-	-	-	-	-	-	-	-	-
775 - 799	1	-	-	-	-	-	-	-	-	-	-
800 - 824	-	-	-	-	-	-	-	-	-	-	-
825 - 849	1	-	-	-	-	-	-	-	-	-	-
850 - 874	1	-	-	-	-	-	-	-	-	-	-
875 - 899	1	-	-	-	1	-	-	-	-	-	-
Total	19	1	2	1	1	3	1	19	1	7	5

TABLE 20. FISH
Clarion River - Piney Creek (CR02A); August 18, 1997
PFBC; Electrofishing

Length group (mm)	Common carp	River chub	White sucker	Northern hogsucker	Golden redhorse	Yellow bullhead	Rock bass	Pumpkinseed	Bluegill	Smallmouth bass	Largemouth bass	Greenside darter	Variegate darter	Logperch	Blackside darter	Yellow perch	Walleye
>49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50 - 74	-	-	-	-	-	-	-	2	-	1	1	-	-	-	-	-	-
75 - 99	-	-	-	-	-	-	-	6	-	4	-	-	-	-	-	1	-
100 - 124	-	1	-	-	-	-	-	13	3	-	-	-	-	-	-	6	-
125 - 149	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-
150 - 174	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
175 - 199	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
200 - 224	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
225 - 249	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
250 - 275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
275 - 299	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
300 - 324	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325 - 349	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
350 - 374	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
375 - 399	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
400 - 424	-	-	1	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	1	1	1	3	2	1	22	3	5	1	2	2	29	4	7	1

TABLE 21. FISH
Clarion River - Callensburg (CR03); August 18, 1997
PFBC; Electrofishing

Length group (mm)	Rosyface shiner	Rock bass	Smallmouth bass	Greenside darter	Blackside darter	Walleye
>49	-	-	-	-	-	-
50 - 74	-	-	3	-	-	-
75 - 99	-	-	1	-	-	-
100 - 124	-	-	-	-	-	-
125 - 149	-	-	-	-	-	-
150 - 174	-	-	-	-	-	-
175 - 199	-	1	-	-	-	-
200 - 224	-	-	-	-	-	-
225 - 249	-	-	-	-	-	-
250 - 275	-	-	-	-	-	-
275 - 299	-	-	-	-	-	-
300 - 324	-	-	-	-	-	-
325 - 349	-	-	-	-	-	1
Total	4	1	4	6	1	1

TABLE 22. FISH

CLARION RIVER - Spillway, Piney Bridge, Canoe Ripple, Callensburg and St. Petersburg; Spring 1999

Normandeau; Electrofishing

Length group mm	River chub	Silver shiner	Rosyface shiner	Mimic shiner	Bluntnose minnow	Creek chub	White sucker	Northern hogsucker	Yellow bullhead	Stonecat	Mottled sculpin	Rock bass	Pumpkinseed
1 - 50	-	-	4	4	-	-	-	-	-	-	-	-	-
51 - 60	1	1	1	9	2	1	-	-	-	-	-	1	1
61 - 70	2	-	1	1	5	-	-	1	-	1	-	-	-
71 - 80	-	-	1	-	-	-	-	2	-	-	-	-	-
81 - 90	-	-	-	-	2	-	1	1	-	-	1	-	-
91 - 100	-	-	-	-	2	-	1	-	-	-	-	-	-
101 - 110	-	-	-	-	-	-	2	-	-	-	-	-	-
111 - 120	-	-	-	-	-	-	-	-	-	-	-	1	-
121 - 130	-	-	-	-	-	-	-	-	-	-	-	-	-
131 - 140	-	-	-	-	-	-	-	-	-	-	-	-	-
141 - 150	-	-	-	-	-	-	-	-	-	-	-	-	-
151 - 160	-	-	-	-	-	-	-	-	-	-	-	-	-
161 - 170	-	-	-	-	-	-	-	1	-	-	-	-	-
171 - 180	-	-	-	-	-	-	-	-	2	-	-	-	-
181 - 190	-	-	-	-	-	-	-	-	-	-	-	-	-
191 - 200	1	-	-	-	-	-	-	-	1	-	-	-	-
201 - 225	-	-	-	-	-	-	-	-	-	-	-	-	-
226 - 250	-	-	-	-	-	-	-	-	-	-	-	-	-
251 - 275	-	-	-	-	-	-	-	-	-	-	-	-	-
276 - 300	-	-	-	-	-	-	-	-		-	-	-	-
301 - 400	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	4	1	7	14	11	1	4	5	3	1	1	2	1

TABLE 22. FISH (cont.)

CLARION RIVER - Spillway, Piney Bridge, Canoe Ripple, Callensburg and St. Petersburg; Spring 1999

Normandeau; Electrofishing

Length group mm	Smallmouth bass	Largemouth bass	Black crappie	Greenside darter	Rainbow darter	Johnny darter	Variegate darter	Banded darter	Logperch	Blackside darter
1 - 50	-	-	-	1	1	1	7	3	-	-
51 - 60	-	-	-	-	-	3	-	-	-	-
61 - 70	-	-	-	2	-	-	7	-	3	-
71 - 80	-	-	1	1	-	-	7	3	-	1
81 - 90	-	-	1	-	-	-	1	-	1	1
91 - 100	-	-	-	-	-	-	-	1	2	-
101 - 110	-	-	-	-	-	-	-	-	3	-
111 - 120	-	-	-	-	-	-	-	-	3	-
121 - 130	-	-	-	-	-	-	-	-	-	-
131 - 140	-	-	-	-	-	-	-	-	-	-
141 - 150	-	1	-	-	-	-	-	-	-	-
151 - 160	-	-	-	-	-	-	-	-	-	-
161 - 170	-	-	-	-	-	-	-	-	-	-
171 - 180	-	-	-	-	-	-	-	-	-	-
181 - 190	-	-	-	-	-	-	-	-	-	-
191 - 200	-	-	-	-	-	-	-	-	-	-
201 - 225	-	-	-	-	-	-	-	-	-	-
226 - 250	-	-	-	-	-	-	-	-	-	-
251 - 275	-	-	-	-	-	-	-	-	-	-
276 - 300	-	-	-	-	-	-	-		-	-
301 - 400	1	-	-	-	-	-	-	-	-	-
Total	1	1	2	4	1	4	22	7	12	2

TABLE 23. FISH

CLARION RIVER - Spillway, Piney Bridge, Canoe Ripple, Callensburg and St. Petersburg; Summer 1999

Normandeau; Summer 1999

Length group mm	Common carp	River chub	Silver shiner	Rosyface shiner	Mimic shiner	Bluntnose minnow	Northern hogsucker	Yellow bullhead	Channel catfish	Stonecat	Rock bass	Green sunfish
1 - 50	-	24	16	4	2	17	-	14	1	-	3	-
51 - 60	-	6	3	3	-	3	2	-	-	-	-	-
61 - 70	1	-	-	-	-	1	-	-	-	-	-	-
71 - 80	-	-	-	-	-	-	-	-	-	-	-	2
81 - 90	-	2	-	-	-	-	-	-	-	-	4	-
91 - 100	-	3	-	-	-	1	-	-	-	-	2	-
101 - 110	-	-	-	-	-	-	-	-	-	1	1	-
111 - 120	-	-	-	-	-	-	-	-	-	-	-	-
121 - 130	-	-	-	-	-	-	1	1	-	-	1	-
131 - 140	-	1	-	-	-	-	-	-	-	-	1	-
141 - 150	-	-	-	-	-	-	-	-	-	-	-	-
151 - 160	-	-	-	-	-	-	-	-	-	-	1	-
161 - 170	-	-	-	-	-	-	-	-	-	-	-	-
171 - 180	-	-	-	-	-	-	-	-	-	-	-	-
181 - 190	-	1	-	-	-	-	-	-	-	-	-	-
191 - 200	-	-	-	-	-	-	-	-	-	-	-	-
201 - 225	-	-	-	-	-	-	-	1	-	-	2	-
Total	1	37	19	7	2	22	3	16	1	1	15	2

TABLE 23. FISH (cont.)

CLARION RIVER - Spillway, Piney Bridge, Canoe Ripple, Callensburg and St. Petersburg; Summer 1999

Normandeau; Electrofishing

Length group mm	Pumpkinseed	Bluegill	Smallmouth bass	Largemouth bass	Greenside darter	Johnny darter	Variegate darter	Banded darter	Logperch	Blackside darter
1 - 50	2	2	-	-	1	11	1	6	-	-
51 - 60	-	-	1	1	-	-	1	-	3	-
61 - 70	1	-	-	-	-	-	9	-	7	1
71 - 80	9	-	-	-	-	-	4	-	-	3
81 - 90	1	-	2	-	2	-	2	-	-	-
91 - 100	3	-	-	-	-	-	-	-	-	-
101 - 110	-	1	-	-	-	-	-	-	-	-
111 - 120	2	-	-	1	-	-	-	-	-	-
121 - 130	-	-	-	2	-	-	-	-	-	-
131 - 140	-	-	-	-	-	-	-	-	1	-
141 - 150	-	-	-	-	-	-	-	-	-	-
151 - 160	-	-	-	-	-	-	-	-	-	-
161 - 170	-	-	-	-	-	-	-	-	-	-
171 - 180	-	-	-	-	-	-	-	-	-	-
181 - 190	-	-	-	-	-	-	-	-	-	-
191 - 200	-	-	-	-	-	-	-	-	-	-
201 - 225	-	-	-	-	-	-	-	-	-	-
Total	18	3	3	4	3	11	17	6	11	4

TABLE 24. FISH

CLARION RIVER - Spillway, Piney Bridge, Canoe Ripple, Callensburg and St. Petersburg; Fall 1999

Normandeau; Electrofishing

Length group mm	Mountain brook lamprey	Streamline chub	River chub	Golden shiner	Silver shiner	Rosyface shiner	Mimic shiner	Bluntnose minnow	White sucker	Northern hogsucker	Stonecat	Mottled sculpin	Rock bass
1 - 50	-	-	1	1	1	5	-	60	-	-	-	-	5
51 - 60	-	-	10	-	2	9	2	1	-	1	2	-	4
61 - 70	-	-	16	1	-	9	1	1	-	1	-	1	1
71 - 80	1	1	14	-	-	4	-	-	-	5	1	-	-
81 - 90	-	-	9	-	-	-	-	4	1	-	-	-	1
91 - 100	-	2	3	-	-	-	-	-	-	-	-	-	-
101 - 110	-	-	1	-	-	-	-	-	-	-	-	-	5
111 - 120	-	-	2	-	-	-	-	1	-	-	-	-	-
121 - 130	-	-	-	-	-	-	-	-	-	-	-	-	2
131 - 140	-	-	-	-	-	-	-	-	-	-	-	-	-
141 - 150	-	-	-	-	-	-	-	-	-	-	-	-	1
151 - 160	-	-	-	-	-	-	-	-	-	-	-	-	-
161 - 170	-	-	-	-	-	-	-	-	-	-	-	-	1
Total	1	3	56	2	3	27	3	67	1	7	3	1	20

Length group mm	Pumpkinseed	Bluegill	Smallmouth bass	Largemouth bass	Black crappie	Greenside darter	Rainbow darter	Johnny darter	Variegate darter	Banded darter	Logperch	Blackside darter
1 - 50	11	1	-	-	-	-	6	7	2	19	-	-
51 - 60	3	-	-	-	-	2	-	1	1	3	-	4
61 - 70	-	-	2	-	-	1	1	-	7	-	2	-
71 - 80	1	-	2	1	1	2	-	-	21	-	6	1
81 - 90	-	-	-	2	-	1	-	-	5	-	4	-
91 - 100	1	-	2	1	-	-	-	-	-	-	-	-
101 - 110	-	-	-	-	-	-	-	-	-	-	1	-
111 - 120	-	-	-	-	-	-	-	-	-	-	1	-
121 - 130	-	-	-	-	-	-	-	-	-	-	-	-
131 - 140	-	-	-	-	-	-	-	-	-	-	-	-
141 - 150	-	-	-	-	-	-	-	-	-	-	-	-
151 - 160	-	-	-	-	-	-	-	-	-	-	-	-
161 - 170	-	-	-	-	-	-	-	-	-	-	-	-
Total	16	1	6	4	1	6	7	8	36	22	14	5

Figure 1.
Clarion River
Present Designated Uses
WQN Stations

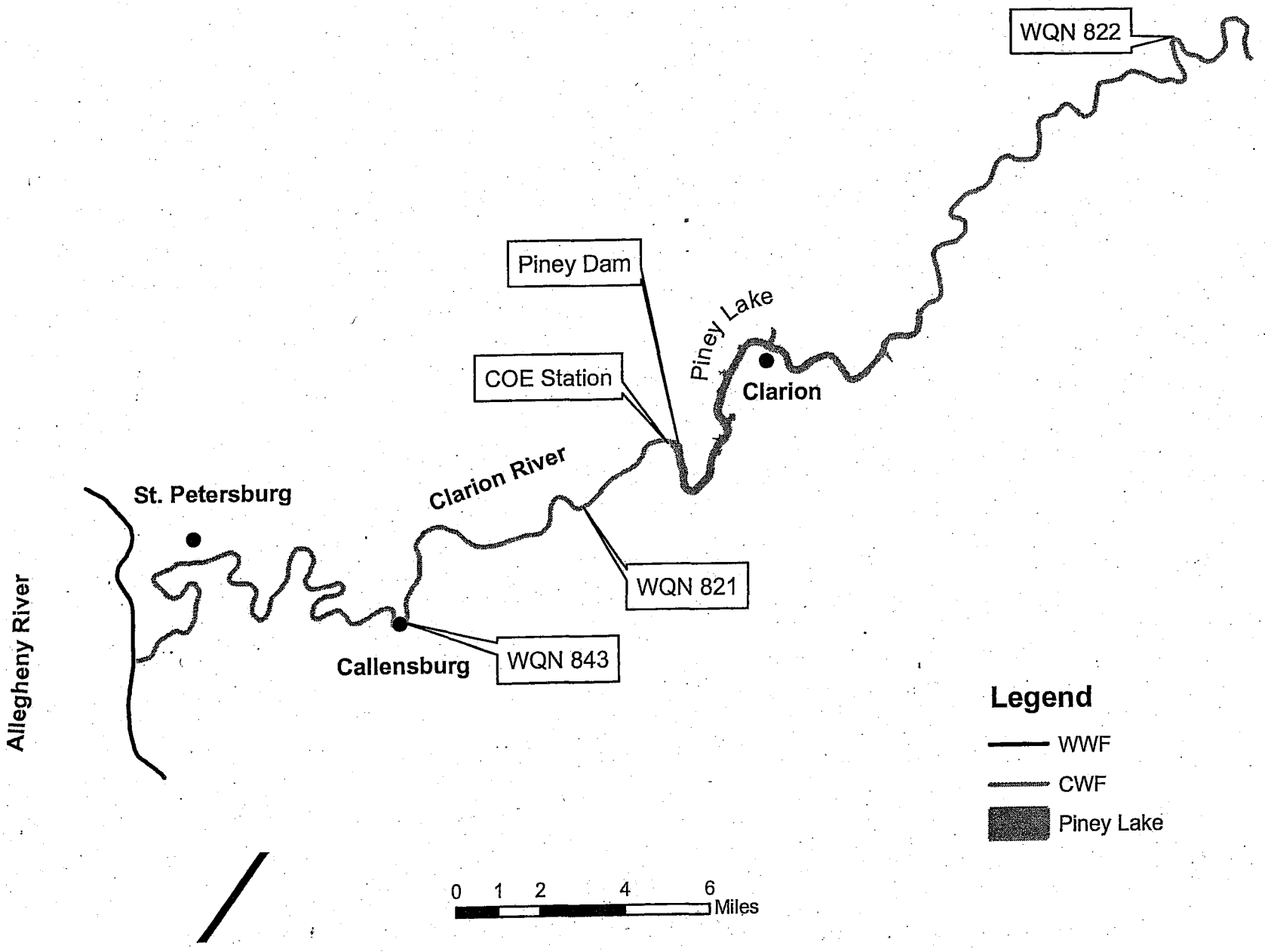
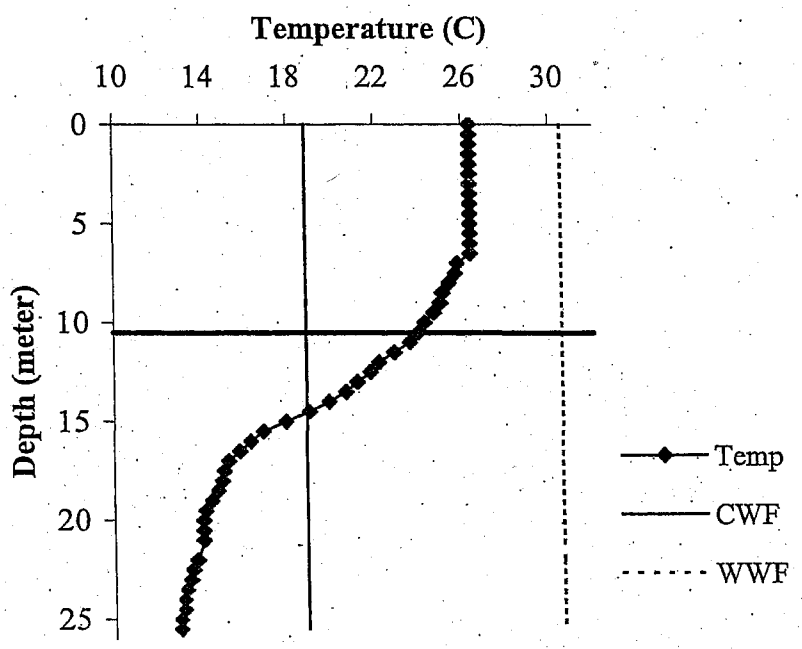


FIGURE 2.
WATER CHEMISTRY - Temperature and Dissolved Oxygen Profiles
PFBC 1995
August 10, 1995
Vertical lines depict parameter criteria.



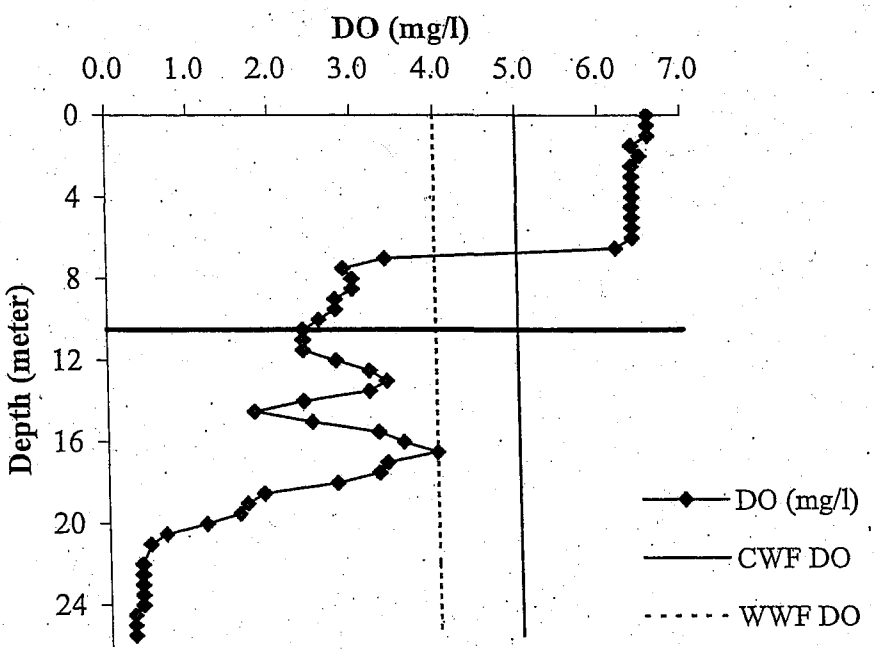


FIGURE 3.
WATER CHEMISTRY - Temperature and Dissolved Oxygen Profiles
Normandeau 2000
Vertical lines depict parameter criteria.

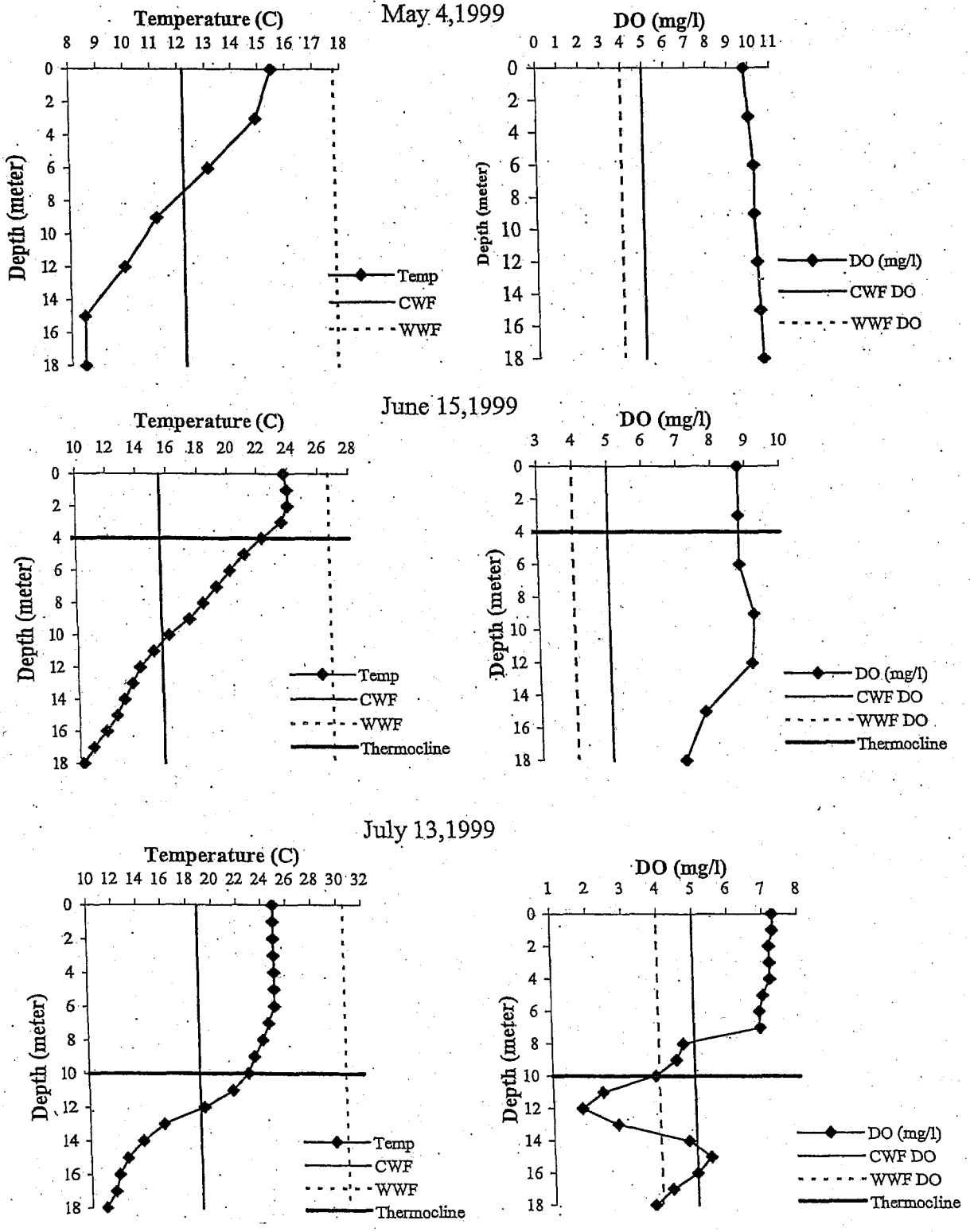
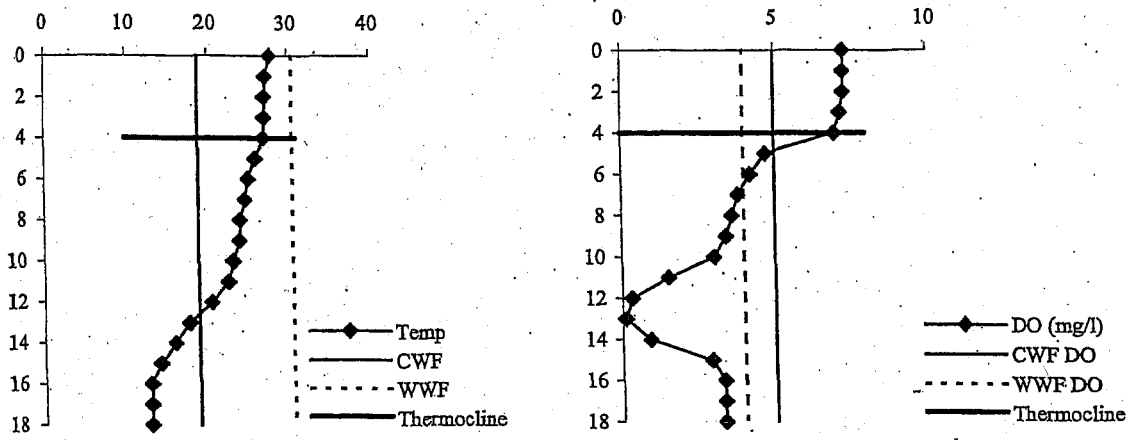
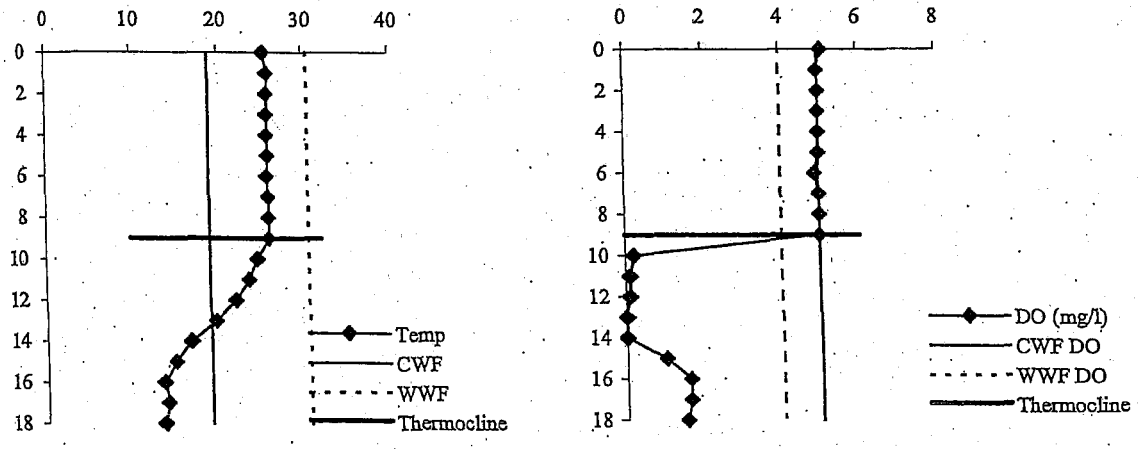


FIGURE 3. (cont.)
WATER CHEMISTRY - Temperature and Dissolved Oxygen Profiles

July 27,1999



August 10,1999



August 24,1999

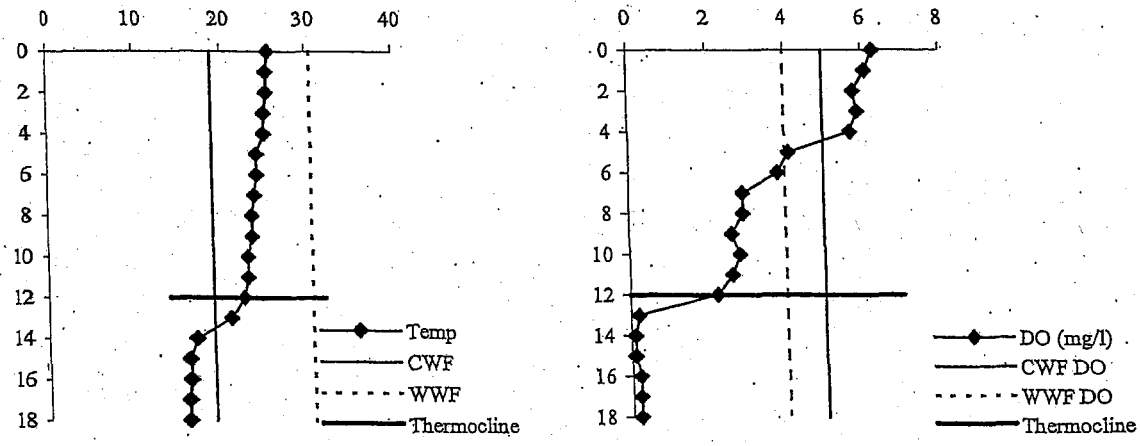
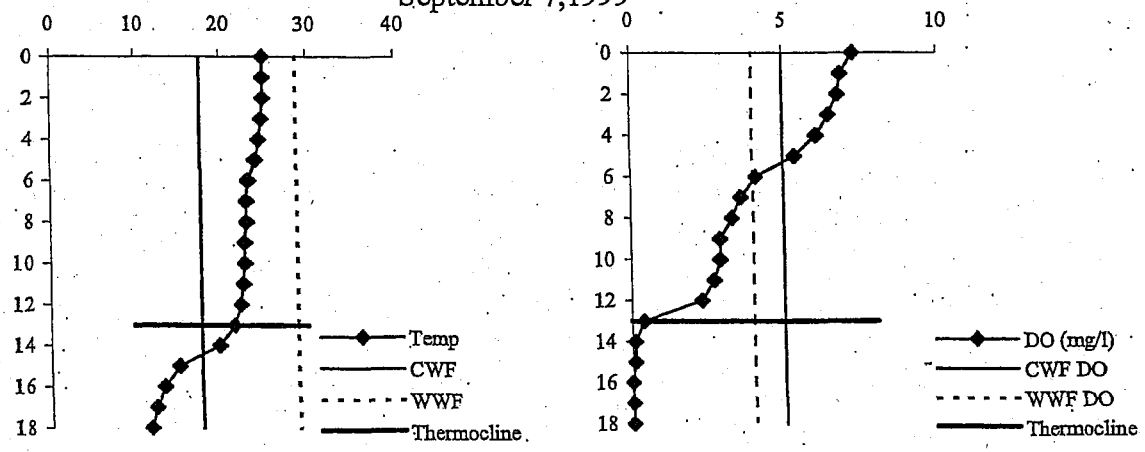
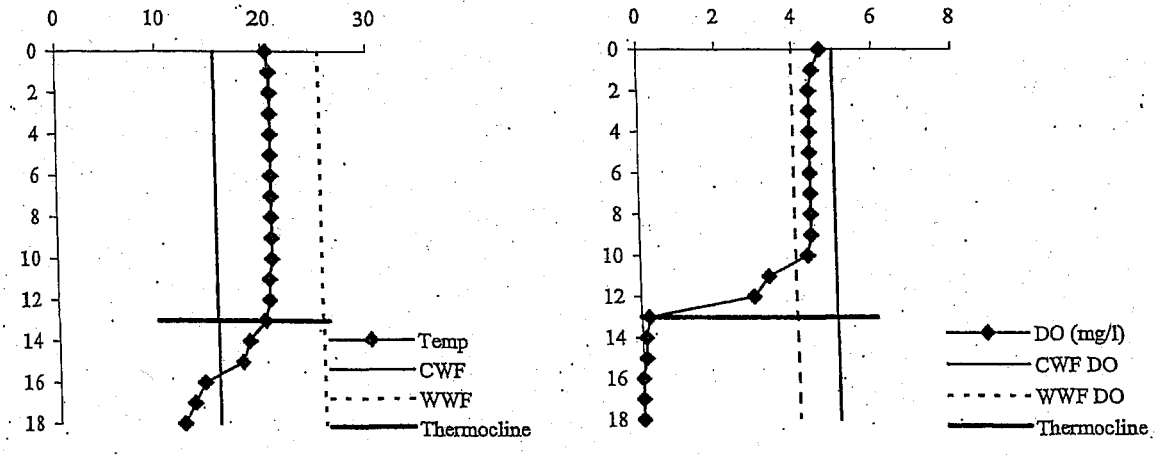


FIGURE 3. (cont.)
WATER CHEMISTRY - Temperature and Dissolved Oxygen Profiles

September 7,1999



September 22,1999



October 5,1999

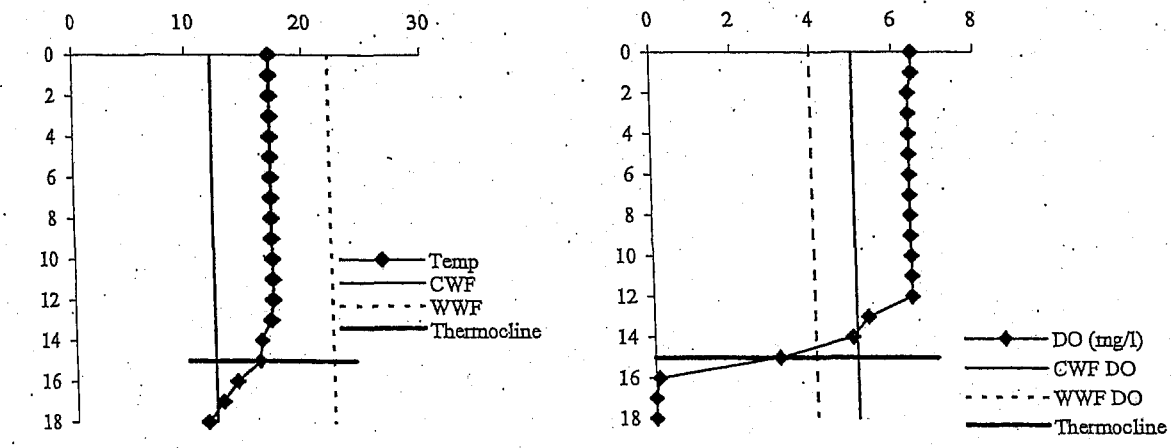
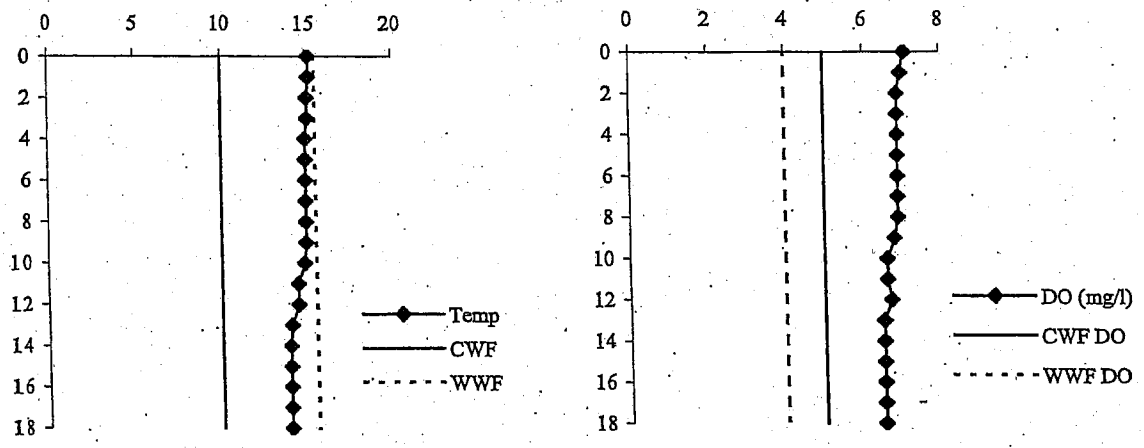
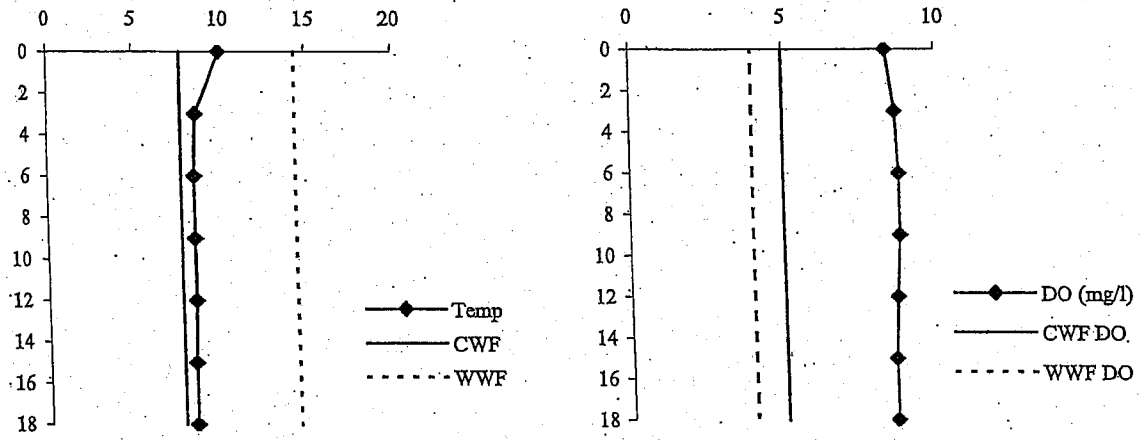


FIGURE 3. (cont.)
WATER CHEMISTRY - Temperature and Dissolved Oxygen Profiles

October 18,1999



November 9,1999



December 6,1999

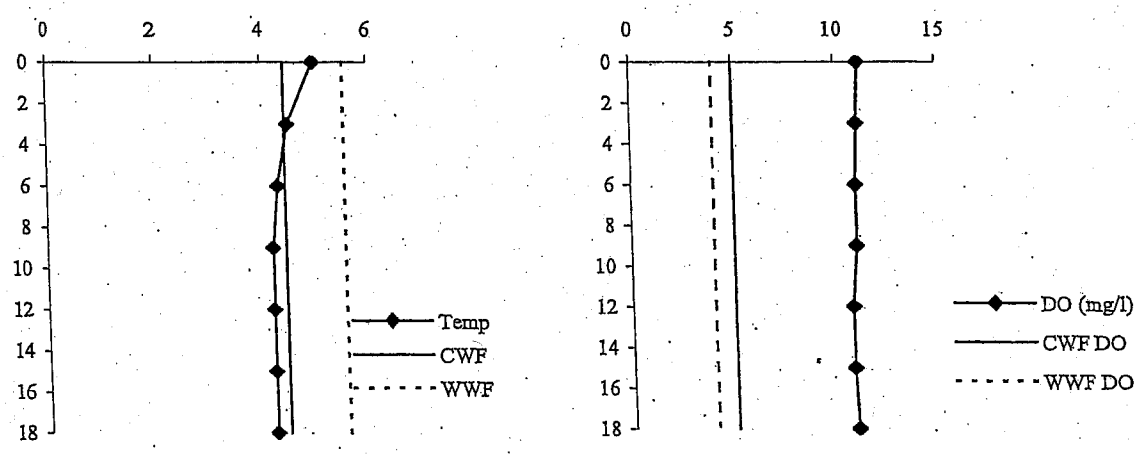


FIGURE 4.
WATER CHEMISTRY - Temperature and Dissolved Oxygen Profiles
Normandeau 2000
Uplake stations August 2-3, 1999
Vertical lines depict parameter criteria.

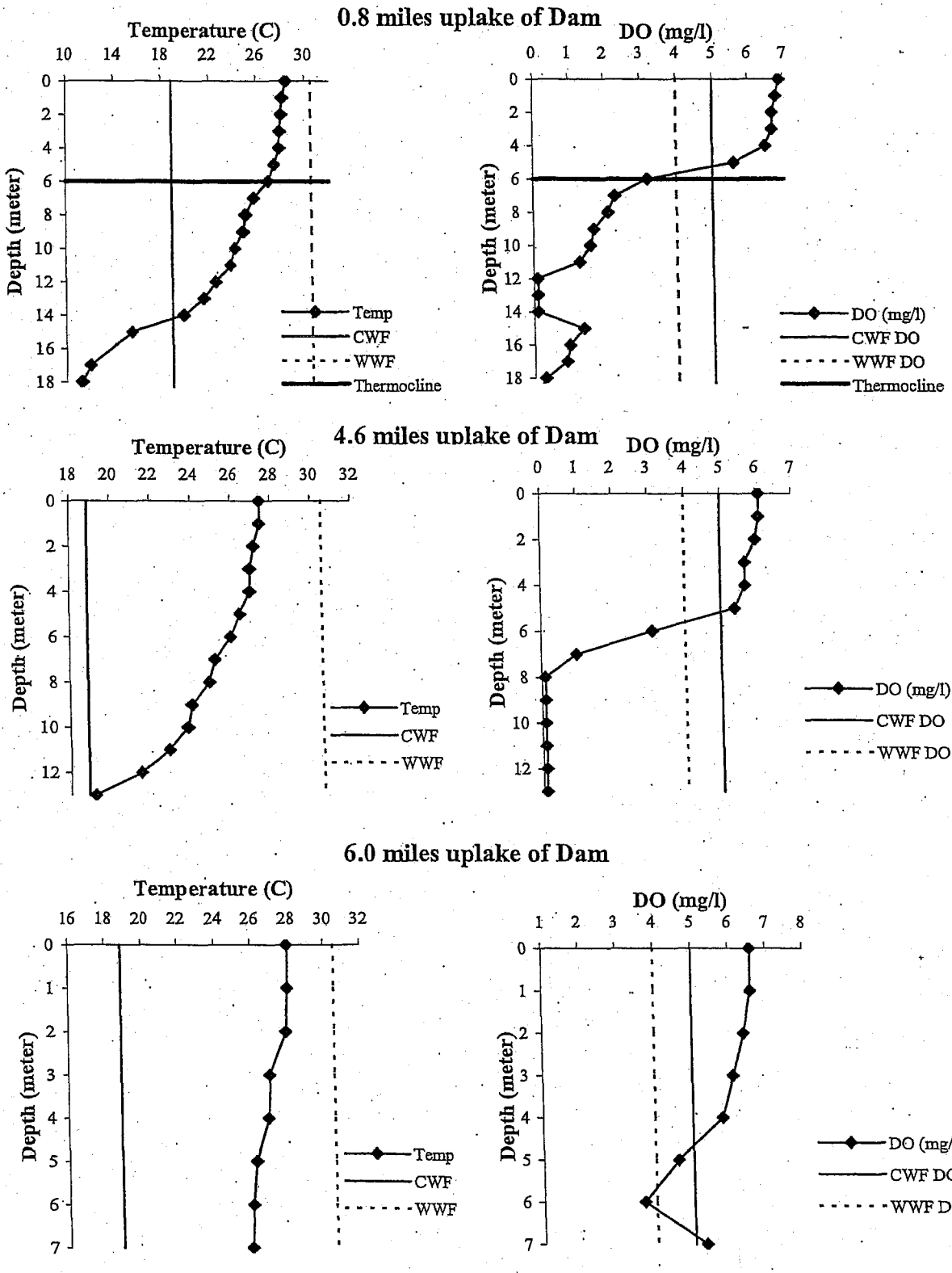
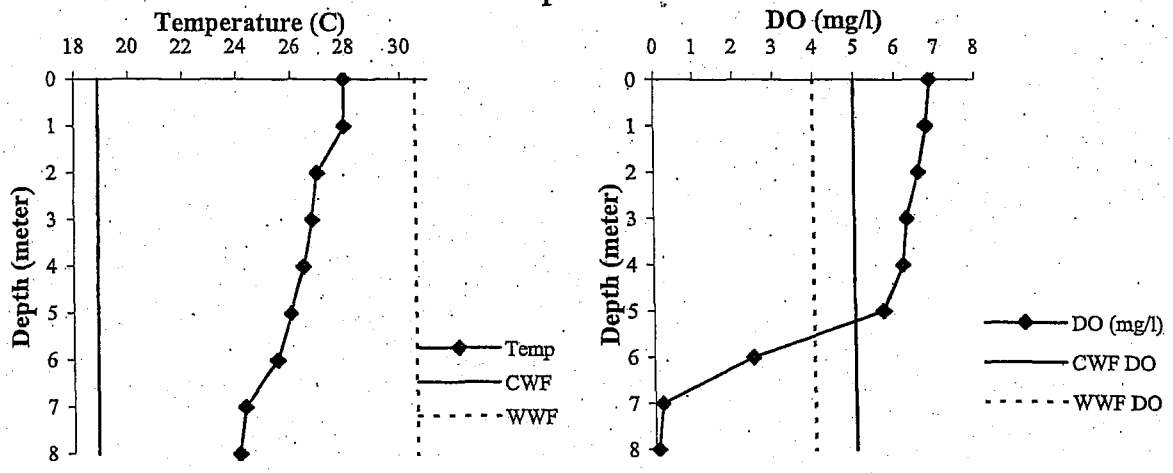


FIGURE 4. (cont.)
WATER CHEMISTRY - Temperature and Dissolved Oxygen Profiles

7.0 miles uplake of Dam



11.0 miles uplake of Dam

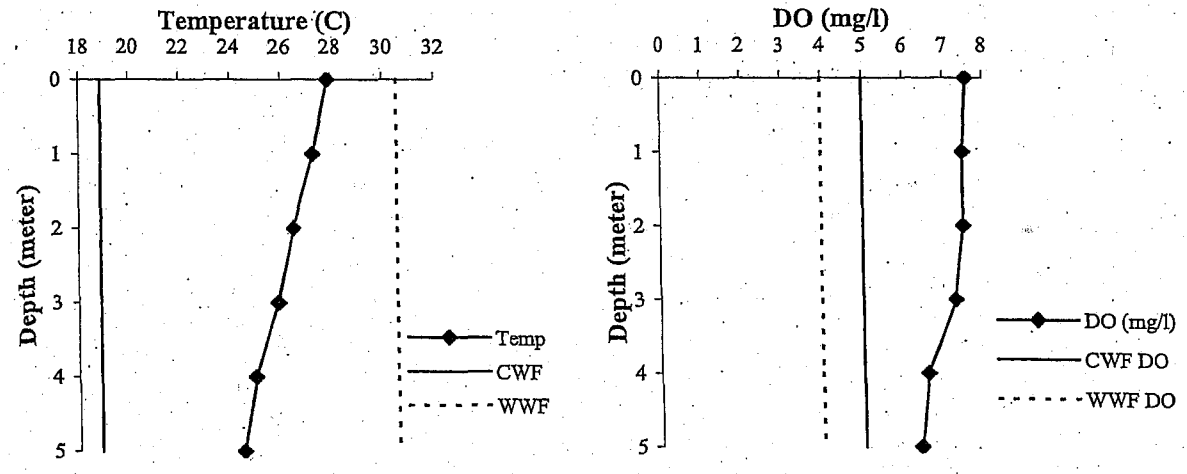
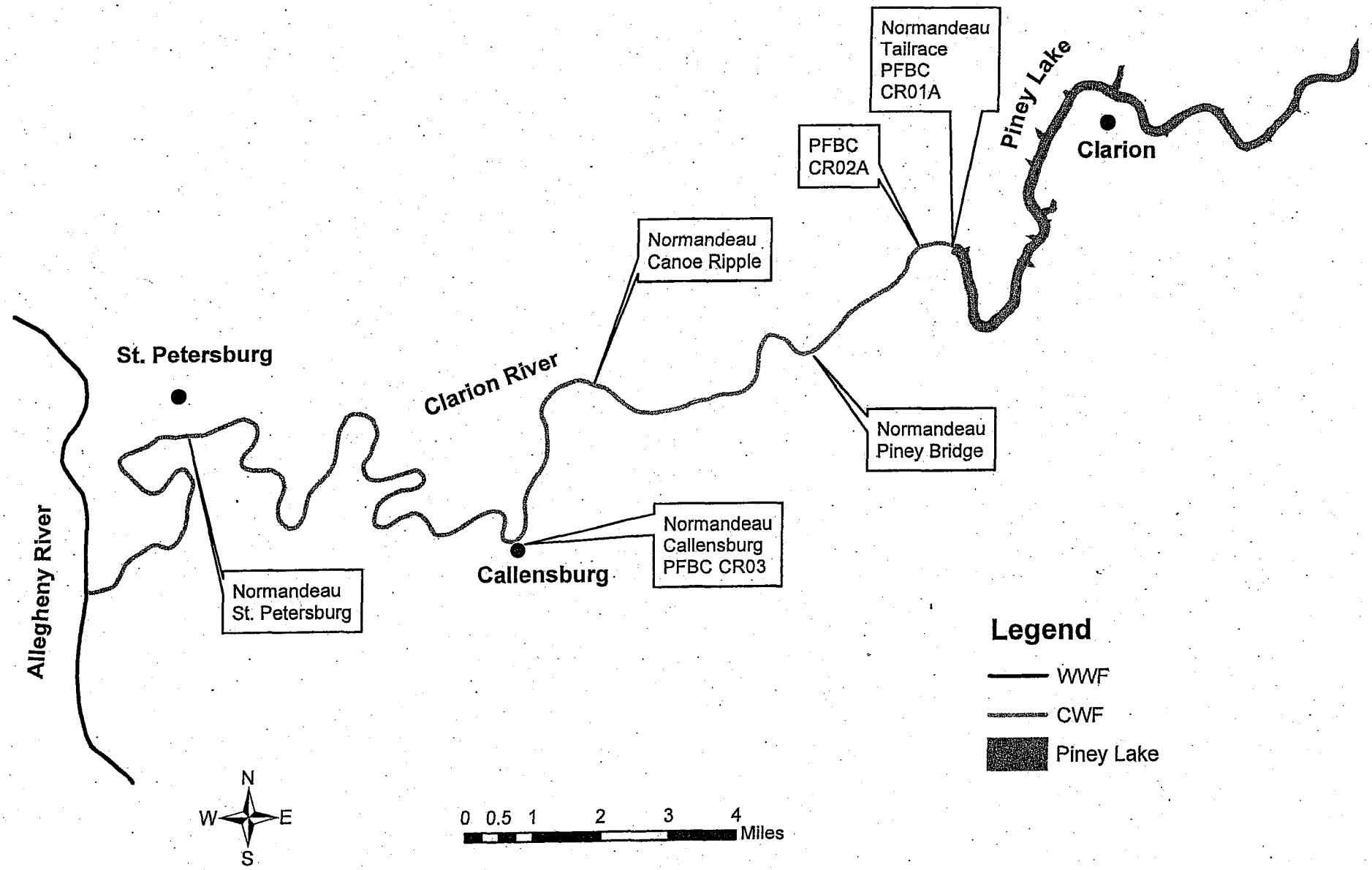


Figure 5.
Clarion River
Fish Sampling Stations



Pennsylvania Department of Environmental Protection

Rachel Carson State Office Building
P.O. Box 2063
Harrisburg, PA 17105-2063
April 27, 2007

Policy Office 717-783-8727

Kim Kaufman, Executive Director
Independent Regulatory Review Commission
14th Floor, Harristown #2
333 Market Street
Harrisburg, PA 17120

Re: Proposed Rulemaking: 25 Pa Code, Chapter 93-Stream Redesignations (Big Brook, *et al.*) (#7- 410)

Dear Mr. Kaufmann:

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 May 12, 2007, with a 45-day public comment period. The Environmental Quality Board adopted this proposal on February 20, 2007.

This proposed rulemaking includes amendments to 25 Pa. Code Chapter 93 for designation of eight streams. These streams were evaluated in response to five petitions, as well as requests from the Department's Regional and Central Offices as follows:

Petitions: Big Brook - (Lebanon Twp. Board of Supervisors; Wayne Co.)
Brooke Evans Creek - (Larry Piasecki: Montgomery Co.)
Wissahickon Creek - (Upper Gwynedd Twp; Montgomery Co.)
Furnace Run - (students from Conestoga Valley High School, Lancaster Co.)
Clarion River - (Iron Furnace Chapter of Trout Unlimited, the Alliance for Wetlands and Wildlife, the Commissioners of Clarion County, and Reliant Energy Mid-Atlantic Power Holding LLC)
Department: Beaver Creek (Chester County), Mill Creek (Berks County), Stone Creek (Bedford County)

These regulatory changes were developed as a result of aquatic studies conducted by the Department. The physical, chemical, and biological characteristics and other information on these water bodies were evaluated to determine the appropriateness of the current and requested designations using applicable regulatory criteria and definitions.

The Department will provide the Commission with the 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 of the close of the comment period, convey to the agency its comments, recommendations

and objections to the proposed regulation. The Department will consider any comments, recommendations or suggestions submitted 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
Regulatory Coordinator

Enclosures

0120-FM-PY0011 8/2006

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF POLICY

TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO THE REGULATORY REVIEW ACT

I.D. NUMBER: 7-410

SUBJECT: STREAM REDESIGNATIONS (BIG BROOK, 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
2007 APR 27 PM 3:30
INDEPENDENT REGULATORY
REVIEW COMMISSION

FILING OF REGULATION

DATE	SIGNATURE	DESIGNATION
4-27-07		Majority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
4/27/07	Jessica R. Pais	Minority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
4.27.07		Majority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
4-27-07	A. Rybarczyk	Minority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
4/27/07	Kathy Cooper	INDEPENDENT REGULATORY REVIEW COMMISSION
		ATTORNEY GENERAL (for Final Omitted only)
4.27.07		LEGISLATIVE REFERENCE BUREAU (for Proposed only)