Operational Guidelines

for the Management of Trout Fisheries in Pennsylvania Waters

PENNSYLVANIA FISH & BOAT COMMISSION

BUREAU OF FISHERIES

DIVISION OF FISHERIES MANAGEMENT

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1.0 INTRODUCTION

Pennsylvania's angling history spans a period of over two centuries. This extends from a time predating the Pennsylvania Fish and Boat Commission (PFBC), when angling opportunity was solely dependent upon native stocks and where laws and regulations were virtually absent to present day management, which includes angling regulations and law enforcement, water quality protection, habitat enhancement, management directed at protecting naturally reproducing stocks, and the use of cultured fish to provide recreational angling opportunities. Over this time, a variety of changes have occurred that coincided with the evolution of angling methods and management practices. These changes are detailed in *The History of Trout Management in Pennsylvania* (Weber et al. 2008).

Beginning in 1983, the PFBC adopted a "Resource First" philosophy into the management of the Commonwealth's cold-water resources. Under this concept, statewide management was implemented, and decisions were made on individual waters based on resource classification. Resource classification took into consideration key biological, physical, and social factors when assigning waters to an appropriate resource category.

As part of the change to resource classification-based management, the presence and abundance of wild trout were recognized. Trout population abundance criteria were developed to identify and categorize wild trout waters and provide the framework for the formal management of wild trout populations with no stocking. For streams and lakes that required the stocking of adult trout to provide angling opportunities, a set of biological, physical, and social factors were used to assign waters to an appropriate resource-based stocking category. Waters with similar attributes were assigned to the same stocking category.

The Resource First philosophy was a striking change from past practice. Formerly, trout management was based on allocating trout on the basis of a county quota system where license sales were the primary basis for determining the number of hatchery trout assigned to a county regardless of the water resources available in the county. Wild trout management was limited to very remote streams under this system.

In the time since the publication of the *Operational Guidelines for the Management of Trout Fisheries in Pennsylvania Waters, 4th Edition* (PFBC 2011), a number of evaluations have been conducted to enable staff to refine trout management in the waters of the Commonwealth. These evaluations included the following: evaluation of Wild Brook Trout Enhancement regulations; evaluation of fingerling trout program on wadable streams; assessments of opening weekend angler use and cost-benefit of stocking on trout stocked streams; statewide assessments of stocked trout residency in streams prior to the opening day of trout season from 2010 through 2015; annual stream and lake assessments; evaluations of existing trout management program options; evaluation of Class B biomass stocked trout streams; angler use and harvest survey on Penns Creek, Section 03 and Bald Eagle Creek, Section 06; angler use and catch on Spring Creek; angler use survey on stream sections managed under Delayed Harvest Artificial Lures Only Areas regulations (58 Pa. Code § 65.6) that were also included in the Keystone Select Stocked Trout Waters program; an evaluation of the 13 waters managed as both Class A wild trout streams and Stocked Trout Waters; and a Wild Trout Summit involving PFBC staff and

members of the angling public in 2017. The *Operational Guidelines for the Management of Trout Fisheries in Pennsylvania Waters, 5th Edition* is a revision and update to the fourth edition, and incorporates information collected from these evaluations to outline the current management programs and strategies used to manage Pennsylvania trout fisheries at the operational level. This document should not be confused with the *Strategic Plan for Management of Trout Fisheries in Pennsylvania 2020-2024* (PFBC 2020). Although both documents share common policies, goals, and objectives; the purpose of the strategic plan is to address 43 specific priority issues that were identified as priorities pertaining to trout management in Pennsylvania from 2020 through 2024. Many of the trout program elements outlined in this document will be evaluated to address priority issues in the strategic plan. Based on the results from these evaluations, the criteria and objectives outlined in the operational guidelines may need to be modified. Should the need for revisions arise, the criteria and objectives outlined in this document will be modified accordingly as the PFBC moves forward to meet the challenges of the future.

1.1 Policy for the Conservation and Management of Fishery Resources (58 Pa. Code § 57.1)

The Policy for the Conservation and Management of Fishery Resources (58 Pa. Code § 57.1) was unanimously approved by the Commissioners at the January 5, 1981, meeting of the Pennsylvania Fish Commission. The policy statement formally declared a shift in the philosophy and mission of the Pennsylvania Fish Commission from "recreation first" to "resource first." The policy established the broad goal of protecting our resources and providing continued and varied angling opportunity.

The conservation and management policy outlines five activities necessary to achieve policy objectives. This set of activities constitutes a strategic initiative and provides the basis for resource-based conservation and the management of Pennsylvania trout fisheries. To successfully achieve the objectives of the policy, the involvement and cooperation of all Commission organizational units is required. In addition to an agency-wide approach trout management, collaboration and commitment through cooperative efforts with partners such as sportsperson groups, watershed associations, universities, and other state and federal agencies, will continue to be necessary to determine a common vision for the future of resource protection and angling opportunities in Pennsylvania.

The policy is stated as follows: "It will be the policy of the Commission to protect, conserve and enhance the quality and diversity of the fishery resource of this Commonwealth including reptiles and amphibians and to provide continued and varied angling opportunity through scientific inventory, classification and management of that resource. To achieve the objectives of this policy, the Commission will do all of the following:

(1) Establish and maintain a current data base on the quality and quantity of the aquatic and fishery resources of the Commonwealth for effective environmental protection and resource conservation.

(2) Develop Statewide management programs to assure consistent treatment of all resources within any given class. Similar waters will be managed to meet the same objectives under the same philosophy on a Statewide basis.
(3) Manage self-sustaining fish populations as a renewable natural resource to conserve that resource and the angling it provides.
(4) Use hatchery fish to provide recreation in those waters where fish populations are inadequate to sustain the fishery at desired levels.
(5) Develop appropriate regulations and operational strategies to replace policies that are not compatible with management through resource classification."

In April 2008 the Commissioners approved a new Resource First policy that stated, Resource First is a philosophy that describes the first priority of the PFBC's mission and that of the Fish and Boat Code as well as the PFBC's fundamental role in fulfilling and supporting the provisions of Article 1, Section 27 (Natural Resources and the Public Estate) of the Constitution of the Commonwealth of Pennsylvania.

It represents:

1. The commissioners' belief that the Commonwealth's aquatic resources are the valuable collateral that secures all fishing and boating activities.
2. The notion that protecting, conserving, and enhancing the Commonwealth's aquatic resources is the agency's first management priority.
3. The commissioners' expectation that the agency's activities, regulations, and methods of work will be evaluated and practiced within the context of this priority.

This philosophy is expected to:

1. Provide the basis for scientifically managing and protecting the Commonwealth's aquatic resources and maximizing fishing and boating opportunities.
2. Lead to different ways of allocating the agency's limited financial resources.
3. Support new, scientifically-based approaches to distributing and raising expensive, stocked fish.
4. Provide the basis for protecting and enhancing viable wild fisheries and other resources under the agency's jurisdiction.

The Resource First philosophy further establishes the ethical principle that the agency's primary role is that of a conservation organization. Accordingly, its responsibility extends beyond merely providing fishing and boating opportunities to the public. Rather, it establishes a commitment to optimizing those opportunities through the application of good science throughout the Commonwealth. It also establishes the firm expectation that the agency will:

1. Not engage in or support activities or regulations that may bring undue harm to its aquatic resources.
2. Constantly strive to develop and improve upon its ability to make scientifically-informed decisions on the impact of various regulations and practices on the aquatic resources it is charged to protect.

Should doubt or confusion arise regarding this priority, the agency will:

1. Opt for the more conservative position of protecting, conserving, and enhancing the water, the habitat within its attendant watershed, and the life within it.
2. Develop all of its activities in a scientifically supportable manner that is consistent with this philosophy and the most currently available research.
3. Implement changes, whenever feasible, in its regulations and practices to eliminate such doubt or confusion.

1.2 Description of the Resource and Resource Users

Description of the Resource

Pennsylvania is fortunate to have a vast flowing water resource comprised of 86,000 miles of flowing water (PA DEP 2006). To date the PFBC and the Unassessed Waters Initiative (UWI) partners have surveyed nearly 12,000 streams comprising over 37,000 stream miles. Of this total, there have been 5,654 streams (17,055 stream miles) in which wild trout were documented in 64 of the state's 67 counties by PFBC staff and partners (Figure 1). There are another 20,117 miles, that by PFBC policy are classified as wild trout streams by virtue of the fact they lie upstream from documented wild trout waters (58 Pa. Code § 57.11). This results in a total of 37,172 stream miles being designated wild trout streams (Figure 2). Including stocked streams, there are currently 18,906 miles of streams managed to provide trout fishing in Pennsylvania (Figure 3).

In 2009, the UWI was created to prioritize and systematically sample previously unassessed streams statewide and determine the presence or absence of wild trout, which serves as the building blocks for the conservation and management of wild trout in Pennsylvania. This unique partnership is comprised of PFBC biologists, universities, and non-profit organizations. This collaboration has provided for a more thorough understanding of the distribution and species prevalence of the Commonwealth's wild trout resources. Since its inception, nearly 8,800 previously unassessed streams have been sampled resulting in over 17,000 stream miles being properly classified for management purposes; including over 2,400 streams comprising over 4,600 stream miles being designated as wild trout streams (Table 1).

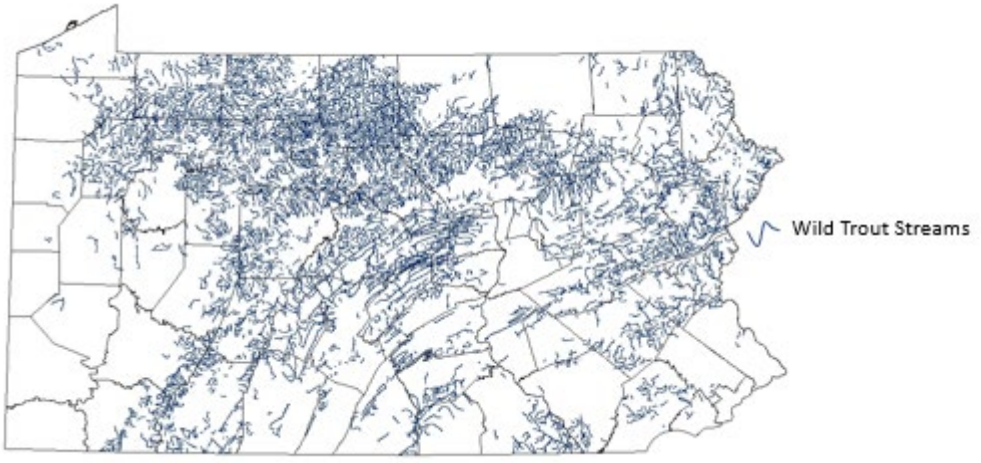

Figure 1. Distribution of streams where wild trout have been documented by Pennsylvania Fish and Boat Commission staff and/or Unassessed Waters Initiative partners.

Figure 2. Distribution of streams upstream from designated wild trout waters.

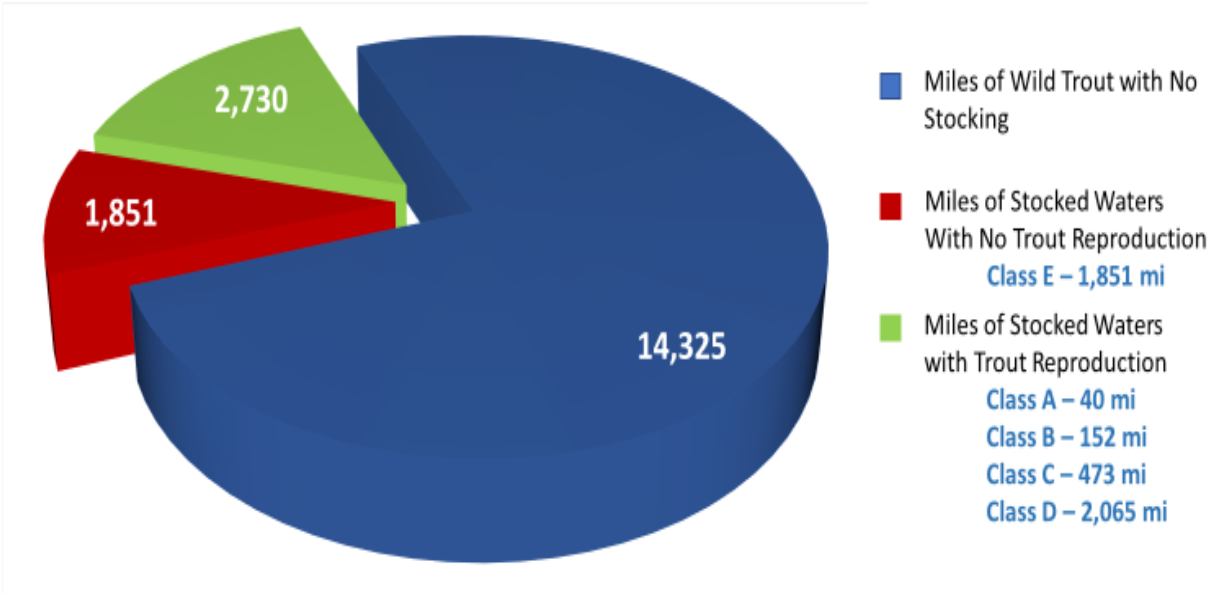

Figure 3. Miles of stream managed for trout in Pennsylvania.

Table 1. Streams sampled as part of the Unassessed Waters Initiative.

Survey year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Number of streams sampled	303	742	868	1,090	1,060	892	977	754	891	745	459	8,781
Miles of streams sampled	809	1,762	2,057	2,424	1,959	1,578	1,821	1,444	1,856	1,301	796	17,011
Number of streams designated as wild trout waters	61	99	78	108	26	201	396	396	396	271	223	2,255
Number of stream miles designated as wild trout waters	161	320	182	278	105	512	698	735	697	509	420	4,617

Pennsylvania's diverse cold-water resources range from small, infertile, mountain streams to larger valley limestone streams, and tailwaters. Reproducing populations of Brook Trout, Brown Trout, and to a lesser extent Rainbow Trout have been documented in these waters. Brook Trout are the only salmonid species native to Pennsylvania's streams and are Pennsylvania's official state fish. Despite the numerous changes that have occurred to Pennsylvania's landscape since the pre-colonial era, Brook Trout continue to be broadly distributed in waters across the state. Based on stream examination data collected by PFBC staff or PFBC cooperating partners since 1976, wild Brook Trout populations have been documented in 4,535 stream sections covering a total of 9,968 stream miles.

Brown Trout were introduced to Pennsylvania waters during the late 1800s. Brown Trout have adapted well to Pennsylvania streams and naturalized populations of wild Brown Trout have been documented in 2,817 stream sections accounting for a total of 10,006 stream miles. Rainbow Trout were also introduced to Pennsylvania waters during the late 1800s. Although this species has been regularly used as part of the statewide stocking program since the 1920s, wild Rainbow Trout populations have only been documented in 77 stream sections totaling 257 stream miles. It should be noted that these figures provide a conservative estimate of the miles of stream inhabited by wild trout in Pennsylvania, as it includes only those waters where wild trout have been confirmed by PFBC staff or PFBC cooperating partners stream surveys (PFBC 2020). An evaluation of the economic contribution to the Commonwealth resulting from angling activities that occur on wild trout streams was conducted in 2004. It was estimated that these activities resulted in a total economic contribution of 7.16 million dollars to the

Commonwealth's economy from the opening day of trout season through Labor Day (Greene et al. 2005), with inflation 10.57 million dollars in 2021.

Trout stocked waters that do not support natural reproduction provide a substantial amount of additional cold-water angling opportunities in Pennsylvania. Currently the PFBC stocks adult trout in a total of 1,050 stream sections covering 4,581 miles of stream. A total of 426 stream sections covering 1,851 miles of stream do not support natural reproduction. These waters comprise nearly half of the stream sections and miles of stream stocked with adult trout on an annual basis. Another 13 stream sections, totaling 89.2 stream miles, are stocked exclusively with fingerlings to provide put-grow-take fisheries. An evaluation of the economic contribution to the Commonwealth resulting from angling activities that occur on streams stocked with adult trout was conducted in 2005. It was estimated that these activities resulted in a total economic contribution of 65.70 million dollars to the Commonwealth's economy from the opening day of trout season through mid-June (Greene et al. 2006), with inflation 93.79 million dollars in 2021.

Excluding Lake Erie, the PFBC manages 425 publicly accessible natural lakes and artificial impoundments for fishing opportunities. Currently, 1,063 stream sections comprising 4,665 miles of flowing water, and 135 natural lakes and artificial impoundments comprising 28,903 acres are managed for salmonids through adult, fingerling, or a combination of adult and fingerling trout stocking programs.

Of the 425 inland natural lakes and impoundments that provide free public access for fishing, 135 are managed to provide recreational angling opportunities for trout through adult trout stocking, fingerling trout stocking or a combination of the two (Figure 4). These waters include both one-story and two-story lakes. One-story lakes are characterized by an epilimnion that extends to the lake bottom or a hypolimnion that does not contain enough dissolved oxygen to support trout throughout the summer when thermal stratification occurs. As a result, one-story lakes are only capable of supporting trout on a seasonal basis. Two-story lakes are those with a hypolimnion that is extensive enough to provide adequate temperatures and dissolved oxygen levels to sustain year-round survival and angling opportunities for trout. This type of habitat is uncommon in Pennsylvania, and there are currently nine two-story lakes managed for trout in the state.

The PFBC manages 128 lakes with the stocking of adult trout. These lakes range in size from small ponds of less than 2 acres to large impoundments exceeding 650 acres. Adult trout stocking in lakes primarily occurs during the peak period of angling activity in the spring. However, some lakes are stocked during the fall and winter periods to extend angling opportunities over a greater portion of the year. Four of the adult trout stocked waters are two-story lakes. However, the majority (124 lakes) are one-story lakes that do not provide adequate water temperatures and dissolved oxygen content to support trout on a year-round basis.

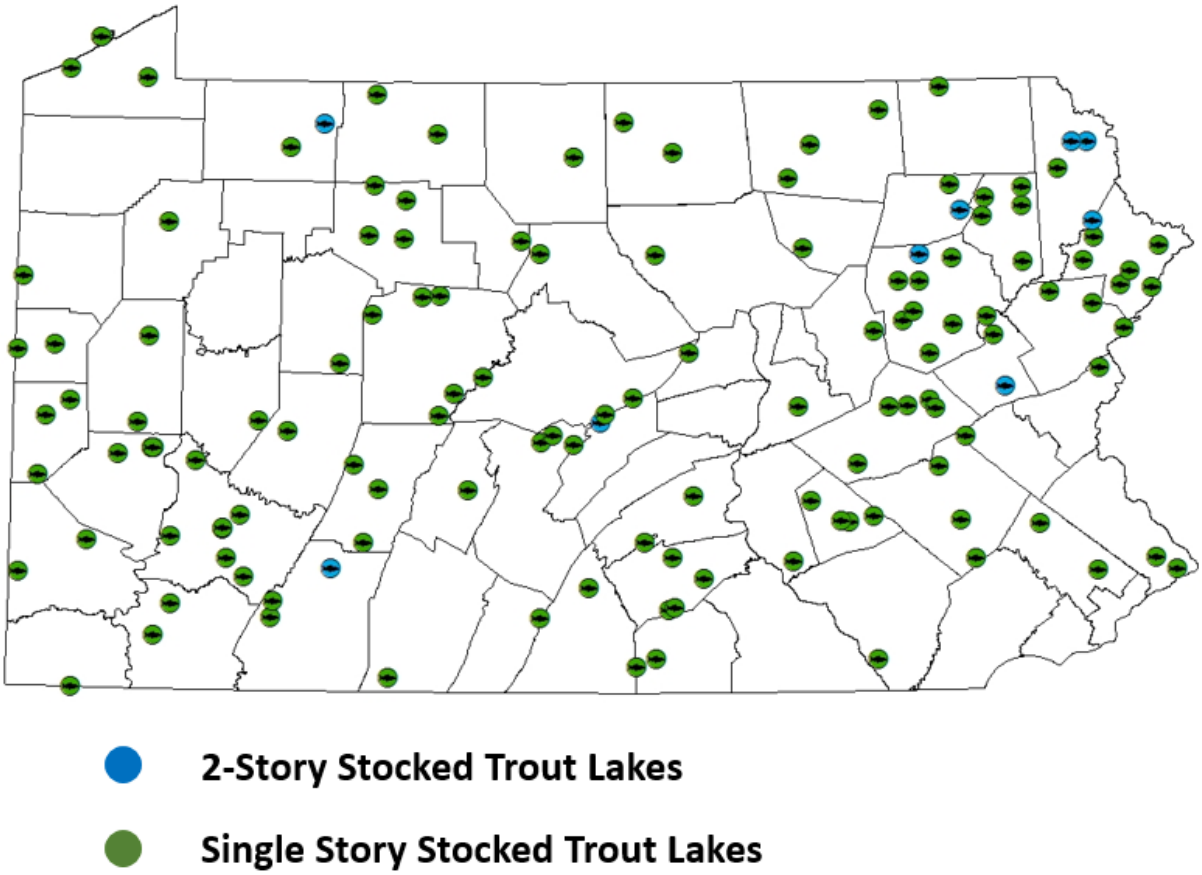

Figure 4. Statewide distribution of lakes managed for trout fishing in Pennsylvania.

Description of Pennsylvania's Trout Anglers

Trout angling generates a considerable amount of angler interest and represents a major component of the total fishery available in the Commonwealth. According to a 1991 Trout Angler Telephone Survey, 80% of Pennsylvania's licensed anglers fished for trout at some time during the season (Hummon 1992). During 2020, the PFBC sold 636,259 trout permits. This figure represents the minimum number of anglers that fish for trout in Pennsylvania as trout and salmon stamp sales do not take into account lifetime license holders who purchased their license prior to 2015 as they are not required to purchase a stamp annually, anglers who have a valid multi-year trout permit purchased prior to 2020, nor does it take into consideration anglers under 16 years of age who are not required to purchase a license.

Information from trout angler telephone surveys conducted in 1991 and 2008 indicated that trout angling is a male-dominated activity as 91% of trout anglers were males in 2008, and 90% of the trout anglers were males in 1991 (Duda et al. 2008, Hummon 1992). Pennsylvania trout anglers are an aging group; the median age of anglers was 39 in 1991 and 46 in 2008. Several trends in angler behavior have been observed from 1991 to 2008. For example, anglers are releasing a greater portion of their catch. Seventy-five percent of the anglers reported they released at least half of their catch in 1991, compared to 88% in 2008. In addition, based on the results from statewide angler use and harvest surveys conducted on wild trout streams in 2004 and stocked trout streams in 2005, anglers released over 92% and 63% of the trout caught, respectively (Greene et al. 2005; Greene et al. 2006). A substantial majority of Pennsylvania's trout anglers prefer to fish streams as compared to lakes. In 1991, 74% of the anglers preferred to fish for trout in streams, 13% preferred lakes, and 13% had no preference between streams and lakes (Hummon 1992). Similarly in 2008, 81% of Pennsylvania trout anglers preferred to fish streams, 10% preferred lakes, and nine percent had no preference between lakes or streams (Duda et al. 2008).

In Pennsylvania trout angling opportunities are provided in a variety of habitats ranging from cold-water streams where angling opportunities are provided by wild trout, to transitional streams, warm-water streams, and lakes where seasonal trout angling is provided through stocking. Stream trout fisheries are managed for wild trout or through the planting of adult trout, fingerling trout, or a combination of both adult and fingerling trout. Trout angling opportunities in lakes are provided through the planting of adult trout, fingerling trout, or a combination of both adult and fingerlings. Species of trout include brook, brown, and rainbow. To manage these fisheries, it is necessary to define a set of general strategic guidelines.

1.3 General Strategic Guidelines

1. All trout streams will be designated for management as "wild trout water" or a "hatchery supported water" and managed accordingly. Hatchery supported streams include some streams that support wild trout populations but are not designated for management under the Class A wild trout streams program or the Wilderness Trout Streams program.
2. All streams or lakes managed for and designated as hatchery supported will be further classified into resource-based stocking categories.

3. With rare exceptions, the releases of hatchery fish will not be made into stream sections designated for management under the Class A wild trout streams program.
4. Releases of hatchery fish will not be made into stream sections designated for management under the Wilderness Trout Streams program.
5. Hatchery trout will only be stocked in those waters open to free public access for the purpose of fishing.
6. Management subprograms will be designed to provide a diversity of angling experiences including those based on wild trout only, wild trout in combination with hatchery trout, and hatchery trout only. Differing combinations of regulations will be used to provide high quality fishing experiences on selected waters.
7. Regulations will be developed to achieve a variety of objectives, both biological and social, and may include seasonal restrictions, length limits, creel limits, and gear restrictions.
8. Biological objectives will receive priority over social objectives when applying regulations for the management of wild trout fisheries.
9. Hatchery trout will not be stocked in waters where flow, size, water temperature, water quality, or access for the general angling public do not meet accepted standards.
10. Data collection will be ongoing and adaptive management strategies will reflect the most current information.

2.0 TROUT FISHERIES MANAGEMENT

The PFBC manages a diverse assortment of habitats in an effort to provide a variety of trout fisheries. Wild trout populations in these habitats range from none or very low to substantial standing stocks of trout. Management needs for trout fisheries reflect this diversity of habitats and resident trout populations. Resource categories have been developed as a mechanism for adequately recognizing this diversity while maintaining a uniform approach and logical organization in the statewide management of trout fisheries.

Resource categories are defined by objectively determined biological, chemical, physical, and social criteria. The biological, chemical, physical, and social information collected from stream and lake examinations conducted by PFBC staff is stored in the agency's resource database. This includes water-specific information that has been collected on lakes and flowing water sections since 1976. Information stored in the database includes, but is not limited to, fish species occurrence, fish species abundance, water chemistry data, the surface area of lakes and stream sections, the length and mean width of stream sections, riparian ownership in terms of the amount of public and private ownership and the amount that is open or closed to public angling, the proximity of a stream section to a public road, the amount of public parking spaces available, and human population density information.

The overall plan for the management of trout fisheries consists of subprograms and management options designed to achieve the general objectives of the Commission's Policy for the Conservation and Management of Fishery Resources. Operational subprograms and management options are based on meeting differing fishery management objectives associated with specific resource categories. Subprograms are designed in response to general needs identified in an effort to achieve major policy objectives. Management options, within subprograms, are intended to provide specific responses to clearly defined needs related to managing a single component of the overall trout fishery.

The current operational plan for trout management is divided into distinct areas of emphasis (subprograms), and then options within each subprogram. The elements include: 1) Wild Trout Fisheries in Streams, 2) Hatchery Trout Fisheries in Streams, and 3) Hatchery Trout Fisheries in Lakes.

2.1 Wild Trout Fisheries in Streams

Analysis of statewide inventory data provided the basis for development of criteria for establishment of wild trout fisheries. These criteria were established to classify trout populations based on wild trout population biomass. Classifications range from waters that support a high biomass of wild trout (biomass Class A) to waters that support sparse populations of wild trout (biomass Class D). Biomass standards have management and regulatory water quality protection implications. The classification of stream sections as biomass Class A, B, C, or D determines how waters are managed for fisheries management purposes, and how waters are designated under the 25 Pa. Code Chapter 93 water quality standards designations administered by the Pennsylvania Department of Environmental Protection (DEP).

2.1.1 Water Quality Protection Significance

All Commonwealth waters have a designated use, which determines the protection standards that DEP uses to permit development activities in watersheds. Wild trout streams should be protected at a minimum under the Cold Water Fishes (CWF) designation in 25 Pa. Code Chapter 93 because of their ability to support or maintain a population of wild trout. The PFBC notifies DEP whenever the agency designates new wild trout streams. DEP independently confirms that streams are wild trout waters by reviewing and verifying the PFBC's data. Wetlands located in or along the floodplain of wild trout streams are protected as Exceptional Value Wetlands in 25 Pa. Code Chapter 105. This is the Commonwealth's highest level of wetland protection. Projects impacting streams and wetlands authorized under 25 Pa. Code, Chapter 105, Dam Safety and Waterway Management often include a seasonal restriction (no work from October 1 to December 31) to minimize impacts with trout spawning.

In addition, sub-groups of wild trout streams receive additional protection under the Commonwealth's special protection waters program (PA DEP 2003) and are designated either High Quality-Cold Water Fishes (HQ-CWF) or Exceptional Value (EV) based upon other characteristics, which can include wild trout biomass.

2.1.2 Commission Policy: Listing of Wild Trout Streams (58 Pa. Code § 57.11)

Under 58 Pa. Code § 57.11, it is the policy of the PFBC to accurately identify and classify streams supporting naturally reproducing populations of trout as wild trout streams. The PFBC's Bureau of Fisheries, Fisheries Management Division maintains the list of wild trout streams. The Commission policy for the listing of wild trout streams is detailed below.

(a) *Maintenance of list.* It is the policy of the Commission to accurately identify and classify streams supporting naturally reproducing populations of trout as wild trout streams. The Fisheries Management Division will maintain the list of wild trout streams. The Executive Director, with the approval of the Commission, will from time-to-time publish the list of wild trout streams in the *Pennsylvania Bulletin* and on the World Wide Web. Persons with comments, objections or suggestions about the classification of streams listed may submit them to the Commission for review.

(b) *Criteria for classifying wild trout streams.* The classification of a stream as a wild trout stream means that the trout found there have resulted from natural reproduction and that the habitat supports wild trout. Identification of streams for the presence of wild trout typically involves:

(1) *Location and habitat.* Classifications of wild trout streams will involve examination of one or more sites, which may vary in size, within the stream. The exercise of judgment by the investigator is essential in describing the extent of the stream continuum to which the examination applies. The investigator should find that the habitat is such as would support natural reproduction of trout.

(2) *Exclusion of stocked trout.* In classifying a wild trout stream, the investigator should find trout resulting from natural reproduction in the stream section or upstream and downstream areas and their tributaries. In making this finding, the investigator will specifically exclude trout stocked as fingerlings or adults and trout that escape from a hatchery. The exercise of judgment is required in examining the trout for physical appearance such as coloration, fin condition and body conformation as indicators of the source of the trout. Direct evidence of natural reproduction of trout is a factor in making this classification, but it is not required if other elements are present.

(3) *Biological criteria.* In identifying a wild trout stream, the investigator should find one or more of the following:

(i) Young of the year trout less than 150 mm occur at some time in the stream section.

(ii) Two or more ages of wild trout occur at some time within the stream section.

(4) *Tributary linkages.* Tributaries to wild trout streams are classified as wild trout streams for their function as habitat for segments of wild trout populations, including nurseries and refuges, and in sustaining water quality necessary for wild trout.

(c) *Existing list.* The streams identified as wild trout streams on or before January 1, 2002, and listed as such by the Fisheries Management Division will continue to be considered as wild trout streams by the Commission.

(d) *Requests for evaluation or reevaluation of streams.* The Commission staff will evaluate or reevaluate the classification of streams as wild trout streams at the request of the Department of Environmental Protection (DEP) in connection with permitting decisions. Requests for evaluation or reevaluation from persons or parties other than DEP will be considered for a review consistent with available staff and resources and prioritized based on the status of DEP permitting decisions related to the sites. Requests that the Commission staff evaluate or reevaluate stream sections for inclusion on or removal from the list of streams supporting naturally reproducing populations of trout may be addressed to the Bureau of Fisheries, Pennsylvania Fish and Boat Commission, 595 East Rolling Ridge Drive, Bellefonte, Pennsylvania 16823. In evaluating requests to remove streams from the list of wild trout streams, the Commission will take into account circumstances where human intervention or manmade changes have diminished the capacity of a stream to meet the criteria set forth in

this section. Streams will not be removed from the list of wild trout streams in circumstances where the investigator finds evidence that their characteristics and trout populations have been changed solely or principally as a result of human intervention.

(e) *Appeals.* A person aggrieved by the classification of a stream section as a wild trout stream section may appeal the agency action by filing a notice of appeal with the Executive Director, Pennsylvania Fish and Boat Commission, Post Office Box 67000, Harrisburg, Pennsylvania 17106-7000 within 15 days after publication of the notice that the stream section had been so classified in the *Pennsylvania Bulletin.* Nothing in this subsection will be construed to enlarge or diminish the appeal rights of persons or parties in connection with permitting decisions or other actions of DEP.

2.1.3 Classification of Wild Trout Streams (A, B, C, D)

The Commission has developed specific biomass criteria for classifying wild trout streams (Table 2). The biomass criteria vary based on the species composition of the fishery. Class A wild trout streams are a sub-group of wild trout streams meeting higher biomass thresholds. Under 58 Pa. Code § 57.8a, it is the policy of the Commission to manage self-sustaining Class A wild trout populations as a renewable natural resource to conserve that resource and the angling it provides. Class A wild trout populations represent the best of this Commonwealth's naturally reproducing trout populations. The Commission's Bureau of Fisheries, Division of Fisheries Management, maintains a list of these waters.

With rare exceptions, wild trout management is applied to all Class A streams except for rare occasions and some stream sections classified with lower biomass criteria (Class B, C, or D). The wild trout program emphasizes the provision of a wild trout angling experience of varying levels of stock density or harvest options. Stream sections managed under this option may range from small headwater streams to large lowland streams. Management plans should address limiting factors and possible strategies to improve water quality, instream habitat, and the trout fishery, especially for biomass Class B, C, and D streams with the intent being to facilitate increased biomass and attainment of Class A population levels where feasible.

Class E waters are not wild trout waters. They are defined as stream sections that do not support any wild trout but are managed for trout angling through stocking.

Table 2. Criteria used to determine the classification of biomass Class A, B, C, D and E.

Class	Criteria
A (Brook Trout)	a. Total wild Brook Trout biomass of at least 30 kg/ha (26.7 lbs/acre) b. Total biomass of wild Brook Trout less than 15 centimeters (cm) or 5.9 inches in total length of at least 0.1 kg/ha (0.089 lbs/acre) c. Wild Brook Trout biomass must comprise at least 75% of the total wild trout biomass
A (Brown Trout)	a. Total wild Brown Trout biomass of at least 40 kg/ha (35.6 lbs. acre) b. Total biomass of wild Brown Trout less than 15 centimeters (cm) or 5.9 inches in total length of at least 0.1 kg/ha (0.089 lbs/acre). c. Wild Brown Trout biomass must comprise at least 75% of the total wild trout biomass
A (Rainbow Trout)	Total biomass of wild Rainbow Trout less than 15 cm (5.9 inches) in total length of at least 2.0 kg/ha (1.78 lbs/acre).
A (Mixed Brook Trout and Brown Trout)	a. Combined wild Brook Trout and wild Brown Trout biomass of at least 40 kg/ha (35.6 lbs. acre) b. Total biomass of wild Brook Trout less than 15 centimeters (cm) or 5.9 inches in total length of at least 0.1 kg/ha (0.089 lbs/acre). c. Total biomass of wild Brown Trout less than 15 centimeters (cm) or 5.9 inches in total length of at least 0.1 kg/ha (0.089 lbs/acre). d. Wild Brook Trout biomass comprises less than 75% of total trout biomass e. Wild Brown Trout biomass comprises less than 75% of total trout biomass
A (Mixed Brook Trout and Rainbow Trout)	a. Combined wild Brook Trout and wild Rainbow Trout biomass of at least 40 kg/ha (35.6 lbs. acre) b. Total biomass of wild Brook Trout less than 15 centimeters (cm) or 5.9 inches in total length of at least 0.1 kg/ha (0.089 lbs/acre). c. Total biomass of wild Rainbow Trout less than 15 centimeters (cm) or 5.9 inches in total length of at least 0.1 kg/ha (0.089 lbs/acre). d. Wild Brook Trout biomass comprises less than 75% of total trout biomass e. Wild Rainbow Trout biomass comprises less than 75% of total trout biomass
A (Mixed Brown and Rainbow)	a. Combined wild Brown Trout and wild Rainbow Trout biomass of at least 40 kg/ha (35.6 lbs. acre) b. Total biomass of wild Brown Trout less than 15 centimeters (cm) or 5.9 inches in total length of at least 0.1 kg/ha (0.089 lbs/acre). c. Total biomass of wild Rainbow Trout less than 15 centimeters (cm) or 5.9 inches in total length of at least 0.1 kg/ha (0.089 lbs/acre). d. Wild Brown Trout biomass comprises less than 75% of total trout biomass e. Wild Rainbow Trout biomass comprises less than 75% of total trout biomass
B	a. Total wild Brook Trout biomass of at least 20 kg/ha (17.8 lbs/acre) and less than 30 kg/ha (26.7 lbs/ acre). b. Total wild Brown Trout or wild Brook Trout and wild Brown Trout combined biomass of at least 20 kg/ha (17.8 lbs/ acre) and less than 40 kg/ha (35.6 lbs/acre)
C	Total wild trout biomass of at least 10 kg/ha (8.9 lbs/ acre) and less than 20 kg/ha (17.8 lbs/acre)
D	Total wild trout biomass greater than 0 kg/ha and less than 10 kg/ha (8.9 lbs/ acre)
E	Total wild trout biomass of 0 kg/ha

2.1.4 Water Quality and Quantity Protection Implications of PFBC Biomass Classes

Class A wild trout streams are provided special regulatory protection by DEP. These resources exhibit excellent biological, chemical, and physical stream attributes and are ecologically and recreationally important. Class A wild trout streams are the "best of the best" trout waters, and they are protected by DEP with a 25 Pa. Code Chapter 93 designation of High Quality-Cold Water Fishes (HQ-CWF). They receive special protection afforded by the antidegradation provisions of the federal Clean Water Act. This means that any activity that proposes to discharge to a Class A stream must comply with more stringent standards than those applied to differently designated waters. Projects impacting streams and wetlands authorized under 25 Pa. Code, Chapter 105, Dam Safety and Waterway Management often include a seasonal restriction (no work from October 1 to April 1) to protect critical life stage activities of wild trout populations such spawning, egg deposition and incubation, and fry emergence.

2.1.5 Commission Policy: Class A Wild Trout Streams (58 Pa. Code § 57.8a)

Trout biomass criteria were established to provide minimum qualifying guidelines for Class A wild trout management in 1983 (Pennsylvania Fish Commission [PFC] 1986). These criteria were formally adopted by the commissioners as a Statement of Commission Policy during the January 21, 1996, PFBC meeting. With rare exceptions, waters designated by the Commission as Class A wild trout streams are managed for wild trout with no stocking. The Commission Policy, which establishes the biomass criteria listed in Table 2, is detailed at 58 Pa. Code § 57.8a. Along with the biomass criteria, this section states: "It is the policy of the Commission to manage self-sustaining Class A wild trout populations as a renewable natural resource to conserve that resource and the angling it provides. Class A wild trout populations represent the best of this Commonwealth's naturally reproducing trout fisheries. With rare exceptions, these stream sections are managed solely for the perpetuation of the wild trout fishery with no stocking. However, there may be circumstances that justify stocking a Class A wild trout stream. Prior to granting permission to stock a Class A wild trout stream under § 71.4 (relating to stocking of designated waters), the Executive Director will consult internal decision-making criteria set forth in the *Operational Guidelines for the Management of Trout Fisheries in Pennsylvania Waters* to consider the need for continued stocking at newly designated Class A wild trout streams and obtain the approval of the Commission. Consideration will only be given to requests for continued stocking in stream sections within one year of the section being designated as Class A and posted in the *Pennsylvania Bulletin*; however, entities that previously received an exemption or a Special Activities Permit for continued stocking from the Commission between 2010 and the effective date of this amendment will be eligible for consideration." Criteria for consideration of internal and external requests for continued stocking of Class A wild trout streams that were designated after December 31, 2014, are provided in Appendix A.

The policy further states in § 57.8a(3), "A water will not be removed from the Class A Wild Trout Streams designation unless the cause leading to the reduction in the wild trout population has been clearly identified and it has been determined that the water is beyond remediation to re-establish the Class A wild trout population."

2.1.6 Wild Trout Management Options

Management options under the Class A, B, C, and D wild trout subprograms include both species-specific and habitat-specific approaches and attempt to provide diverse angling experiences through the utilization of a variety of regulations ranging from Commonwealth Inland Waters regulations (58 Pa. Code § 61.1) to stringent gear restrictions, including complete prohibition of harvest. Management alternatives for these wild trout fisheries are detailed below.

2.1.6.1 Wild Tout Waters – Commonwealth Inland Waters Regulations (58 Pa. Code 61.1)

Class A Wild Trout Streams (58 Pa. Code § 57.8a)

Rationale

The Class A wild trout streams option is designed to provide anglers with an opportunity to catch and harvest (if desired) wild trout from a population totally sustained by natural reproduction. This option is proposed for stream sections that support populations of Brook Trout, Brown Trout, Rainbow Trout, mixed Brook Trout-Brown Trout, mixed Brook Trout-Rainbow Trout, and mixed Brown Trout-Rainbow Trout capable of sustaining a trout fishery without stocking. Some of these waters may have a low potential to produce a biological response to the application of highly restrictive regulations. Table 3 details angling regulations that apply to Class A waters not managed under special regulations. There are currently 1,108 stream sections and 2,942 miles of stream managed as Commission approved Class A wild trout streams.

Class A wild trout streams have a wide distribution across the Commonwealth. While the majority of the Class A sections are located in the northcentral and northeastern regions of Pennsylvania, 55 of the 67 counties in the state contain at least one Class A wild trout stream section (Figure 5).

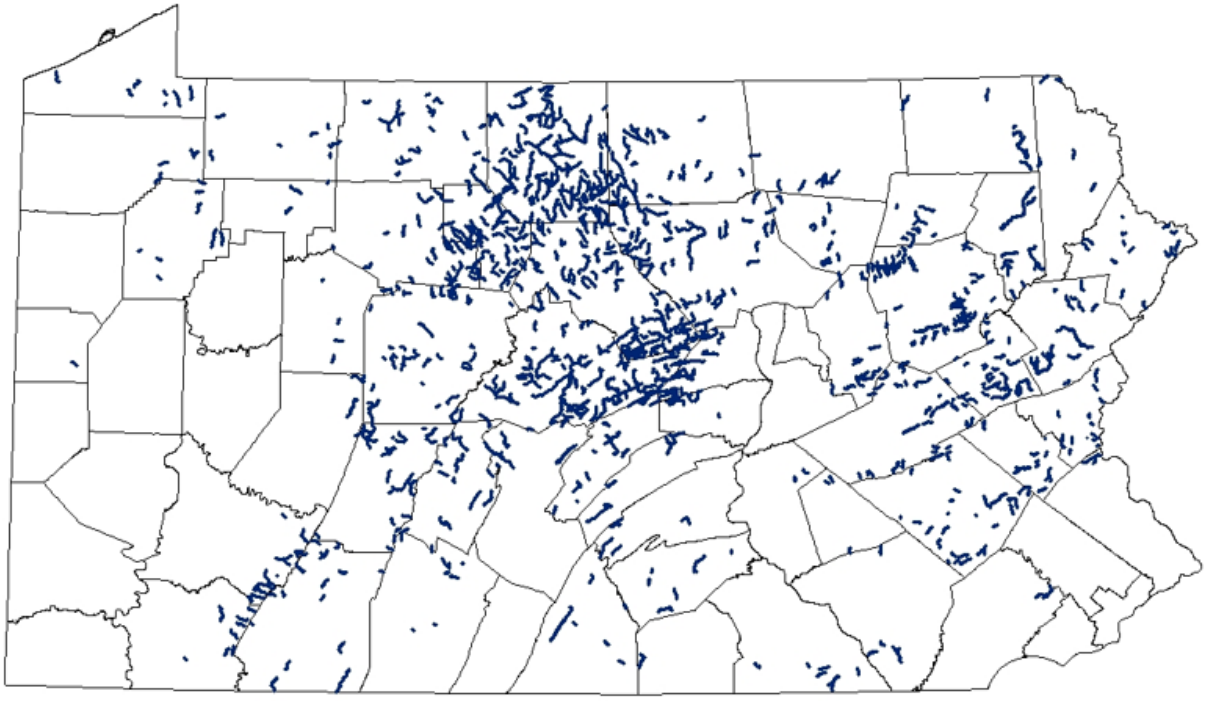

Figure 5. Statewide distribution of Class A wild trout streams.

Goal

To provide recreational trout angling opportunities in waters where wild trout populations are capable of supporting a high-quality trout fishery without stocking.

Objectives

1. To protect exceptional wild trout populations from possible harmful effects of stocking due to interactions with hatchery trout.
2. To minimize the potential of over harvest of wild trout due to attraction of anglers through stocking.
3. To maintain standing stocks of wild trout at a Class A biomass density. An increase in the population of age 3 or older trout by a factor of two (after cessation of stocking) is desirable. The amount of habitat, the full force of fishing mortality, and natural variation in response to climatic events may limit this response in older fish and should not be considered a rigid measure of program success.
4. To protect habitat and water quality through public education and by seeking the highest DEP water quality standards applicable.
5. To disseminate information to other Commonwealth regulatory agencies.

Table 3. Class A wild trout stream default angling regulation.

Minimum length limit:	7 inches
Creel limit:	5 trout per day
Season:	Opening day through Labor Day
Gear/lure restriction:	No special regulations, Commonwealth Inland Waters regulations apply

Results from evaluations conducted on Class A wild trout streams

Between the time when the first Class A wild trout streams were designated in 1983 and the development of the third edition of the *Management of Trout Fisheries in Pennsylvania Waters* (PFBC 1997) in 1997, a total of 71 of the original 138 Class A wild trout stream sections were assessed. The waters evaluated were categorized into three general areas: stream sections managed under statewide regulations that were stocked prior to 1983, sections managed under statewide regulations that were unstocked prior to 1983, and stream sections managed under special regulations.

The results of these evaluations indicated that a clear majority of 82% (58 of 71) of the stream sections continued to support Class A wild trout population densities after 1983. Both the waters stocked prior to 1983 (77%) and unstocked prior to 1983 (79%) had a similar rate of maintaining Class A wild trout population densities. The waters managed under special regulations had a higher percentage of stream sections (94%) that continued to support Class A wild trout fisheries (Greene and Weber 1995a). This may have been due to either the implementation of special regulations or a bias in selecting waters with some of the better trout populations for management under special regulations.

Within these dynamic systems, some natural variation in the trout populations is expected to occur. Environmental factors such as acid precipitation, climatic events (e.g., drought and floods), and habitat degradation may lead to changes within the population structure of wild trout fisheries. Furthermore, for waters that were stocked prior to 1983, the baseline surveys (1976-1983) did not record hatchery trout separate from wild trout. Therefore, when comparisons were made between pre- and post-Class A wild trout management on these waters, it should be noted that some of the baseline estimates (pre-1983) were inflated due to the presence of hatchery trout.

During the 2004 season, a statewide angler use and harvest study was conducted from opening day of the regular season for trout through Labor Day on a set of 200 wild trout stream sections. These stream segments supported trout populations that ranged from low (biomass Class D) to substantial standing stocks of wild trout (biomass Class A). As part of this evaluation, electrofishing surveys were conducted on 76 stream segments to examine the trout populations. Based on the results of these inventories wild trout stream sections averaged 221 legal size (≥ 7 inches) trout per mile (Greene et al. 2005). A total of 35 Class A stream sections were examined as part of this evaluation. In comparison with previous examinations conducted

on these streams, the number of legal-size trout residing in Class A stream sections increased by 34%, from 229 legal size trout per mile to 307 legal size trout per mile.

Results from the angler use and harvest study indicated that angler use was low on wild trout streams, averaging 82 angler hours per mile over the course of the regular trout season (opening day through Labor Day). In comparison, angler use averaged 1,168 angler hours per mile over the first eight weeks of the season on stocked trout streams (Greene et al. 2005; Greene et al. 2006). Anglers released over 92% of their catch on wild trout streams. Anglers harvested a very small number (9/mile) of the legal size (≥ 7 inches) wild trout available on wild trout streams (221/mile). In 2004, wild trout stream angling contributed over 7.16 million dollars, over 10.57 million dollars considering inflation in 2021, to Pennsylvania's economy. The economic impact of wild trout stream angling, or the contribution that was uniquely the result of wild trout angling and would not have otherwise contributed to the state's economy by way of other recreational alternatives, was estimated at over 2.61 million dollars (Greene et al. 2005), over 3.85 million dollars considering inflation in 2021.

As a result of these evaluations qualifying stream sections will continue to be managed as Class A wild trout streams. As outlined in the strategic plan, stream sections likely to support Class A wild trout populations will be identified and examined by staff. Based on the results of these evaluations, the appropriate designation will be applied to these waters.

Class B, C, and D Wild Trout Waters

Rationale

Wild trout management is also applied to stream sections that do not meet the biomass criteria set for Class A wild trout management and, for a variety of reasons, do not qualify for the stocking of adult trout. This option represents streams classified as biomass Class B, C, or D wild trout waters. This program emphasizes the provision of a wild trout angling experience without the promotion of a high stock density. Stream sections managed under this option may range from small headwater streams to large lowland streams supporting good to low densities of wild trout (Class B, C, or D). Management plans should address limiting factors and strategies to improve wild trout populations.

Biomass classes have been established for waters that support a wild trout biomass below the minimum biomass criteria required to be designated as a Class A wild trout stream. The criteria are species specific for Class B waters, but Class C and D waters are classified based on total wild trout biomass. Similar to Class A waters, to be designated as Class B, C, or D, a stream must be surveyed by PFBC biologists using approved protocols and must meet the specific biomass criteria for each classification (Table 2). However, Commission action is not needed for classification as Class B, C, or D wild trout waters.

A total of 5,701 stream sections have been documented to support Class B, C, or D wild trout populations (Figure 6). Of these, 5,090 sections are managed for wild trout with no stocking, and 611 stream sections are stocked with hatchery trout (Table 4). The majority of the stocked stream sections (93%) are biomass Class D waters that support only low to very low

densities of wild trout (<10 kg/ha) or Class C waters that support moderate densities of wild trout (>10 kg/ha <20 kg/ha). Table 5 details angling regulations that apply to Class B, C, and D waters not managed under special regulations.

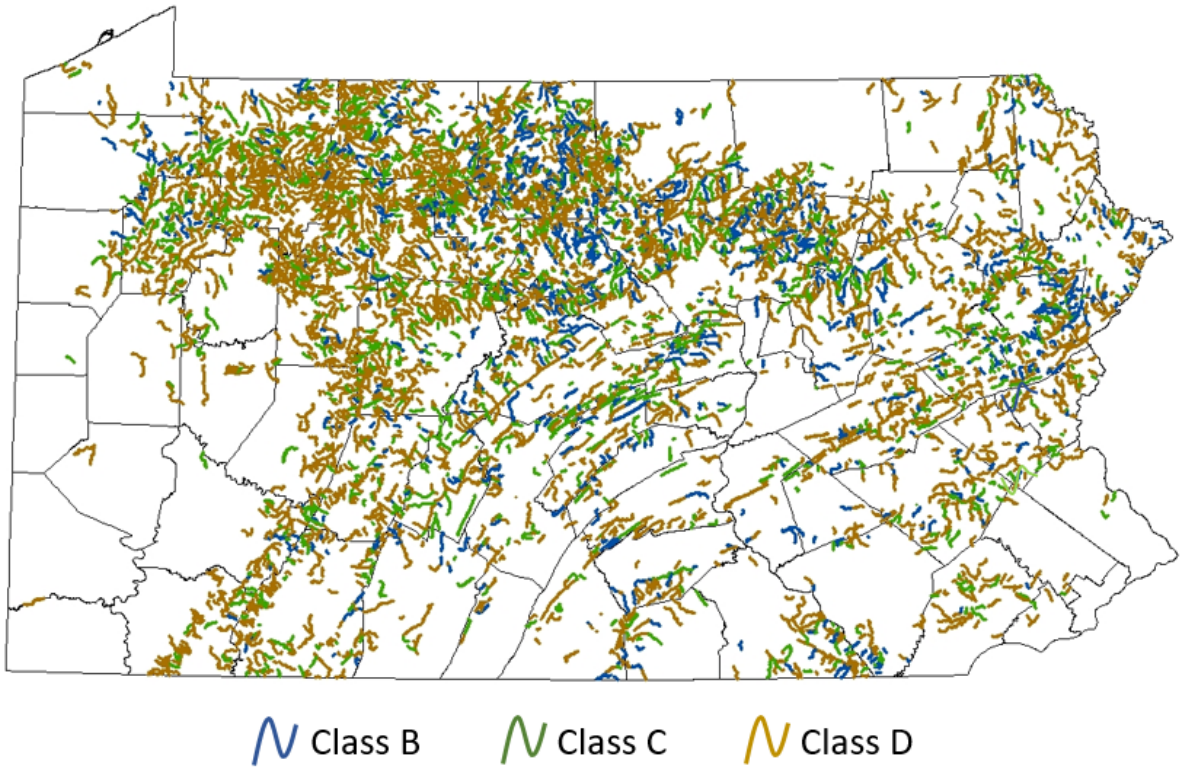

Figure 6. Statewide distribution of biomass Class B, C, and D streams.

Table 4. Frequency of Class B, C, and D stream sections managed as stocked or wild trout waters.

Biomass class	# Sections stocked	# Sections unstocked
B	45	791
C	113	1,138
D	453	3,161
Totals	**611**	**5,090**

Objectives

1. To limit the possible harmful effects of stocking that can occur, particularly on Class B wild trout streams where good populations of wild trout exist.
2. To minimize the potential of introgression and limit the spread and/or introduction of species-specific diseases due to interactions with hatchery trout, when applicable, stocked trout species composition will be adjusted.

3. To protect habitat and water quality through public education and by seeking the highest DEP water quality standards applicable.
4. To disseminate information to other Commonwealth regulatory agencies.

Table 5. Class B, C, and D wild trout stream default angling regulations.

Minimum length limit:	7 inches
Creel limit:	5 trout per day
Season:	Opening day through Labor Day. Extended season with a 3 fish daily creel limit applies only where a Class B, C, or D wild trout stream is managed as a Stocked Trout Water.
Gear/lure restriction:	No special regulations. Commonwealth Inland Waters regulations apply.

Evaluation Strategy for Class B, C, and D wild trout waters

Aside from the statewide angler use and harvest survey conducted on wild trout streams in 2004, no statewide assessment has been conducted on Class B, C, and D wild trout streams. Future evaluations should outline the limiting factors to these wild trout populations and strategies should be developed to improve wild trout populations in biomass Class B, C, and D wild trout waters. As outlined in the strategic plan, habitat enhancement will be conducted on stream sections where instream habitat has been identified as the primary factor limiting the expansion of wild trout populations. Time series population monitoring should be conducted on select stream sections (pre- and post- treatment) to evaluate the strategies employed to improve these wild trout populations. Also, outlined in the strategic plan, is the need to design a formal monitoring program to track the status and trends of wild trout population across the Commonwealth, many of which likely harbor Class, B, C, and D populations of wild trout.

2.1.6.2 Wild Trout Special Regulation Options and Policy

As stated at 58 Pa. Code § 57.5 “It is the policy of the Commission to utilize regulations differing from those in application on a Statewide basis when deemed necessary or desirable to protect, conserve or enhance the quality, quantity and diversity of this Commonwealth’s fisheries, to maintain public access or to provide for the safety of the users of the resource. It is the intention of the Commission to use the minimum necessary regulation to maintain the philosophy of its conservation policy and to minimize variations in regulations on similar waters having like management objectives.”

The guidelines for the management of trout fisheries in Pennsylvania with special regulations are detailed in Appendix B. The following summarizes the special regulation options that are currently in place for the management of wild trout fisheries in Pennsylvania waters.

Catch and Release

Rationale

Catch-and-release regulations for wild trout fisheries are intended to provide anglers with the opportunity to fish over an essentially natural population of fish where hatchery fish and fishing mortality are not major factors in determining population structure. Catch-and-release or no-kill management is designed to allow trout populations to attain pristine densities and age/size composition. This option is directed primarily at wild Brown Trout; however, it may also be extended to enhance wild Brook Trout and/or wild Rainbow Trout fisheries. Waters were added to this program when the former Selective Harvest and All Tackle Selective Harvest programs were dissolved prior to the 2005 season and in 2016 when the Wild Brook Trout Enhancement program was eliminated.

Catch-and-release regulations also apply to select waters that are managed with the planting of hatchery trout. Catch-and-release management on stocked waters is intended to provide anglers the opportunity to fish a trout population that is similar in density to that of a Class A water, and where harvest and hooking mortality are not major factors in determining population structure. Three options for catch-and-release management are provided: Catch and Release Artificial Lures Only (58 Pa. Code § 65.5), Catch and Release Fly-Fishing Only (58 Pa. Code § 65.14), and Catch and Release All-Tackle (58 Pa. Code § 65.15).

Catch and Release Artificial Lures Only (58 Pa. Code § 65.5)

Rationale

Originally developed for the 1982 season, this program was implemented to broaden the base of users by implementing less restrictive terminal tackle regulations in streams where the use of artificial lures was historically prohibited (i.e., fly fishing only). This regulation was initially intended for use in streams managed as wild trout fisheries, resulting in non-stocked waters being removed from the Fish-for-Fun program. In the mid-2000's, waters stocked with hatchery trout were included in this program. There are currently 16 wild trout and three stocked waters in this program (Table 11). Table 6 details angling regulations that apply to waters included in the Catch and Release Artificial Lures Only program.

Objectives

1. To minimize fishing mortality.
2. To maintain high trout population densities to provide for high catch-and-release rates (≥ 1.0/hr) of trout.
3. Waters managed for wild trout should maintain populations at or above standing stocks documented at the time of the qualifying survey. An increase in the proportion of age 3 or older fish (≥ 9 inches in length) in the population by a factor of two is desirable. The amount of regulated habitat, the full force of fishing mortality prior to regulations, and natural variation in response to climatic events may limit this response in older fish and should not be considered a rigid measure of program success.

4. Stocked trout waters should provide an amount of angler use greater than or equal to 550-angler hours/acre during the spring (March through mid-June).

Table 6. Catch and Release Artificial Lures Only angling regulations.

Minimum length limit:	None, no harvest is permitted
Creel limit:	Zero, no fish may be killed or had in possession
Season:	Open year-round
Gear/lure restriction:	Artificial lures, flies, or streamers

Results from evaluations conducted on Catch and Release Artificial Lures Only waters

Seven Class A wild trout streams (Bushkill Creek, Cross Fork, Hickory Run, Penns Creek, Roaring Brook, Toms Creek, and West Branch Caldwell Creek) have been examined to evaluate this regulation. Results of pre- and post- catch-and-release management inventories indicated that wild Brown Trout populations on four waters (Bushkill Creek, Hickory Run, Toms Creek, and West Branch Caldwell Creek) met the program objective of maintaining populations at or above the standing stocks documented at the time of the qualifying survey. The abundance of age 3 or older wild Brown Trout increased on Bushkill Creek, Hickory Run, Toms Creek, and West Branch Caldwell Creek. The abundance of age 3 or older Brown Trout increased by a factor of two on Bushkill Creek, Hickory Run, and Toms Creek. The wild Brown Trout populations in Cross Fork, Penns Creek, and Roaring Brook failed to meet the program objectives. Overall, this regulation provides a management tool that is beneficial to protect, conserve, and enhance wild trout populations.

As a result of these evaluations most of these stream sections should continue to be managed with Catch and Release Artificial Lures Only regulations. As outlined in the strategic plan, a sampling strategy will be developed to determine if waters currently managed under special regulations have met a specific set of biological and social criteria required to remain in a special regulations program.

Catch and Release Fly-Fishing Only (58 Pa. Code § 65.14)

Rationale

This program is intended to reflect the traditional involvement of fly-fishing in the Commonwealth by including waters long associated with fly-fishing only regulations. The program was designed in 2006 to consolidate two very similar former programs, Heritage Trout Angling and Delayed Harvest Fly-Fishing Only, into one special regulations program. Stream sections considered eligible for this management option will be limited to waters that have had a long-standing membership under a formal fly-fishing only option and have played a noteworthy role in the historic development of fly-fishing under special regulations in Pennsylvania. Therefore, membership to this option is essentially closed. Stream sections managed under this option for wild trout with no stocking include the former Heritage Trout Angling waters. Stream sections managed under this option that are stocked with hatchery trout include the former

Delayed Harvest Fly-Fishing Only waters. There are currently eight wild trout and 26 stocked trout waters in this program (Table 11). Table 7 details angling regulations that apply to waters included in the Catch and Release Fly-Fishing Only program.

Objectives

1. To minimize fishing mortality.
2. To maintain high trout population densities to provide for high catch-and-release rates (≥ 1.0/hr) of trout.
3. Waters managed for wild trout should maintain populations at or above standing stocks documented at the time of the qualifying survey. An increase in the proportion of age 3 or older fish (≥ 9 inches in length) in the population by a factor of two is desirable. The amount of regulated habitat, the full force of fishing mortality prior to regulations, and natural variation in response to climatic events may limit this response in older fish and should not be considered a rigid measure of program success.
4. Stocked trout waters should provide an amount of angler use greater than or equal to 550-angler hours/acre during the spring (March through mid-June).
5. To recognize the social importance that fly-fishing has had in Pennsylvania's angling tradition.

Table 7. Catch and Release Fly-Fishing Only angling regulations.

Minimum length limit:	None, no harvest is permitted
Creel limit:	Zero, no fish may be killed or had in possession
Season:	Open year-round
Gear/lure restriction:	Artificial flies or streamers

Results from evaluations conducted on Catch and Release Fly-Fishing Only waters

Five waters (Big Spring Creek, Falling Spring Branch, Francis Branch, Letort Spring Run, and Slate Run) have been inventoried to evaluate the Catch and Release Fly-Fishing Only program. Although the name of this program changed in 2006 from the Heritage Trout Angling Program to Catch and Release Fly-Fishing Only, the regulations have remained the same. Results from examinations conducted before and after Catch and Release Fly-Fishing Only management went into effect have indicated that the wild Rainbow Trout population on Falling Spring Branch, the wild Brown Trout population on Letort Spring Run, and the wild Brook Trout population on Francis Branch met the program objective of maintaining populations at or above the standing stocks found at the time of the qualifying survey. The abundance of age 3 and older Rainbow Trout increased on Falling Spring Branch and the abundance of age 3 and older Brook Trout increased on Francis Branch. The abundance of age 3 and older trout did not increase by a factor of two on any of these waters. At the time of this evaluation, the wild trout populations in Big Spring Creek and Slate Run did not meet the program objectives.

The majority of the stream sections managed under Catch and Release Fly-Fishing Only regulations are hatchery supported waters. However, as outlined in the strategic plan, a sampling

strategy will be developed to determine if waters currently managed under special regulations have met a specific set of biological and social criteria to remain in a special regulations program.

Catch and Release All-Tackle (58 Pa. Code § 65.15)

Rationale

Originally developed for the 2006 season, the Catch and Release All-Tackle program was designed for sections of Spring Creek and Valley Creek (including Little Valley Creek) that were managed under a Miscellaneous Special Regulations (58 Pa. Code § 65.24) option where catch-and-release angling was permitted with the use of artificial lures, flies, and bait. Sections of two waters, Clarion River and Little Juniata River, formerly managed under All-Tackle Trophy Trout regulations (58 Pa. Code § 65.4a) were also added to this program in 2006.

This option is applied to waters that support either Class A wild trout populations or trout fisheries supplemented with the planting of fingerling Brown Trout due to low levels of natural reproduction. Thurow and Schill (1994) reported that as more wild trout waters are closed to bait angling, displaced anglers might be compelled to contest restrictive regulations. Following the evaluation of the Brook Trout Enhancement program and subsequent elimination of the program, waters in the upper Kettle Creek watershed were added to the Catch and Release All-Tackle program. Detar et al. (2014) reported wild trout streams that receive high angler use may benefit from being managed with catch-and-release regulations. The Catch and Release All-Tackle option allows the use of bait to continue on waters that have traditionally been managed under special regulations with no tackle restrictions and broadens the potential user base on these waters. There are currently 23 wild trout and two stocked trout waters in this program (Table 11). Table 8 details angling regulations that apply to waters included in the Catch and Release All-Tackle program.

Objectives

1. To minimize fishing mortality.
2. To maintain high trout population densities to provide for high catch-and-release rates (≥ 1.0/hr) of trout.
3. To maintain populations at or above standing stocks documented at the time of the qualifying survey. An increase in the proportion of age 3 or older fish (≥ 9 inches in length) in the population by a factor of two is desirable. The amount of regulated habitat, the full force of fishing mortality prior to regulations, and natural variation in response to climatic events may limit this response in older fish and should not be considered a rigid measure of program success.

Table 8. Catch and Release All-Tackle angling regulations.

Minimum length limit:	None, no harvest is permitted
Creel limit:	Zero, no fish may be killed or had in possession
Season:	Open year-round
Gear/lure restriction:	None

Results from evaluation of a Catch and Release All-Tackle water

One water (Spring Creek) has been examined to evaluate the Catch and Release All-Tackle program. Although this program was implemented in 2006, regulations (catch and release all tackle) have remained the same since the water was placed under Miscellaneous Special Regulations in 1982. The results from examinations conducted before and after catch and release all tackle regulations went into effect indicated that the wild Brown Trout population has met the program objective for maintaining the population at or above the standing stock documented at the time of the qualifying survey. In addition, the abundance of age 3 and older wild Brown Trout has increased by a factor of two.

As outlined in the strategic plan, a sampling strategy will be developed to determine if waters currently managed under special regulations have met a specific set of biological and social criteria in order to remain in a special regulations program. This will include a study to evaluate the use of bait and tackle restrictions (artificial lures and flies) on special regulations areas.

Trophy Trout Management (58 Pa. Code § 65.7 and 58 Pa. Code § 65.4a)

Rationale

The trophy trout option is intended to provide anglers with the opportunity to fish for trophy wild or resident trout longer than 18 inches, with a high catch-and-release rate of 9 to 14-inch trout. Trophy trout management will be considered as a mechanism to achieve high densities of wild or resident trout in streams where sections can support trout greater than or equal to 18 inches in length or in those streams determined by the Area Fisheries Manager (AFM) as having a high potential to support a trophy-size fishery. This management option is directed primarily at Brown Trout.

Two variations of this option are offered: Trophy Trout Artificial Lures Only (58 Pa. Code § 65.7) and an All-Tackle Trophy Trout (58 Pa. Code § 65.4a). The Trophy Trout Artificial Lures Only option applies to small and moderate size waters managed solely as Class A wild trout streams. The All-Tackle Trophy Trout option applies to some larger waters (1S or 1L Rivers) that support either Class A wild trout populations or trout fisheries supplemented with the planting of fingerling trout due to low levels of natural reproduction. Initially adopted in January 1995, the All-Tackle option was designed to broaden the potential user base and to allow more waters to enter the program by permitting the use of bait. There are currently 10 wild trout waters in the Trophy Trout Artificial Lures Only program and one stocked trout water in the All-

Tackle Trophy Trout program (Table 11). This is designed to be a wild trout management program and no additional stocked trout waters will be considered for inclusion. Table 9 details angling regulations that apply to waters included in the Trophy Trout program.

Objectives

1. To maintain wild or resident trout populations at or above the levels documented at the time of the qualifying survey.
2. To maintain high trout population densities to provide for high catch-and-release rates (≥ 1.0/hr) of trout.
3. Waters managed for wild trout should be able to maintain populations at similar levels or above standing stocks documented during the qualifying survey. An increase in the population size structure, including the abundance of trout ≥ 14 inches in length, is desirable.
4. To protect multiple-aged spawning stocks.
5. To allow anglers to fish over and have the opportunity for limited harvest (if desired) of trophy (≥ 18 inch) trout.
6. For All-Tackle Trophy Trout waters, to allow the use of bait angling to broaden the potential user base and allow more waters to enter the program.

Table 9. Trophy Trout angling regulations.

Minimum length limit:	18 inches
Creel limit:	1 trout per day
Season:	Open year-round, with no harvest permitted between the day after Labor Day and the opening day of trout season
Gear/lure restriction:	Artificial lures, flies or streamers, or no gear/lure restriction

Results from evaluations conducted on Trophy Trout Artificial Lures Only and All-Tackle Trophy Trout Waters

Six wild trout waters (Cedar Run, East Branch Tunungwant Creek, Fishing Creek, Lackawanna River, Lick Run, and Monocacy Creek) have been monitored to evaluate Trophy Trout Artificial Lures Only regulations and one water (Penns Creek) was monitored to evaluate All-Tackle Trophy Trout regulations. The results from pre- and post- Trophy Trout Artificial Lures Only and All-Tackle Trophy Trout management inventories have indicated that the wild Brown Trout populations on six waters (Cedar Run, Fishing Creek, Lackawanna River, Lick Run, Monocacy Creek and Penns Creek) have met the program objective of maintaining populations at or above the standing stocks documented at the time of the qualifying survey. The abundance of age 3 or older wild Brown Trout increased on the same six waters. In addition, the abundance of age 3 or older Brown Trout increased by a factor of two on Fishing Creek. The wild Brown Trout population on East Branch Tunungwant Creek did not meet these program objectives.

Trout greater than or equal to 14 inches in length comprised at least 5% of the adult trout population on six of the waters examined (Cedar Run, East Branch Tunungwant Creek, Fishing Creek, Lackawanna River, Lick Run, and Penns Creek).

The results of the pre- post- Trophy Trout Artificial Lures Only management assessments have documented that most Class A wild trout populations have demonstrated a positive biological response to this regulation (Greene and Weber 1993a). Trophy Trout Artificial Lures Only regulations have provided a management tool that is beneficial to protect, conserve, and enhance exceptional wild Brown Trout populations.

As a result of these evaluations most of these stream sections should continue to be managed under Trophy Trout Artificial Lures Only regulations. As outlined in the strategic plan, a sampling strategy will be developed to determine if waters currently managed under special regulations have met a specific set of biological and social criteria in order to remain in a special regulations program. This will include a study to evaluate the use of bait and tackle restrictions (artificial lures and flies) on special regulations areas.

In 2022, the minimum size limit and daily creel limit were amended to 18 inches and 1 trout/day from 14 inches and 2 trout/day following research by staff that included analysis of Commission data, review of trout regulations in other states, and discussions among PFBC fisheries managers. The changes received strong support during previous wild trout workgroups, were supported by the results of a public survey conducted at the 2017 Wild Trout Summit, and were supported biologically through Commission data. Implementation of a size restriction greater than 18 inches would essentially equate to catch-and-release regulations based on the size distribution of fish in these streams.

Trout Slot Limit (58 Pa. § 65.4c and 58 Pa. Code § 65.4d)

Rationale

The slot limit option for wild trout fisheries is intended to provide anglers with the opportunity to harvest intermediate-sized trout, which typically represent the most abundant portion of the population, while allowing trout populations to attain high densities and desirable age and size composition. This regulation allows for year-round fishing and the harvest of two trout per day that are at least seven inches but less than 12 inches in length, from the opening day of the regular season for trout through Labor Day, with no harvest permitted the remainder of the year. Slot limit management will be considered on waters managed for wild Brown Trout where harvest is limiting the abundance of large trout in the population or in those streams determined by the AFM as having a high potential for supporting an abundance of larger trout.

Two variations of this option are offered: All-Tackle Trout Slot Limit (58 Pa. Code § 65.4c) and an Artificial Lures Only Trout Slot Limit (58 Pa. Code § 65.4d). These subprograms will provide the Commission with the ability to select the most appropriate tackle option to achieve biological and social objectives for each water considered for inclusion in the program and provide an opportunity to evaluate the effects of different terminal tackle types. Table 10 details angling regulations that apply to waters included in the Trout Slot Limit program. No

waters are currently managed under these regulations as they were just recently adopted by the PFBC at the October 2021 quarterly Commission meeting.

Objectives

1. To maintain wild or resident trout populations at or above the levels documented at the time of the qualifying survey.
2. To maintain high trout population densities to provide for high catch-and-release rates (≥ 1.0/hr) of trout.
3. Waters managed for wild trout should be able to maintain populations at similar levels or above standing stocks documented during the qualifying survey. An increase in the population size structure, including the abundance of trout ≥12 inches in length, is desirable.
4. To protect multiple-aged spawning stocks.
5. To provide anglers with the opportunity for limited harvest (if desired) of trout (≥7 inches but <12 inches) that are abundant in most populations.

Table 10. Trout slot limit angling regulations.

Minimum length limit:	≥7 inches but <12 inches
Creel limit:	2 per day
Season:	Open year-round, with no harvest permitted between the day after Labor Day and the opening day of trout season
Gear/lure restriction:	Artificial lures, flies or streamers, or no gear/lure restriction

Results from evaluations conducted on Penns Creek, Section 03, Centre and Mifflin counties

To address landowner and angler feedback, increase the abundance of large wild Brown Trout in the population, and provide the opportunity to use all tackle types and harvest some trout, a new Miscellaneous Special Regulation (slot limit) was established on Penns Creek, Section 03, beginning January 1, 2014. Penns Creek, Section 03, provided a unique opportunity to evaluate a new special regulation on a productive limestone stream. The Penns Creek trout population was monitored before and after implementation of the slot limit regulation. Results of the monitoring revealed a substantial increase in the electrofishing catch rates of larger Brown Trout (greater than or equal to 16 inches in length) during the slot limit regulation implementation period (2014-2019). These results suggest that the slot limit regulation likely played an important role in the increased electrofishing catch of large Brown Trout in Section 03.

In addition to fishery independent monitoring, staff conducted an angler use, harvest, and opinion survey to evaluate the social aspects of the regulation change and estimate angler harvest in 2019. Results documented low harvest of trout during the survey and high angler support for continuance of the slot limit regulation. Despite low angler harvest under the current slot limit regulation, this regulation provides the opportunity for anglers to harvest intermediate-sized trout if desired, which was an important social consideration when the regulation was originally

implemented. Given the success of the experimental slot limit regulation program on Penns Creek, Section 03, and potential opportunities to utilize this regulation at other suitable wild trout waters in the future, the PFBC established a Trout Slot Limit program in 2021.

Table 11. Special regulations programs – number and miles of water managed for wild trout and stocked trout.

Special regulation program	Total number of waters	Total number of miles	Number of wild trout waters	Miles of wild trout waters	Number of stocked waters	Miles of stocked waters
Catch and Release Artificial Lures Only	19	44.2	16	35.7	3	8.5
Catch and Release Fly-Fishing Only	34	63.9	8	17.7	26	46.2
Catch and Release All-Tackle	25	122.7	23	111.3	2	11.4
Trophy Trout Artificial Lures Only	10	26.7	10	26.7	0	0
All-Tackle Trophy Trout	1	9.16	0	0	1	9.2
Delayed Harvest Artificial Lures Only	58	110.4	0	0	58	110.4
Miscellaneous Regulations*	7	30.5	2	15.0	5	29.5
Total	**154**	**451.2**	**59**	**206.4**	**95**	**215.2**

*Youghiogheny River, Section 06, (46.57 miles) was not included in the Miscellaneous Special Regulations summary because this stream section does not support wild trout and is not stocked by the PFBC. This stream section primarily supports a warm-water/cool-water fishery. The miscellaneous special regulation allows for year-round harvest of trout.

2.1.7 Wilderness Trout Streams (58 Pa. Code § 57.4)

Wilderness Trout Streams are a sub-group of wild trout streams, and some have a Class A designation based on attainment of the minimum biomass threshold for that biomass classification. Under 58 Pa. Code § 57.4, it is the Commission's policy to manage Wilderness Trout Streams where stream remoteness and populations of wild trout combine to offer sport fishing opportunities for anglers in a wilderness setting.

2.1.7.1 Water Quality Protection Significance

Wilderness Trout Streams receive the highest level of water quality protection under the Commonwealth's 25 Pa. Code Chapter 93 Water Quality Standards program. Wilderness Trout Streams are afforded protection in Chapter 93 as Exceptional Value (EV). Thus, although some Wilderness Trout Streams are also designated Class A, the Chapter 93 water quality protection provided to Wilderness Trout Streams can be greater than that afforded to Commission designated Class A wild trout streams. The DEP does not permit discharges that degrade existing water quality to EV waters and closely regulates land disturbances in these watersheds.

2.1.7.2 Commission Policy: Wilderness Trout Streams

As stated in 58 Pa. Code § 57.4, "It is the policy of the Commission to maintain the wilderness trout streams program where stream remoteness and populations of naturally reproducing trout combine to offer sport fishing opportunity for the recreation of anglers in a wilderness setting away from roads or vehicular access. It is the Commission's intent to advocate proper watershed management to maintain the wilderness setting and to advance and seek the highest water quality standards through the Department of Environmental Protection."

Rationale

The Wilderness Trout Streams program is a habitat-based option on streams supporting wild trout. However, not all stream sections in the program meet the biomass criteria for Class A wild trout management, as more emphasis is placed on aesthetics rather than the density of the wild trout fishery. Wilderness trout stream management is based upon the provision of a wild trout fishing experience in a remote, natural, and unspoiled environment where anthropogenic activities are minimized. Established in 1969, this option was designed to protect and promote native (Brook Trout) fisheries, the ecological requirements necessary for natural reproduction of trout, and wilderness aesthetics. The superior quality of these watersheds is considered an important part of the overall angling experience on Wilderness Trout Streams. Therefore, all stream sections included in this program qualify for the EV special protected water use classification, which represents the highest protection status provided by the DEP. There are currently 101 waters managed in this program. Table 12 details angling regulations that apply to waters included in the Wilderness Trout Streams program.

Objectives

1. To protect wild trout fisheries, regardless of biomass classification, in areas remote from the impact of human development, including industrial development, road construction, impoundments, and introductions of non-resident fish species.
2. To maintain a "wilderness experience" for those anglers seeking this recreational experience and for those who benefit from the knowledge such an experience is ensured even though they may not personally experience it.

Table 12. Wilderness Trout Streams default angling regulations.

Minimum length limit:	7 inches
Creel limit:	5 trout per day
Season:	Opening day through Labor Day with no harvest during the extended season
Gear/lure restriction:	No special regulations, Commonwealth Inland Waters regulations apply

Criteria

1. Streams or stream sections approved for this program should not be accessible to motorized vehicles at more than one point every two miles or can be limited to at most one point every two miles.
2. Wilderness Trout Streams or sections so designated shall be at least two miles in length or one mile from the nearest access.
3. Natural reproduction of trout in these streams must be sufficient to sustain a sport fishery. Wilderness Trout Streams support wild trout populations that range from Class A to biomass Class D. Areas supporting wild Brook Trout populations will be protected from the introduction of Brown Trout and Rainbow Trout, as the stocking of hatchery trout is prohibited in all Wilderness Trout Streams.
4. Streams or stream sections approved for this program must be open to the general angling public.

To date, no statewide evaluation has been conducted to assess wild trout populations managed under the Wilderness Trout Streams program. As outlined in the strategic plan, habitat enhancement should be conducted on stream sections where habitat has been identified as the primary limiting factor to the expansion of wild trout populations. However, considering the remote location of these streams, intensive habitat management may not be feasible on some of these waters.

2.2 Hatchery Trout Subprogram

Annually, the PFBC raises and distributes cultured hatchery trout (adult and fingerling trout) to Pennsylvania waters (lakes and streams) open to public fishing. The purpose of the hatchery trout program is to provide recreational trout angling opportunities over a much broader area of the Commonwealth than could be provided by the wild trout resource.

Adult trout, averaging 11 inches in length, are allocated to lakes and streams based on resource classification that assigns waters into resource-based stocking categories defined by objectively determined biological, physical, and social criteria. Under this system, waters with similar attributes are managed under the same guidelines regardless of their location. For the 2021 season, a total of 3,190,900 adult trout were allocated to 128 lakes encompassing 7,101 acres of lentic water and 1,050 stream sections totaling 4,581 stream miles of flowing water statewide (Figure 7). The majority of adult trout distributed to Pennsylvania waters (3,074,100 trout - 96.3%) were stocked during the spring to coincide with the period of peak angler demand for trout fishing. The remainder of stocking (116,800 trout – 3.7%) occurred during the fall and winter periods extending from October through December. Fingerling trout are allocated to lakes and stream sections based on stocking requests determined by the AFMs. Fingerling trout stocked during the spring months typically range from two to four inches in length at the time of stocking. In 2021a total of 640,100 fingerling trout were allocated to three lakes encompassing 6,664 acres of lentic water and 21 stream sections covering 126 stream miles of flowing water in the Commonwealth.

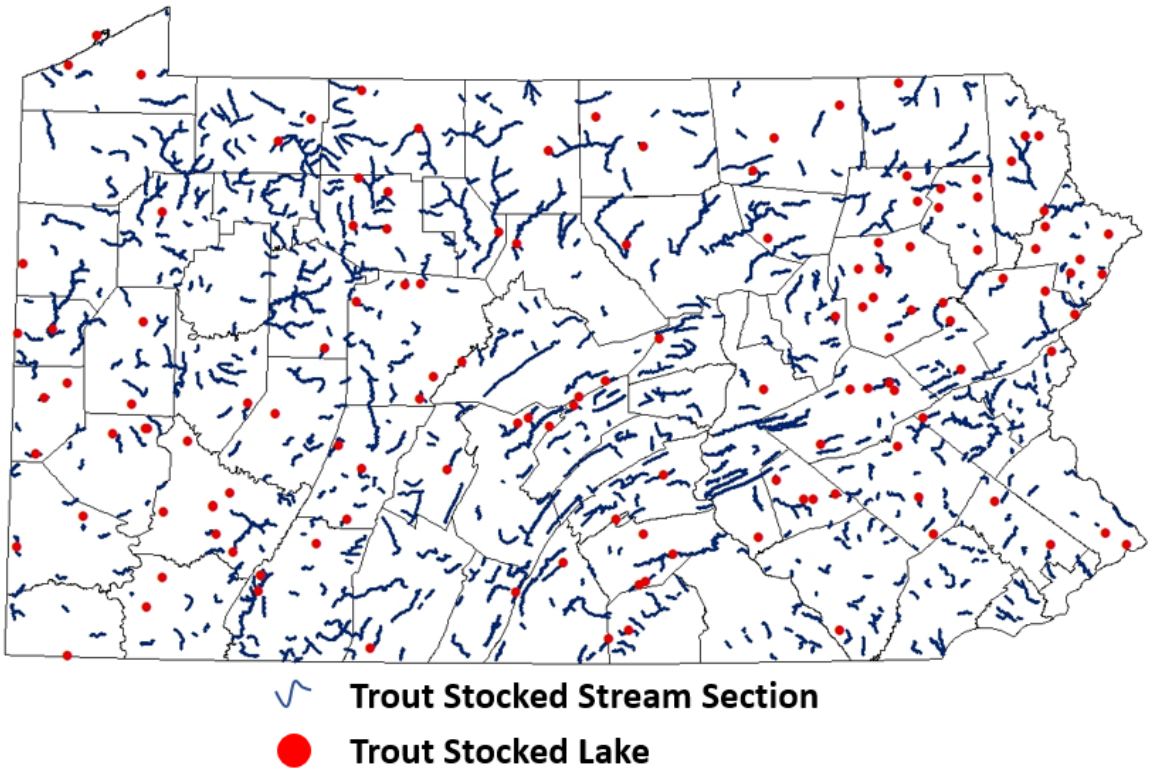

Figure 7. Waters stocked with adult trout – Stocked Trout Waters.

2.2.1 Water Quality Protection Implications

Water quality protection of stocked trout streams ranges from Trout Stocking (TSF) to EV. The DEP protects PFBC Stocked Trout Waters (i.e., those approved by the Division of Fisheries Management for stocking) by applying water quality criteria that are designed to protect all of the stream's cold-water aquatic life uses. Projects impacting streams and wetlands authorized under 25 Pa. Code, Chapter 105, Dam Safety and Waterway Management often include a seasonal restriction (no work from February 15 to June 1) to minimize conflicts with trout fishing. If some wild trout occur in a stocked stream, it is usually designated as Cold Water Fishes (CWF) by the DEP. If a stocked stream is classified by the DEP as High Quality-Cold Water Fishes (HQ-CWF) or EV, it is typically on the basis of such things as the presence of high-quality macroinvertebrate communities rather than on the presence of wild trout (PA DEP 2003).

If streams are stocked, they typically are not classified in Chapter 93 as Warm Water Fishes (WWF). However, if this does occur, the PFBC brings such streams to the DEP's attention and recommends a change in designation to TSF. Stocking trout in streams that were designated as WWF and subsequently designated as TSF provides additional water quality protection to the aquatic communities of those streams since lower temperature criteria apply for the period from February 15 through July 31 and higher dissolved oxygen criteria apply for the period from May 16 through August 15.

2.2.2 Commission Policy: Allocation and Stocking of Legal-size Trout (58 Pa. Code § 57.2)

The Commission formally adopted a statement of policy for the allocation and stocking of adult trout at the November 8, 1985, Commission meeting. The policy was revised at the July 19, 2005, Commission meeting. The policy, codified at 58 Pa. Code § 57.2, is detailed below.

(a) The Commission will allocate trout, except fingerlings, to individual waters with the rate and frequency to be determined by the assignment of each water to a resource category.
(b) The Commission will assign water areas to resource categories based on the appropriately weighted biological and social factors, including the status of the wild trout populations, stream width or lake area and recreational use potential as indicated by public access, parking spaces, ownership, proximity to roads, proximity to urban areas and activities of resource adoption organizations.
(c) The Division of Fisheries Management will maintain a current list of resource categories, trout allocation processes and trout allocations.
(d) This section supersedes other Commission policies or operating procedures to the extent inconsistent with this section.

Objective

To use adult hatchery trout (averaging 11 inches in length) to provide recreational angling opportunities in the waters of the Commonwealth open to fishing for the general angling public.

Tactical Approach

All trout stocked are allocated to individual water areas with no consideration of county lines. The rates and frequencies of stocking are determined by assignment of each water area to an appropriate resource-based stocking category.

Assignment of water areas to stocking categories is based on consideration and rating of biological, physical, and social factors including the status of the wild trout population, stream width, lake size, recreational use potential as indicated by public access, parking spaces, ownership, and human population density adjacent to the stocked water.

2.2.3 Adult Hatchery Trout in Streams Subprogram Guidelines

The following general guidelines have been developed for the adult hatchery trout in streams subprogram.

1. The suitability of a stream section for trout stocking must be determined through a field survey conducted by the Area Fisheries Manager (AFM). No water shall be approved for stocking prior to this survey.
2. With rare exceptions, stream sections designated as Class A wild trout streams will not be stocked with hatchery trout.
3. Stream sections designated as Wilderness Trout Streams will not be stocked with hatchery trout.
4. Class B stream sections (greater than or equal to 20 kg/ha, 17.8 lbs/acre) not stocked prior to 1983 will not be considered for stocking with hatchery trout.
5. For addition to the stocking program, stream sections must be at least 3.2 kilometers (2 miles) in length. Smaller tributaries or stream sections, which are contiguous with larger approved stream sections are eligible for stocking if all other standards are satisfied.
6. The average width for preseason stocking and at any time before June 15 for in-season stocking must be greater than or equal to 4.0 meters (13.2 feet) in the upstream one-third of the section, or less than or equal to 40.0 meters (132 feet) average width in the downstream one-third of the section. Stream sections with a mean width less than or equal to 4.0 meters or greater than or equal to 20.0 meters (66 feet) and not stocked prior to 1983 will receive the lowest priority for consideration. Recommendations will consider the occurrence of wild trout and availability of other stocked waters in the area.
7. For new waters added to the adult trout program, water temperature shall not exceed 24°C (75°F) at any time prior to June 1.
8. The minimum values for pH at the time of stocking shall not be less than 6.0 for all trout species. In cases where acid precipitation is believed to be the cause of low pH and alkalinity values, aluminum concentrations should be determined. Any stocking canceled due to poor water quality will not be rescheduled. The same criteria will be applied in the consideration for adding new waters to the adult trout-stocking program.
9. No stream section shall be stocked if pollutants are known to be present at concentrations exceeding public health protection levels established by the Pennsylvania Department of Health.

10. Stream sections subject to periodic pollution incidents potentially harmful to aquatic life and resulting in fish and/or habitat loss will be managed as low intensity, seasonal-stocked fisheries for one year if no additional incidents occur. The stream section will be removed from stocking if an existing problem is not corrected or if pollution becomes chronic. Trout lost to a pollution incident will not be replaced.
11. Access for the general angling public must be available to at least 75% of the stream section and the accessible area must be at least 1.6 km (1 mile) in length to be approved for stocking.
12. A stream section may be approved for stocking without angler use and harvest data. However, a subsequent evaluation by the AFM to assess early season stocked trout residency on the stream section should be conducted to assess continuation of stocking.
13. Choice of species to be stocked will be determined by the AFM. Consideration will be given to habitat characteristics, angling vulnerability, and popularity. Multispecies management is preferable, due to the seasonal differences in catchability between species as documented by PFBC angler use and harvest surveys (Greene and Weber 1993b).
14. Stream sections with vehicular access limited to <20% within 500 meters (1,650 feet) of a road and not stocked prior to 1997, will not be considered as an addition to the adult trout stocking program.
15. A minimum number of 300 adult trout will be necessary to constitute an individual stocking.
16. Stocking rates outlined represent the maximum stocking rates and frequency according to classification. In response to various biological, chemical, physical and/or social factors, AFMs have the latitude to adjust stocking rates downward from the maximum stocking rate. These special case situations should be addressed individually on a case-by-case basis, as the AFMs deem necessary.

Guidelines for identifying replacements for stream sections removed from the adult trout stocking program

Occasionally changes in biological, chemical or social factors may occur that lead to the removal of a stream section from the adult trout stocking program. These changes include but are not limited to the improvement of a wild trout population to a Class A biomass density, the loss of angler access through landowner posting, water quality degradation, or PFBC research efforts.

Stream sections that have been traditionally managed with the stocking of adult trout tend to build an angler following. When one of these stream sections is removed from the stocking program a commensurate decline in angler participation may also occur. Therefore, when a stream section is removed from the adult trout stocking program staff will attempt to find a replacement water to add to the stocking program.

Initially, staff will try to find a replacement within close proximity to the stream section that was removed from the stocking program. If a stream section cannot be found locally, the search will be broadened to a wider geographic area. Regarding location of the replacement, the following prioritized guidelines should be observed.

1. The replacement should be located as near as possible to the removed stream section.
2. The replacement should be located within the same watershed as the removed stream section.

3. The replacement should be located in an adjacent watershed.

Guidelines should also be observed regarding how stream sections should be added as replacement waters. The recommended priorities for replacements are detailed below.

1. Add a new stream section to the adult trout stocking program.
2. Add an extension to an existing trout-stocked section.
3. Add an in-season stocking to a qualifying stream section.
4. Add a second in-season stocking to a qualifying stream section.

The stocking strategy applied to any replacement stream section must be maintained within the bounds of the maximum stocking rates and frequencies that apply to the stocking categories in accordance with resource-based classification. In addition, unstocked stream sections that support biomass Class B wild trout populations should not be used as replacement sections.

Staff will attempt to provide replacements that have adequate access to provide for good angler use. The number of trout allocated for stocking in a replacement section may not always meet the number of trout that were stocked in the stream section that was removed from the stocking program. Following thorough investigation, if a replacement water or an adjustment to a currently stocked water is not possible within an area, prudent use of PFBC resources will dictate that the stream section will be removed from the stocking program without a replacement water.

Stream Resource Categories

Criteria for establishing resource categories for management with hatchery trout include trout biomass, stream width, recreational use potential, and human population density. Ratings for these criteria are combined to determine the appropriate management option for each stream section included in the hatchery trout subprogram.

Angler use and harvest work conducted between 1988 and 1991 on a cross-section of waters representing the stream resource categories served as a basis for adjustments to the allocation strategy for these categories in 1994. Adjustments in stocking rates were made to provide for more recreation (angler trips) and a better utilization (total catch) of hatchery trout based upon angler use and harvest information in conjunction with information obtained from the 1991 Trout Angler Telephone Survey (Hummon 1992).

Further adjustments in the allocation strategy were required for the 2002 season, as annual statewide production of adult trout was reduced from 5.2 million to 3.8 million trout. These reductions resulted from the closure of the Big Spring State Fish Hatchery and statewide hatchery production reductions to remain in compliance with more stringent effluent discharge standards as permitted by the DEP. Subsequently, a biomass limitation of 1.9 million pounds of trout produced was placed on PFBC hatcheries. Through hatchery infrastructure improvements and some production adjustments made at PFBC hatcheries, the addition of a purchase contract with a commercial hatchery, and a cooperative agreement with the US Fish and Wildlife Service

to raise adult trout at one of their hatcheries, the number of adult trout available for statewide distribution increased to 4.2 million for the 2004 season. Beginning with the 2007 season, the Commission decided to increase the average size of adult trout produced for stocking to 11 inches. To accomplish this, some trade-off was required in the number of trout that could be produced of this size at PFBC hatcheries. By increasing the average size of adult trout from 10.25 inches to 11 inches in length, there was a corresponding 30 percent increase in the weight of these fish. Therefore, to compensate for raising trout that were 30% larger in weight, the number of trout produced was reduced by 20% to remain in compliance with the biomass restriction of 1.9 million pounds of trout produced at PFBC hatcheries. Subsequently, stocking rates applied across all resource-based stocking categories were reduced by 20% beginning with the 2007 season. Accounting for this revision, the number of adult trout available for annual statewide distribution was 3.4 million trout. In February 2009 the contract with the commercial hatchery expired. Due to a substantial cost increase from the previous contract (from $1.23 per fish to $3.38 per fish) the PFBC decided to discontinue this program. Subsequently, the current number of adult trout available for statewide distribution stands at approximately 3.2 million trout.

Trout Population/Biomass Classification

Stream sections are classified as A (excellent standing stock of wild trout), B (good standing stock of wild trout), C (fair standing stock of wild trout), D (few wild trout), and E (no wild trout). Table 13 details the criteria used to determine biomass classification for individual resource-related factors.

The abundance of wild trout is generally considered inversely proportional to the management intensity required to provide a trout angling experience through stocking. It is assumed that hatchery trout will contribute more to the amount of trout angling available when stocking is emphasized in stream sections containing few wild trout.

Table 13. Criteria to determine biomass classification for individual resource-related factors.

Class	Subprogram	Criteria
A	Wild Trout	(See Wild Trout Subprogram)
B	Hatchery Trout - Wild Trout	a. Total Brook Trout biomass of at least 20 kg/ha (17.8 lbs/acre) and less than 30 kg/ha (26.7 lbs/ acre)
		b. Total Brown Trout or Brown Trout and Brook Trout combined biomass of at least 20 kg/ha (17.8 lbs/ acre) and less than 40 kg/ha (35.6 lbs/acre)
C	Hatchery Trout	Total trout biomass of at least 10 kg/ha (8.9 lbs/ acre) and less than 20 kg/ha (17.8 lbs/acre)
D	Hatchery Trout	Total trout biomass greater than 0 kg/ha but less than 10 kg/ha (8.9 lbs/ acre)
E	Hatchery Trout	Total trout biomass of 0 kg/ha (no wild trout present)

Stream Section Width Classification

Relative stream size is established by determining the average width of the stream section with standardized methods (Table 14). Differences in stocking rates and frequencies have been established between width class 1 and width class 4 sections. Statewide angler use and harvest surveys conducted from 1988 through 1990 recorded a lower rate of angler use on (1S and 1L) stream sections (186 angler hours/acre) as compared to width class 2 and 3 stream sections (380 angler hours/acre) (Greene and Weber 1993b). Results from statewide angler use and harvest surveys conducted on stocked trout streams in 2005 also recorded a lower amount of angler use on width class 1 stream sections (218 angler hours/acre) in comparison with width class 2 and 3 stream sections (368 angler hours/acre) (Greene et al. 2006). In addition, these large streams have the potential to absorb a large portion of hatchery production, thereby reducing the statewide availability of recreational angling opportunities. Therefore, width class 1 waters are managed at less intensive stocking rates. Due to their small size, width class 4 stream sections are also managed less intensively to avoid overcrowding of fish and anglers on these small streams.

Table 14. Stream section width classes.

Class	Subclass	Criteria
1	1L	Average width greater than 30 meters (99 ft.).
	1S	Average width greater than 20 meters (66 ft.) but less than or equal to 30 meters (99 ft.).
2		Average width of at least 10 meters (33 ft.) but less than or equal to 20 meters (66 ft.).
3		Average width of at least 4 meters (13.2 ft.) but less than 10 meters (33 ft.).
4		Average width less than 4 meters (13.2 ft.).

Recreational Use Potential Classification

A stream section's recreational use potential is determined by its proximity to a road and the number of parking spaces per kilometer (Table 15), as well as stream section ownership (Table 16).

Table 15. Stream section subclass access ratings by proximity to roads and available parking.

	Parking spaces/kilometer			
Percent proximity to a road	**≥100**	**≥50 but <100**	**≥10 but <50**	**<10**
% within 100 m ≥75	High	High	High	Moderate
% within 100 m <75 but ≥75% within 300 m	High	High	Moderate	Moderate
% within 300 m <75 but >0	Moderate	Moderate	Low	Low
% within 300 m = 0	Low	Low	Inaccessible	Inaccessible

Table 16. Stream section subclass access ratings by ownership.

	Access rating			
Ownership	**High**	**Moderate**	**Low**	**Inaccessible**
100% Public: Open	High	High	High	Good
Mixed Public/Private: 100% open and ≥50% public	High	High	Good	Good
Mixed Public/Private: 100% open and <50% public or 100% private and ≥85% open	Good	Good	Good	Low
Mixed Public/Private: >15% closed to public	Low	Low	Low	Low
100% Private and 100% Closed	Closed	Closed	Closed	Closed

Social factors, which define recreational use potential include, proximity of the stream section to roads open to public travel, automobile parking capacity located along any portion of the stream section, and riparian ownership. Recreational use potential is classified as high, good, low, or closed to fishing.

Remarks

1. If posting ≤ 5%, then posting = 0.
2. If the percent proximity to a road within 500 m = 0, then regardless of parking or ownership, Recreational Use Potential = Low.
3. Percent proximity to a road relates to motorized vehicular access and not walk-in, all-terrain vehicle, or bicycle access via road or trail.

Stream sections located near dense population centers flowing through public land and closely paralleled by public roads with a “High” recreational use potential classification will receive the maximum allowable allocation. Such sections provide the access characteristics to attract and accommodate large numbers of anglers generated by intensive and frequent stockings. Stocking rates and frequencies decrease proportionately as the percentage of private ownership

and difficulty of access increases. This regulated approach is intended to minimize angler-landowner conflicts generated by a common property approach.

Upgrading Recreational Use Potential

Providing that access rating criteria qualify (stream section to road proximity and available parking), stream sections may be eligible for an upgrade to recreational use potential from good to a high rating. Elevating recreational use potential can be accomplished by landowners entering into landowner agreements with the PFBC. The standard PFC-60 form will be utilized to acknowledge an agreement between the PFBC and individual landowners willing to allow stream access to the general angling public.

Under these agreements, the "High" recreational use potential rating will be applied to stream sections with at least a moderate access rating providing that 100% of the total section length is accounted for under PFBC landowner agreements or a combination of landowner agreements and existing public ownership open to the general angling public.

All landowner agreements should be in the form of the standard PFC-60 agreement that is in accordance with the program administered by the PFBC Division of Property Services.

Posting Criteria

Recreational trout angling opportunity is provided on many stream sections that have riparian land ownership within the private sector. Some of these sections have portions closed to the general angling public due to landowner posting. Continued high intensity stocking on waters with existing posting problems may lead to additional posting and the eventual total closure of these waters. Furthermore, due to the potential for trout to move into posted areas, the maintenance of high intensity stocking on these waters is not in the best interest of the general angling public. If possible, areas closed to the general angling public should be sectioned out (or removed) from the stocking limits. However, posting often occurs in a checkerboard fashion and re-sectioning is not always a viable option. Therefore, to account for the amount of closure and continue to provide recreational angling opportunity within the portions of stream open to the general angling public, the following criteria have been developed.

Criteria

1. For stream sections with less than or equal to 5% posted (closed to angling), the amount of posting will be considered incidental, and these waters will be stocked at the classification rate according to program guidelines. No reduction will be made to the annual allocation.
2. For stream sections with greater than 5% to less than or equal to 15% posted (closed to angling), a reduction in the annual allocation will be applied equal to the percentage of the stream section that is closed to the general angling public.
3. Stream sections with greater than 15% to less than or equal to 25% posted (closed to angling), will be downgraded to low recreational use potential. They will still qualify for stocking; however, stocking will be conducted on a preseason or in-season only basis at the prescribed rates for low recreational use potential waters according to program guidelines.

4. Stream sections greater than 25% posted (closed to angling), where re-sectioning is not possible, will be removed from the adult stocked trout program.

Human Population Density Classification

Human population density is determined from the Pennsylvania Industrial Census Series for the township(s) and municipalities in which the stream section is located. Human population density criteria apply to determining stocking rates on width class 2 and 3 stream sections and 1S and 1L stream sections with a recreational use potential rating of either high or good. For these waters, stocking rates and frequencies are adjusted upward in a structured fashion to even distribution of recreational trout fishing opportunities in populated areas. Angler use data collected between 1988 and 1990 on good recreational use potential stream sections confirmed, that on average, the most intensive amount of angler use was observed on urban (409 hrs/acre) and suburban stream sections (410 hrs/acre). Within this group, rural stream sections comprise the largest group of waters stocked; however, they provided the lowest (224 hrs/acre) amount of angler use (Greene and Weber 1993b). Angler use data collected in 2005 on good recreational use potential stream sections indicated that the most intensive amount of angler use occurred on metropolitan stream sections (844 hrs/acre), followed by urban stream sections (580 hrs/acre). However, in contrast to the data collected between 1988 and 1990, angler use on rural stream sections (281 hrs/acre) exceeded the amount of angler use recorded on suburban stream sections (194 hrs/acre) in 2005 (Greene et al. 2006). Table 17 details criteria used to determine human population density classification.

Table 17. Stream section human population density classification criteria.

Class	Criteria
Metropolitan	Greater than or equal to 300 persons per square kilometer
Urban	Greater than or equal to 125 persons per square kilometer but less than 300 persons per square kilometer
Suburban	Greater than or equal to 40 persons per square kilometer but less than 125 persons per square kilometer
Rural	Less than 40 persons per square kilometer

These criteria are particularly targeted to the "leisure time" anglers in populated areas who are willing to drive short distances more frequently than making trips that involve more travel time than actual fishing time for a single day. This was supported by the information obtained from the 1991 Trout Angler Telephone Survey, as between 63 and 70 percent of all trout angling trips take place within one hour of the angler's home (Hummon 1992). This was also supported by information collected from the 2008 Pennsylvania Trout Fishing Survey, where 49 percent of all trout angling trips resulted in a travel distance of no more than 15 miles (one way) to fish for trout in Pennsylvania (Duda et al. 2008).

Management Options

The hatchery trout subprogram is divided into several management options with different allocations and rates for the stocking of hatchery trout based on resource categories. Within these options there are alternatives for adding diversity and variety to hatchery trout supported fisheries. A summary of the allocation strategy and distribution options for stream sections is presented in Table 18. Original stocking rates applied to resource-based stocking categories from 1983 through 1993 are provided in Appendix C. Stocking rates applied to resource-based stocking categories from 1994 through 2009 are provided in Appendix D.

Table 18. Summary of allocation and distribution options for streams.

Biomass	Recreational use potential	Width	Population	Stocking intensity (trout/acre/year)
High Yield membership				
C	High	2 or 3	M	361
D	High	2 or 3	M	361
E	High	2 or 3	M	361
C	High	2 or 3	U, S, or R	323
D	High	2 or 3	U, S, or R	323
E	High	2 or 3	U, S, or R	323
Optimum Yield membership				
B	High	2 or 3	M, U, S, or R	147
	Good	2 or 3	M	323
		2 or 3	U	285
		2 or 3	S	190
		2 or 3	R	95
	High	4	M, U, S, or R	57
	Good	4	M, U, S, or R	57
C	Good	2 or 3	M	323
		2 or 3	U	285
		2 or 3	S	190
		2 or 3	R	95
	High	4	M, U, S, or R	57
	Good	4	M, U, S, or R	57

Biomass	Recreational use potential	Width	Population	Stocking intensity (trout/acre/year)
Optimum Yield membership				
D	Good	2 or 3	M	323
		2 or 3	U	285
		2 or 3	S	190
		2 or 3	R	95
	High	4	M, U, S, or R	57
	Good	4	M, U, S, or R	57
E	Good	2 or 3	M	323
		2 or 3	U	285
		2 or 3	S	190
		2 or 3	R	95
	High	4	M, U, S, or R	57
	Good	4	M, U, S, or R	57
Low Yield membership				
B	Low	2, 3 or 4	M, U, S, or R	57
C	Low	2, 3 or 4	M, U, S, or R	57
D	Low	2, 3 or 4	M, U, S, or R	57
E	Low	2, 3 or 4	M, U, S, or R	57

Width	Recreational use potential	Population	Stocking intensity (trout/acre/year)
River membership			
1S	High	U	137
		S	122
		R	110
	Good	U	84
		S	65
		R	57
	Low	U, S, or R	34
1L	High	U	91
		S	72
		R	61
	Good	U	53
		S	50
		R	38
	Low	U, S, or R	30

High Yield Metro

Rationale

Prior to the 2004 season, the High Yield category was revised to recognize waters with a metropolitan (metro) human population density separate from those with urban, suburban, or rural human population densities. The intent was to provide more intensive stocking in high access public owned waters located in proximity to dense human population centers. These sections receive the greatest emphasis for adult trout stocking in flowing water. High Yield Metro stream sections provide a combination of characteristics that identify these waters as best suited for high density stocking to encourage heavy angler use. These factors include non-existent to moderate density wild trout populations, moderate stream size, accessibility, a high percentage of public ownership, and their location near dense population centers (Table 19).

Goal

To provide recreational trout angling opportunities and minimize angler-landowner conflicts through the use of high stocking rates and frequencies to concentrate angler use on areas under public ownership located near dense human population centers with high angler use potential and non-existent to fair wild trout populations (Table 20).

Objectives

The fishery is largely dependent upon the rate and frequency of stocking. Objectives for these waters are detailed below.

1. To provide an amount of angler use greater than or equal to 800 angler hours/acre during the spring angling period (April through mid-June).
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.
3. Where conditions allow, provide more year-round trout angling by allocating fish during the fall stocking period.

Allocation Strategy

Table 19. Trout biomass, recreational use potential, width, and human population density characteristics of High Yield Metro waters.

Trout biomass	Recreational use potential	Width	Human population density
Fair-Poor-None	High	From 4 meters to 20 meters	Metro
C-D-E	High	2-3	Metro

Table 20. Stocking rates and frequencies for High Yield Metro waters.

Preseason (trout/acre)	In-season (trout/acre)	In-season frequency	Total (trout/acre)
190	171	2	361

Criteria

1. Two in-season stockings are required for a section to qualify for the maximum in-season stocking rate of 171 trout/acre. Should less than two in-season stockings be desired, the in-season allocation should be reduced accordingly with a maximum of 100 trout/acre for a single in-season stocking.
2. Fall stocking may be conducted at a stocking rate not to exceed 50 trout/acre. Trout stocked during the fall will be included as part of a water's total annual allocation which will not exceed 361 trout/acre/year.

High Yield

Rationale

Results from the statewide angler use and harvest surveys conducted from 1988 through 1990 confirmed that High Yield stream sections attracted the greatest amount of angler use (610 hrs/acre) on flowing waters managed with the stocking of adult trout (Greene and Weber 1993b). Based on angler use information from the 2005 angler survey, angler use on High Yield stream sections averaged 592 hours/acre and was second only to the effort recorded on an Optimum Yield 2 Metro stream section (Greene et al. 2006). Stream sections in this category and the Optimum Yield 2 Metro category receive the second greatest emphasis for adult trout stocking in flowing water. High Yield stream sections provide a combination of characteristics that identify these waters as well suited for high density stocking to encourage heavy angler use. These factors include non-existent to moderate density wild trout populations, moderate stream size, accessibility, and a high percentage of public ownership (Table 21). No distinction is made in the allocation strategy between urban, suburban or rural, and all sections qualify for intensive management.

In general, adult trout stocking in flowing water areas has traditionally been completed by Memorial Day. To provide more and varied angling opportunities, the stocking program on this group of waters may be extended (where possible) to include non-traditional periods. For example, angler use and harvest assessments conducted following an October stocking on a High Yield water indicated that angler use after the fall stocking (136 hrs/acre) was comparable to that of a late spring stocking (102 hrs/acre). Therefore, the fall stocking option may be extended to suitable High Yield stream sections.

Goal

To provide recreational trout angling opportunities and minimize angler-landowner conflicts through the use of high stocking rates and frequencies to concentrate angler use on

areas under public ownership with high angler use potential and non-existent to fair wild trout populations (Table 22).

Objectives

The fishery is largely dependent upon the rate and frequency of stocking. Objectives for these waters are detailed below.

1. To provide an amount of angler use greater than or equal to 550 angler hours/acre during the spring angling period (April through mid-June).
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.
3. Where conditions allow, provide more year-round trout angling by allocating fish during the fall stocking period.

Allocation Strategy

Table 21. Trout biomass, recreational use potential, width, and human population density characteristics of High Yield waters.

Trout biomass	Recreational use potential	Width	Human population density
Fair-Poor-None	High	From 4 meters to 20 meters	Urban, Suburban or Rural
C-D-E	High	2-3	U, S, or R

Table 22. Stocking rates and frequencies for High Yield waters.

Preseason (trout/acre)	In-season (trout/acre)	In-season frequency	Total (trout/acre)
152	171	2	323

Criteria

1. Two in-season stockings are required for a section to qualify for the maximum in-season stocking rate of 171 trout/acre. Should less than two in-season stockings be desired, the in-season allocation should be reduced accordingly with a maximum of 100 trout/acre for a single in-season stocking.
2. Fall stocking should be conducted at a stocking rate not to exceed 50 trout/acre. Trout stocked during the fall will be included as part of a water's total annual allocation which will not exceed 323 trout/acre/year.

Optimum Yield

Rationale

These comprise the majority of stocked trout waters. The Optimum Yield category has been subdivided into seven possible alternatives depending on varying combinations of wild trout populations, stream size, access, and ownership.

Goal

To provide recreational trout angling opportunities using the management techniques that include stocking rates and frequencies (a maximum of two in-season) which reflect the abundance of wild trout, public or private ownership with public access, human population density, and stream size.

Optimum Yield I

Rationale

Results from statewide angler use and harvest surveys from 1988 through 1990 recorded a moderate amount of angler use (296 hours/acre) from stream sections within this category of waters (Greene and Weber 1993b). Low angler use was recorded (32 hours/acre) from one stream section sampled within this category in 2005 (Greene et al. 2006). These stream sections provide essentially the same physical and social characteristics as High Yield waters. The major difference is that Optimum Yield I sections support good biomass Class B wild trout populations (Table 23). To provide protection to these wild trout fisheries, stocking rates and frequencies are reduced, and stocking is limited to the spring with a maximum of two stockings (one preseason and one in-season) (Table 24). No distinction is made in the stocking rate between human population density classifications.

Due to the presence of good wild trout populations, these waters should receive a priority for re-inventory to document the status of the wild trout fishery. Should these trout populations change upon re-inventory, appropriate management actions will be made on a case-by-case basis according to program guidelines.

Objectives

The fishery is dependent on the rate and frequency of stocking and the contribution to the fishery from good densities of wild trout. Objectives for these waters are detailed below.

1. To provide an amount of angler use greater than or equal to 150 angler hours/acre during the spring angling period (April through mid-June).
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.

Allocation Strategy

Table 23. Trout biomass, recreational use potential, width, and human population density characteristics of Optimum Yield I waters.

Trout biomass	Recreational use potential	Width	Human population density
Good	High	From 4 meters to 20 meters	Not a factor
B	High	2-3	Not a factor

Table 24. Stocking rates and frequency for Optimum Yield I waters.

Preseason (trout/acre)	In-season (trout/acre)	In-season frequency	Total (trout/acre)
76	71	1	147

Criteria

To provide protection to the existing wild trout fisheries, a practice of less intensive stocking rates and frequencies should be followed. Currently most stream sections in this category receive one stocking on a preseason or in-season only basis. In cases where a preseason and in-season stocking strategy is used, these waters will receive only one in-season stocking rather than multiple in-season stockings. This stocking should occur prior to Memorial Day.

Optimum Yield II

The proximity to population centers becomes an important social consideration in adjusting stocking rates upward in heavily populated areas to take advantage of the fact that more leisure time is available for angling trips closer to the angler's residence. Therefore, this category has been subdivided into four options based upon human population density (Metropolitan, Urban, Suburban, and Rural). There are two factors of importance to waters in this category.

1. Recreational use potential – For this group, all waters qualify for a rating of "Good" recreational use potential. The factors that can downgrade this rating include access, ownership, and posting and/or parking problems.
2. Human population density – If the stream section has a "Metropolitan" human population density classification, it will be stocked at a high rate. If the stream section has an "Urban" human population density classification, a less intensive stocking rate will be applied. Stocking rates on stream sections with a "Suburban" human population density classification will be less than those with an "Urban" human population density classification and stocking rates on "Rural" stream sections will be reduced from "Suburban."

Optimum Yield II – Metro

Rationale

Prior to the 2004 season, the Optimum Yield II category was revised to recognize waters with a metropolitan (metro) human population density separate from those with urban, suburban, or rural human population densities. The intent was to provide more intensive stocking in stream sections open to public angling located in proximity to dense human population centers. Waters in this category and the High Yield category receive the second greatest emphasis for adult trout stocking in flowing waters. Optimum Yield II Metro stream sections provide a combination of characteristics that identify these waters as well suited for high density stocking to encourage heavy angler use. These factors include non-existent to good density wild trout populations, moderate stream size, accessibility, and their location near dense population centers (Table 25). These waters should be stocked during the preseason and are eligible to receive two in-season stockings (Table 26).

One stream section from this category was examined as part of the statewide angler survey on stocked trout stream sections in 2005. Results from this survey recorded a very high amount of angler use on this water (844 hours/acre) during the spring angling period (Greene et al. 2006). Due to intense early season use, these sections should receive one of their in-season stockings during the opening week of season. This would serve to maintain the high rate of angler use that has been recorded on these waters in the early spring.

Objectives

The fishery is largely dependent upon the rate and frequency of stocking. Objectives for these waters are detailed below.

1. To provide an amount of angler use greater than or equal to 800 angler hours/acre during the spring angling period (April through mid-June).
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.
3. Where conditions allow, provide more year-round angling opportunity by allocating fish during the fall stocking period.

Allocation Strategy

Table 25. Trout biomass, recreational use potential, width, and human population density characteristics of Optimum Yield II – Metro waters.

Trout biomass	Recreational use potential	Width	Human population density
Good-Fair-Poor-None	Good	From 4 meters to 20 meters	Metro
B-C-D-E	Good	2-3	Metro

Table 26. Stocking rates and frequencies for Optimum Yield II – Metro waters.

Preseason (trout/acre)	In-season (trout/acre)	In-season frequency	Total (trout/acre)
190	133	2	323

Criteria

1. A minimum of two in-season stockings are required for a section to qualify for the maximum in-season stocking rate of 133 trout/acre. Should only one in-season stocking be desired, the in-season allocation will be reduced to a maximum of 100 trout/acre.
2. Fall stocking may be conducted at a stocking rate not to exceed 50 trout/acre. Trout stocked during the fall period will be included as part of the waters total annual allocation which will not exceed 323 trout/acre/year.

Optimum Yield II – Urban

Rationale

The results from the statewide angler use and harvest surveys from 1988 through 1990 indicated that these stream sections attracted a high amount of angler use (409 hours/acre), second only to the use observed on High Yield sections of flowing waters (Greene and Weber 1993b). A high amount of angler use (580 hours/acre) was recorded from one stream section sampled from this category in 2005 (Greene et al. 2006). Located near human population centers within the Commonwealth, these stream sections provide valuable trout angling opportunities in areas where recreational fisheries are at a premium. These sections are characterized as moderate size streams with a recreational use potential rating of Good and support wild trout biomass densities that range from good to non-existent (Class B, C, D or E) (Table 27). However, most of these sections support low density populations of wild trout or do not support a wild trout population. These waters should be stocked during the preseason and are eligible to receive three in-season stockings (Table 28).

Due to intense early season use, these sections should receive one of their in-season stockings during the opening week of season. This would serve to maintain the high rate of angler use that has been recorded on these waters in the early spring. Unfortunately, on many of these waters, angler use declines as stream conditions become less favorable to support trout in the late spring (late May-June). However, favorable conditions may exist to support a trout fishery on some of these waters during the fall. Therefore, a fall stocking option may be extended to suitable stream sections within this category.

Objectives

The fishery is largely dependent upon the rate and frequency of stocking. Objectives for these waters are detailed below.

1. To provide an amount of angler use greater than or equal to 500 angler hours/acre during the spring angling period (April through mid-June).
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.
3. Where conditions allow, provide more year-round angling opportunity by allocating fish during the fall stocking period.

Allocation Strategy

Table 27. Trout biomass, recreational use potential, width, and human population density characteristics of Optimum Yield II – Urban waters.

Trout biomass	Recreational use potential	Width	Human population density
Good-Fair-Poor-None	Good	From 4 meters to 20 meters	Urban
B-C-D-E	Good	2-3	Urban

Table 28. Stocking rates and frequencies for Optimum Yield II – Urban waters.

Preseason (trout/acre)	In-season (trout/acre)	In-season frequency	Total (trout/acre)
152	133	2 or 3	285

Criteria

1. Two in-season stockings are required for a section to qualify for the maximum in-season stocking rate of 133 trout/acre. Should only one in-season stocking be desired, the in-season allocation will be reduced to a maximum of 100 trout/acre.

2. Fall stocking may be conducted at a stocking rate not to exceed 50 trout/acre. Trout stocked during the fall period will be included as part of the water's total annual allocation which will not exceed 285 trout/acre.

Optimum Yield II – Suburban

Rationale

The results from the statewide angler use and harvest surveys conducted from 1988 through 1990 recorded a high amount of angler use for waters within this category (410 hours/acre) in comparison to other flowing water areas (Greene and Weber 1993b). Based on angler use information from the 2005 angler survey, angler effort on Optimum Yield II Suburban stream sections averaged 194 hours/acre (Greene et al. 2006).

This group of stream sections represents areas with moderate concentrations of human population density. These sections are characterized as moderate size streams with Good recreational use potential. Biomass density can range from good to non-existent and most of the sections support low density wild trout populations or do not support a wild trout population (Table 29). These waters should be stocked during the preseason and are eligible to receive one in-season stocking (Table 30). To provide more seasonal trout angling opportunity, the fall stocking option may be used on some of these streams, especially in areas where other fall trout angling opportunities are limited.

Objectives

The fishery is largely dependent upon the rate and frequency of stocking. Objectives for these waters are detailed below.

1. To provide an amount of angler use greater than or equal to 300 angler hours/acre during the spring angling period (April through mid-June).
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.
3. Where conditions allow, provide more year-round angling opportunity by allocating fish during the fall stocking period.

Allocation Strategy

Table 29. Trout biomass, recreational use potential, width, and human population density characteristics of Optimum Yield II – Suburban waters.

Trout biomass	Recreational use potential	Width	Human population density
Good-Fair-Poor-None	Good	From 4 meters to 20 meters	Suburban
B-C-D-E	Good	2-3	Suburban

Table 30. Stocking rates and frequencies for Optimum Yield II – Suburban waters.

Preseason (trout/acre)	In-season (trout/acre)	In-season frequency	Total (trout/acre)
95	95	1	190

Criteria

1. One in-season stocking at a maximum stocking rate of 95 trout/acre will be used for the spring in-season stocking program.
2. Fall plantings may be conducted at a stocking rate not to exceed 50 trout/acre. Trout stocked during the fall period will be included as part of a waters total annual allocation which will not exceed 190 trout/acre.

Optimum Yield II – Rural

Rationale

The results from the 1988 through 1990 statewide angler use and harvest surveys recorded a moderate amount of angler use from this category of waters (224 hours/acre). However, due to the large number of waters in this category, some variability in angler use was noted within this category (Greene and Weber 1993b). Based on angler use information from the 2005 angler survey, angler use on Optimum Yield II Rural stream sections averaged over 280 angler hours/acre (Greene et al. 2006).

This category represents the largest resource category comprising over 45% of the stocked stream sections in Pennsylvania. Located in sparsely populated areas of the Commonwealth, these stream sections are be characterized as moderate size waters with Good recreational use potential and support wild trout biomass densities that range from good to non-existent (Table 31). However, over 83% of these sections are classified as biomass Class D or E waters. To maximize the potential of these waters, this category was divided into two options, a Standard option (Table 32) and a Destination Waters option (Table 33) beginning with the 1994 season. The Standard option has been applied to most waters. The Destination Waters option has been applied to waters within this category that have a greater potential to provide more angler use (Table 34).

Objectives

The fishery is dependent on the rate and frequency of stocking and, in some cases, the contribution fishery from good to low densities of wild trout. Objectives for these waters are detailed below.

1. To provide an amount of angler use greater than or equal to 250 angler hours/acre during the spring angling period (April through mid-June).
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.

Allocation Strategy

Table 31. Trout biomass, recreational use potential, width, and human population density characteristics of Optimum Yield II – Rural waters managed under the Standard option.

Trout biomass	Recreational use potential	Width	Human population density
Good-Fair-Poor-None	Good	From 4 meters to 20 meters	Rural
B-C-D-E	Good	2-3	Rural

Table 32. Stocking rates and frequencies for Optimum Yield II – Rural waters managed under the Standard option.

Preseason (trout/acre)	In-season (trout/acre)	In-season frequency	Total (trout/acre)
57	38	1	95

Criteria

1. One in-season stocking at a maximum stocking rate of 38 trout/acre will be used for the spring in-season stocking program.

Destination Waters Option

Rationale

The Destination Waters option was developed to recognize stream sections within the Optimum Yield II – Rural category that provide the best potential for increased angler use. These sections were selected based upon the AFM's best professional judgment. Selection criteria were developed to identify some stream sections located in close proximity to population centers (cities, boroughs, etc.); however, by definition, human population density is classified as Rural (less than 40 persons per square kilometer). These criteria also included provisions for some stream sections with a considerable amount of public ownership, but for lack of a qualifying percentage of public ownership (less than 50%) these remain under the Good rather than High recreational use potential classification.

The intent of this option was to provide more flexibility in the stocking program by allowing for elevated stocking rates in rural areas of the state where such opportunities were desired to enhance angler use. Should social problems arise with the intensified stocking

program on any of these sections, operational procedures will be followed to reclassify the section into the appropriate stocking category according to program guidelines.

Objectives

The fishery is dependent on the rate and frequency of stocking. Objectives for these waters are detailed below.

1. To provide an amount of angler use greater than or equal to 275 angler hours/acre during the spring angling period (April through mid-June).
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.

Allocation Strategy

Table 33. Trout biomass, recreational use potential, width, and human population density characteristics of Optimum Yield II – Rural Destination waters.

Trout biomass	Recreational use potential	Width	Human population density
Fair-Poor-None	Good	From 4 meters to 20 meters	Rural
C-D-E	Good	2-3	Rural

Table 34. Stocking rates and frequencies for Optimum Yield II – Rural Destination waters.

Preseason (trout/acre)	In-season (trout/acre)	In-season frequency	Total (trout/acre)
76	57	1	133

Criteria

1. Identify candidate waters based on location, either in proximity to population centers and/or areas of public ownership. Although these waters are classified as Rural in human population density and provide Good recreational use potential, they provide the best candidates for increased angler use within the Optimum Yield II – Rural category.
2. Priority for membership will be placed on width class 2 sections (greater than or equal to 33 ft. but less than or equal to 66 ft. in mean width). These larger sections will represent many of the sections with more of an historic angler following. Width class 3 waters (greater than or equal to 13 ft. but less than 33 ft. in mean width) may be included if width class 2 waters are not available in an area.
3. Waters supporting viable biomass Class B wild trout fisheries will not be eligible for the more intensive stocking rates prescribed by this option.

4. A maximum of two, Optimum Yield II – Rural stream sections may be designated under the Destination Waters option within any individual sub-sub-basin.
5. Program membership will not exceed 10% (by number) of the Optimum Yield II – Rural category.

Optimum Yield III

Rationale

Waters included under this category represent a small group of extremely small stream sections (less than 13.2 ft. in width) that have historically been managed with the stocking of adult trout. These sections support low to non-existent density wild trout populations and are located on public or private land open to public angling. All sections included in this category are classified as biomass Class C, D, or E waters (Table 35). As with the Optimum Yield I category, no distinction is made in the allocation strategy based on human population density. These waters only qualify for one stocking, either during the preseason or the in-season stocking period (Table 36).

Results from the statewide angler use and harvest surveys conducted between 1988 and 1990 recorded a low amount of angler use (211 hours/acre) on this group of waters (Greene and Weber 1993b). Furthermore, the small physical size of these waters precludes consideration for intensive stocking; therefore, multiple high-density stockings will be avoided to prevent overcrowding of fish and anglers on these small streams.

Objectives

1. To provide an amount of angler use greater than or equal to 175 angler hours/acre during the spring angling period (April through mid-June).
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.

Allocation Strategy

Table 35. Trout biomass, recreational use potential, width, and human population density characteristics of Optimum Yield III waters.

Trout biomass	Recreational use potential	Width	Human population density
Good-Fair-Poor-None	High	Less than 4 meters	Not a factor
B-C-D-E	High	4	Not a factor

Table 36. Stocking rate and frequency for Optimum Yield III waters.

Preseason (trout/acre)	In-season (trout/acre)	In-season frequency	Total (trout/acre)
57	38	0 or 1	38-57

Criteria

1. These waters will receive one annual stocking. The AFM will have the option to choose between a preseason stocking or an in-season stocking. One preseason stocking at a maximum rate of 57 trout/acre, or one in-season stocking at a maximum rate of 38 trout/acre will comprise the stocking options for this category of waters.

Low Yield

Rationale

Stream sections represented by this category are those that, for a variety of reasons, should not be stocked at a high rate with multiple frequencies. Reasons for membership in the Low Yield category may include posting issues, elevated late spring or summer water temperatures, good wild trout populations, low recreational use potential, or a combination of these factors which diminish their suitability as an adult trout stocked water (Table 37). These waters only qualify for one stocking, either during the preseason or the in-season stocking period (Table 38).

Goal

To provide a spring recreational trout angling experience on stream sections that, for a variety of reasons, are not well suited for intensive adult trout stocking.

Objectives

The fishery is dependent on the rate of stocking and, in some cases, the contribution of good to fair densities of wild trout. The objectives for these waters are detailed below.

1. To provide an amount of angler use greater than or equal to 175 angler hours/acre during the spring angling period (April through mid-June).
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.

Allocation Strategy

Table 37. Trout biomass, recreational use potential, width, and human population density characteristics of Low Yield waters.

Trout biomass	Recreational use potential	Width	Human population density
Good-Fair-Poor-None	Low	From less than 4 meters to 20 meters	Not a factor
B-C-D-E	Low	2, 3, 4	Not a factor

Table 38. Stocking rate and frequency for Low Yield waters.

Preseason (trout/acre)	In-season (trout/acre)	In-season frequency	Total (trout/acre)
57	38	0 or 1	37-58

Criteria

1. These waters will receive one annual stocking. The AFM will have the option to choose between a preseason stocking or an in-season stocking. One preseason stocking at a maximum rate of 60 trout/acre, or one in-season stocking at a maximum rate of 40 trout/acre will comprise the stocking options for this category of waters.

Rivers

Rationale

Width class 1 stream sections or rivers (1S or 1L) represent the group of stream sections, which by virtue of their large size are quite different from the average Pennsylvania trout stream. Most of these are marginal trout waters limited by seasonally elevated water temperature. Since the allocation of trout is based upon the product of the stocking rate by the total acres of the section, width class 1 sections have the potential to absorb a substantial portion of hatchery production if they are stocked at a high rate per acre. Therefore, to provide a recreational trout fishery and balance supply with demand, low to moderate stocking rates are applied to these large waters.

This category has been subdivided based on width classification into two groups: 1S Rivers (greater than 20 meters but less than or equal to 30 meters in mean width) and 1L Rivers (greater than 30 meters in mean width). Results from the statewide angler use and harvest surveys conducted from 1988 through 1990 confirmed that on average, the smaller 1S sections

provide a greater amount of angler use (240 hrs/acre) in comparison with the larger 1L sections (125 hrs/acre). However, the amount of angler use documented on both 1S and 1L sections, was low in comparison with most of the other stocking categories (Greene and Weber 1993b). A moderate amount of angler use (218 hrs/acre) was recorded from one stream section sampled from the 1S Rivers category in 2005 (Greene et al. 2006).

A combination of stream size based on width classification, recreational use potential and human population density will be used to determine the stocking rate on these sections (Table 39). Unlike other flowing water stocking categories, width class 1S and 1L sections are assigned a total stocking rate or block allocation rate for the year. The distribution of the total between preseason and in-season stockings and the in-season stocking frequency is based on the recommendation of the Area Fisheries Manager. Stocking rates range from 30 to 137 trout/acre depending upon the classification of the river section (Table 40).

Goal

To provide a recreational trout angling experience on waters with low to non-existent wild trout populations using the management strategy of low to moderate stocking rates with in-season frequencies adjusted to provide better use of stocked trout.

Objectives

The fishery is largely dependent upon the rate and frequency of stocking. Objectives for these waters are detailed below.

1. To provide an amount of angler use greater than or equal to 200 angler hours/acre during the spring angling period (April through mid-June).
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.

Allocation Strategy

Table 39. Trout biomass, recreational use potential, width, and human population density characteristics of 1S and 1L Rivers.

Trout biomass	**Recreational use potential**	**Width**	**Human population density**
Fair-Poor-None	High-Good-Low	Greater than 20 meters	Urban Suburban Rural
C-D-E	High-Good-Low	1S 1L	Urban Suburban Rural

Table 40. Stocking rates for 1S and 1L Rivers.

Width class	Rec. use potential	Human pop. density	Stocking rate
1S	High	U	137 trout/acre
		S	122 trout/acre
		R	110 trout/acre
	Good	U	84 trout/acre
		S	65 trout/acre
		R	57 trout/acre
	Low	U, S, or R	34 trout/acre
1L	High	U	91 trout/acre
		S	72 trout/acre
		R	61 trout/acre
	Good	U	53 trout/acre
		S	50 trout/acre
		R	38 trout/acre
	Low	U, S, or R	30 trout/acre

Criteria

1. In-season stocking frequency is based on the recommendation of the AFM (one or two in-season stockings).
2. In areas where other suitable stream sections are lacking, the fall stocking option may be extended to width class 1 stream sections. The stocking rate will be determined by the AFM. Trout stocked during the fall will be included as part of the waters total annual allocation, which will not exceed the stocking rate determined by classification according to program guidelines.

Results from evaluations of the adult trout stocking program in flowing waters

Statewide angler use and harvest surveys were conducted between 1988 and 1990 to assess angler demand and yield on selected sections representative of the individual stream resource categories. These surveys provided information for program refinements in 1994. For example, stocking rates and frequencies were elevated on high use stocking categories (High Yield and Optimum Yield II Urban), and stocking rates were reduced on a low use stocking category (Optimum Yield II Rural).

A statewide angler use and harvest study was completed on a group of 28 randomly selected stocked trout stream sections managed under Commonwealth Inland Waters regulations in 2005. The study was conducted over the opening eight weeks of the regular season for trout (mid-April through early June). Results from the study indicated that angler use on these waters averaged 363 hours/acre (range 23.12 – 843.74 hours/acre), and trips per trout stocked averaged

0.63 trips/trout (range 0.07 – 2.76 trips/trout). Angler use was high on stocked trout streams, averaging 1,168 angler hours/mile over the first eight weeks of season, in comparison with wild trout streams where angler use averaged only 82 angler hours/mile over the regular season for trout in 2004 (Greene et al. 2005; Greene et al. 2006). On stocked trout streams, peak angler use occurred during the first two weeks of season. Opening weekend angler use accounted for 29.4% of the angler use (angler hours) and 21.3% of the angler trips observed over the study period, and daily angler use was much greater during the opening weekend of season (171.9 angler hours/mile/day) in comparison with the remainder of the study period (16.8 angler hours/mile/day). Anglers released over 63% of their catch on stocked trout streams. In 2005, stocked trout stream angling contributed over 65.70 million dollars to Pennsylvania's economy, with inflation over 93.79 million dollars in 2021. The economic impact of stocked trout stream angling, or the contribution that was uniquely the result of stocked trout stream angling and would not have otherwise contributed to the state's economy by way of other recreational alternatives, was estimated at over 25.5 million dollars (Greene et al. 2006), with inflation 36.40 million dollars in 2021.

In 2006, 2007, and 2008 a statewide study was conducted to assess stocked trout residency in streams between the time of preseason stocking and the opening day of trout season. The study was done to follow-up on staff and angler reports of low numbers of trout remaining in some stream sections by opening day. For evaluation purposes, electrofishing surveys were conducted at two 300-meter sample sites per stream that coincided with known stocking point locations. Sampling was completed 10 to 20 days after stocking but prior to the opening day of trout season. The 10 to 20-day post stocking sample period was selected based on previous PFBC survey work that used radio telemetry to track the movement of stocked trout on streams with high rates of early season stocked trout movement. The results from that study confirmed movement of Brook Trout, Brown Trout, and Rainbow Trout from the stocking point locations occurred within 10 days after stocking (Wnuk 2005). Results from the 2006 study documented mean recapture rates of less than 40% on 30 of 135 stream sections, or 22% of the sections examined (Pierce et al. 2007). In 2007, sampling was repeated at 24 of the stream sections examined in 2006 with recapture rates averaging less than 40%. Sampling was also conducted at four additional sections where poor or very poor recapture rates were recorded at one of the two sample sites. Results from the 2007 examinations indicated that recapture rates improved to greater than 40% on 10 stream sections, remained similar on 10 sections, and declined on eight stream sections. It was recommended that AFMs modify preseason stocking programs in stream sections where the trout residency rating was poor or very poor in both study years. Alternatives included stocking stream sections closer to opening day, revising species composition for stocking, or terminating preseason stocking (Wnuk et al. 2008). Sampling was also conducted to assess early season stocked trout residency from 2008 through 2015. Results from these examinations were very similar to the results recorded in 2006, as mean recapture rates were greater than 40% and ranged between 67% and 100%. In total, AFMs have estimated hatchery trout residency in 305 different stream sections. Hatchery trout residency was fair or better in 241 of the 305 sections. Sections where hatchery trout residency was less than 40% existed throughout the state but were concentrated in the northern tier (Wnuk 2015).

In 2007 a cost-benefit analysis was conducted on 76 trout stocked stream sections to compare the revenue generated by angler trip and fishing license expenditures based on opening

weekend angler use with the production costs to raise and distribute the preseason allocation of trout. Results from comparing production costs with angler trip expenditures, fishing license expenditures, and a combination of both expenditures, indicated that 19.7% of the trout stocked sections had negative cost-benefit values for one or more of the expenditures. Cost-benefit analysis was also conducted during 2008 through 2019 on 338 trout stocked stream sections and negative cost-benefit values were documented at 8% or 26 stream sections surveyed. Greene and Weber (2007) recommended that the preseason trout stocking should either be eliminated or reduced to a level that coincides with a positive cost-benefit value on stream sections with negative opening weekend cost-benefit values and this recommendation remains valid (Nihart 2021).

Based on the results from the angler use and harvest evaluations, stocking rates and frequencies have been adjusted to provide for more efficient utilization of hatchery trout. Water-specific adjustments in stocking rates, the timing of stocking, and the species used for stocking have also occurred based on the results from the stocked trout residency study and the cost-benefit analysis. As outlined in the strategic plan, stocking should be reduced or eliminated on stream sections that receive low angler use and/or have a negative cost-benefit ratio.

Trophy Golden Rainbow Trout and Brood Trout Allocation Strategy

Rationale

There is considerable angler interest and support for stocking trout larger than the average size (11 inch) adult trout. Therefore, strategies for distributing older (age 2 and older) and larger Brook Trout, Brown Trout, Rainbow Trout, and golden Rainbow Trout have been incorporated into the adult trout program since 1991. The distribution of some larger trout adds variety to the stocking program and the anticipation of catching a larger than average size trout is viewed as a positive part of the adult trout stocking program.

Beginning with the 1991 season, strategies were implemented for the stocking of trophy golden Rainbow Trout and brood trout (brook, brown and rainbow). These strategies were designed to provide for a systematic statewide distribution of these trout to stream sections and lakes stocked with adult trout in Pennsylvania. Since the majority of angler use directed toward stocked trout waters occurs during the spring angling season (April through mid-June), these fish will be allocated during the spring distribution periods (preseason and spring in-season) to coincide with the period of peak angler demand. Two separate allocation strategies have been developed: one for the allocation of trophy golden Rainbow Trout (Table 41), and one for the distribution of brood trout (brook, brown and rainbow) produced at PFBC hatcheries (Table 43). The goal has been to equitably distribute these trout to a broad geographic region of the Commonwealth.

Trophy Golden Rainbow Trout Allocation Strategy

Objective

To produce approximately 14,000 trophy golden Rainbow Trout, averaging 18 inches in length, on an annual basis for distribution to stream sections and lakes during the preseason and in-season stocking periods.

Allocation Strategy

Table 41. Allocation strategy for trophy golden Rainbow Trout.

Class	Number per mile		Block allocation
	Preseason	In-season	
High Yield Metro and High Yield	5	5	
Optimum Yield II			
Width Class 2	5	5	
Width Class 3	2	2	
1S Rivers	5	5	
1L Rivers	2	2	
Catch and Release	5	5	
Delayed Harvest	5	5	
In-season only	2	2	
Preseason Only	2	2	
Class 1 LK			30
Class 2 LK			30
Class 3 LK			40
Class 4 LK			15
Tailwaters			15

Criteria

1. Stocking categories and stocking rates are based on resource category assignments according to program guidelines and stream section length or lake area.
2. Trophy golden Rainbow Trout should be released only during the preseason and first in-season stocking period into stream sections and lakes that qualify to receive Rainbow Trout during preseason and in-season stockings.
3. Trophy golden Rainbow Trout will be released only into those stream sections and lakes that the Area Fisheries Manager has determined to be suitable.
4. Trophy golden Rainbow Trout will be allocated based on a number per mile for individual stream sections. Lakes and tailwater sections will receive allocations based on a fixed

number per class. All stocking rates are maximum rates and may be reduced based on the availability of golden Rainbow Trout or eliminated if overriding biological or social factors become evident.

5. Unless a stream section is contiguous with other stocked sections, stream sections should be at least 3.2 kilometers (2 miles) in length to be eligible to receive trophy golden Rainbow Trout.
6. Due to biological, physical and/or social considerations, some stocking categories/strategies are not eligible to receive trophy golden Rainbow Trout.

The following Stocking Categories and special case waters do not receive trophy golden Rainbow Trout (Table 42).

Table 42. Stocking categories and special case waters that do not receive trophy golden Rainbow Trout.

Optimum Yield 1 (Class B waters)	Low Yield
Optimum Yield 3	In-season only waters

Brood Trout Allocation Strategy

Objective

To produce approximately 60,000 trophy size Brook Trout, Brown Trout, and Rainbow Trout combined, on an annual basis for distribution in stream sections and lakes. This quantity is based upon the numbers available from hatchery production on an annual basis. Since the majority of angler use directed toward stocked trout waters occurs during the spring angling season (April through mid-June), these fish will be allocated during the spring distribution periods (preseason and spring in-season). Approximately 80% of these trout will be stocked during the preseason distribution period and 20% will be stocked during the spring in-season distribution period.

Allocation Strategy

Table 43. Allocation strategy for brood trout.

Class	Number per mile		Block allocation	
	Preseason	In-season	Preseason	In-season
High Yield Metro and High Yield	25	10		
Optimum Yield II Metro	20	5		
Optimum Yield II Urban	20	5		
Optimum Yield I (Class B)	10	3		
Optimum Yield II width class 2	15	5		
Optimum Yield II width class 3	10	5		
1S River	10	5		
1L River	8	2		
Class 1 Lake (≥6 Acres)			60	10
Class 1 Lake (<6 Acres)			20	5
Class 2 Lake			100	20
Class 3 Lake			100	20
Class 4 Lake			60	10
Tailwater	10	3		
Delayed Harvest (≥2 mi.)	8	4		
Delayed Harvest (<2 mi.)	20	0		
Delayed Harvest – Keystone Select Stocked Trout Waters	175-250			
Catch and release (≥2 mi.)	10	3		10
Catch and release (<2 mi.)	20	0		5
Preseason only		10		
In-season only		4		

Criteria

1. Stocking categories and stocking rates are based on resource category assignments according to program guidelines and stream section length or lake area.
2. Approximately 80% of the brood trout will be stocked during the preseason stocking period. The remaining 20% will be stocked during the spring in-season period. No brood trout will be allocated during the fall, winter, or late-winter stocking periods.

3. Brood trout will be allocated based on number per mile for individual stream sections. Lakes, tailwaters, special regulation, and special case waters will receive allocations based on a fixed number per class. All stocking rates are maximum rates and may be reduced based on the availability of brood trout or eliminated if overriding biological or social factors become evident.
4. Number and choice of species will depend upon availability and species requirements for individual waters specified by the Area Fisheries Manager.
5. Due to physical and/or social considerations that include small stream size or a high amount of landowner posting, the Low Yield and Optimum Yield III stocking categories will not be allocated brood trout.

Spring In-season Stocking Frequency

Rationale

Based on a reduction in the numbers of adult trout produced from 5.25 million in 2001 to 3.4 million in 2007, and additional information gathered through angler surveys and feedback from staff, the guidelines for in-season stocking frequencies were restructured for the spring 2007 in-season stocking period (Table 44). In general, spring in-season stocking frequencies were reduced over most stocking categories. This was done to provide for a more efficient use of adult trout stockings by focusing stockings during periods of high angler use. This strategy served to reduce the number of stockings that occurred during periods of lower angler use, and to reduce distribution costs through the elimination of some distribution (truck) trips and the amount of labor required for stocking.

Altering the frequency and timing of stocking has been demonstrated to be an effective tool to improve the performance of an adult stocked trout fishery (PFC 1987). Therefore, in an effort to maintain higher levels of angler use during the spring, it is important to provide timely in-season stockings. For example, on waters that receive high angler use, it is important to provide an in-season stocking during the week following opening weekend for the regular season for trout. This typically applies to stream sections and lakes located near dense population centers and on waters located in proximity to publicly owned parks. Many of these waters receive two spring in-season stockings. The first of these stockings is typically scheduled during the week following the opening weekend of trout season. The second stocking is usually completed by early to mid-May. Some waters located near public parks also generate a high amount of angler use during Memorial Day weekend. Most of the waters in public parks receive two spring in-season stockings. In these cases, the second in-season stocking should be scheduled to occur during the week prior to Memorial Day. On some waters, seasonal water temperature elevations dictate that all in-season stocking be completed early in the spring.

To provide for more efficient timing of stocking, the cases described above are handled through special remark stocking instructions provided by the Area Fisheries Manager. Fall and winter in-season stocking will be addressed in separate sections pertaining to stream sections and lakes.

Table 44. Spring in-season stocking frequency for respective stocking categories.

Stocking category	Previous in-season stocking frequency	2007 in-season stocking frequency
High Yield Metro	3	2
High Yield	3	2
Optimum Yield I	1	1
Optimum Yield II – Metro	2	2
Optimum Yield II – Urban	2	2
Optimum Yield II – Suburban	2	1
Optimum Yield II – Rural, Destination Waters	2	1
Optimum Yield II – Rural	1	1
1S River	1 or more	1 or 2
1L River	1 or more	1 or 2
1L River – Tailwaters	2 or more	2 or more
Delayed Harvest areas	1	1
Catch and Release areas	1	1
Class 1 Lakes	1 or more	1 or 2
Class 2 Lakes	1 or more	1 or 2
Class 3 Lakes	1 or more	1 or 2
Class 4 Lakes	1 or more	1 or 2
Class 5 Lakes	1	1

Management Options: Special Case Subprogram

This subprogram enables response to localized concerns or problems to increase the opportunities and diversity of the angling experience. Special case management options include preseason only, in-season only, tailwater trout fisheries, fall stocking, fingerling trout, special regulations options, and Delayed Harvest Artificial Lures Only Areas.

Preseason Only

Rationale

Preseason only stocking is designed to provide early season angling opportunities in stream sections where a combination of factors may preclude the water from consideration for in-season stocking. Considerations for preseason only stocking include, but are not limited to, stream sections that support good biomass Class B wild trout populations, sections where more intensive stocking may lead to landowner-angler conflicts that could result in posting, sections with seasonal elevations in water temperature, or sections that have chronic low flows and poor

holding conditions for trout later in the spring. Preseason only stocking may be applied to any stocking subprogram.

In-season Only

Rationale

In-season only stocking is designed to provide seasonal trout angling opportunities in stream sections where a combination of factors may preclude the water from consideration for preseason stocking. Considerations for in-season only stocking include but are not limited to stream sections with early season stocked trout residency problems, sections where a decline in water quality occurs due to acid precipitation and/or snow melt from spring runoff, sections where private landowner(s) object to large opening day crowds associated with a preseason stocking, or sections where poor early season road conditions preclude the consideration for a preseason stocking. In-season only stocking may be applied to any stocking subprogram.

Tailwater Trout Fisheries

Rationale

This option is provided for the few short tailrace sections (less than or equal to 3.2 km or 2 miles in length) that are located directly downstream of the outflow of major reservoirs where thermal conditions are favorable to support trout and offer angling opportunities on a year-round basis. For adult trout management, the tailwater option will be limited to a few short stream sections located directly below a cold-water outflow of a major reservoir. Due to the potential for year-round recreation, stocking rates may be intensive and higher frequency stockings may be utilized to provide a year-round trout fishery.

Results from a 1990 angler use and harvest survey conducted on the tailwater section of the Shenango River indicated that angler use was greatest during the early season (272 hrs/acre), but declined by the late spring (58 hrs/acre) (Greene and Weber 1993b).

Tailwater trout fisheries will be assigned a total stocking allocation based on their recreational use potential (Table 45). The distribution of the total number of adult stocked trout between the preseason and in-season stockings and the in-season stocking frequency will be based on the recommendation of the Area Fisheries Manager.

Goal

To provide a trout fishery in tailwater sections where environmental conditions are suitable for the maintenance of a year-round trout fishery.

Objectives

The fishery is dependent on the rate and frequency of stocking. Objectives for tailwater trout fisheries are detailed below.

1. To provide an amount of annual angler use greater than or equal to 300 angler hours/acre.
2. To provide an amount of angler use equivalent to one angler trip generated per adult trout stocked.
3. To provide more year-round trout angling opportunity using a higher frequency of in-season stockings (four or more). Where conditions allow, stocking may occur during summer and the use of fall and late-winter stockings will be encouraged.
4. To provide rationale and information to encourage a water release pattern that will maintain thermal conditions suitable for trout survival on a year-round basis.

Allocation Strategy

Table 45. Stocking rates and frequencies for tailwater trout fisheries.

Recreational use potential frequency	In-season frequency	Total (trout/acre)
High	4 or more	266
Good	4 or more	247

Criteria

1. This option will be limited to those few short tailwater sections (less than or equal to 3.2 km [2 miles] in length). For tailwater sections that have additional adult trout stocked sections located on the mainstem waterway, the stocking rate and frequency will be determined by classification according to program guidelines.
2. To provide more year-round trout angling opportunity, sections that qualify for the Tailwater Trout Fisheries option should be included in the fall and late-winter stocking program.

Fall Stocking Option – Flowing Water

Rationale

Traditionally, the fall adult trout stocking program was reserved solely for lakes and reservoirs. In order to expand angling opportunity, a pilot program was developed during the fall of 1989 to evaluate the potential for fall stocking on streams. Two High Yield stream sections located in urban areas of southeastern Pennsylvania (Wissahickon Creek and Ridley Creek) were included in the fall stocking program. Following the fall 1991 stocking, an angler use and harvest survey was conducted on Wissahickon Creek. Results from the survey indicated that angler use (136 hrs/acre and 0.93 trips/trout stocked) was similar to the use observed following a late spring (May) in-season stocking (102 hrs/acre and 0.95 trips/trout stocked). Angler use from a survey conducted on an urban stream section of Pine Creek (Allegheny County) during the fall of 2000 was recorded at 125 hours/acre and 1.32 trips/trout stocked.

Beginning with the 1994 season, the fall stocking option was extended to include more stream sections. The intent of the program was to provide regional coverage to select stream sections on a statewide basis. Emphasis was placed on using High Yield, Optimum Yield II –

Urban, and Delayed Harvest special regulations areas for this option. However, sections from some of the other resource-based stocking categories (primarily Optimum Yield II – Suburban and River categories) were included to provide more regional coverage.

Due to statewide reductions in adult trout production beginning in the 2000s following the statewide management change to raise larger trout, hatchery production decreased resulting in the removal of some waters from the fall stocking program. Additionally, managers examined the cost-benefit of fall stocked waters in their respective areas by assessing angler use while considering capacity for adult trout production. As a result, additional waters were removed from the fall stocking program to maintain the spring allocations of trout similar to the traditional number of trout stocked on these waters, as spring represents the period of peak angler demand for trout angling on most waters in Pennsylvania.

Goal

To provide recreational trout angling opportunities during the fall through the stocking of adult trout on select stream sections.

Objectives

The fishery will be dependent upon the provision of a fall stocking. Objectives for the fall stocking option are detailed below.

1. To provide an amount of angler use greater than or equal to 150 angler hours/acre during the fall (October through November).
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.

Criteria

1. Stock adult trout at relatively low stocking rates during the fall. One October stocking will constitute the fall option.
2. Trout stocked during the fall will be included as part of a water's total annual allocation, which will not exceed the stocking rate determined by classification according to program guidelines.

Fingerling Trout Management in Flowing Water

Rationale

This management option is intended for those waters that provide most of the general life requirements of trout and will support trout on a year-round basis. Generally, the growth potential of trout in these waters is excellent. However, a number of factors including siltation, lack of adequate spawning substrate, and fluctuations in water levels due to reservoir release regimes, may preclude the development of a wild trout fishery. In cases where fingerling trout stocking efforts are successful, they can provide a cost-effective method to provide a trout fishery. Fingerling trout that survive to the adult life stage essentially provide a naturalized

fishery that is similar to a wild trout fishery. Anglers may find this type of fishery more attractive than fisheries supported through the stocking of adult trout.

Goal

To provide recreational trout angling opportunities through the stocking of fingerling trout in stream sections capable of supporting a substantial standing stock of resident trout but where lack of spawning success or other factors prevent the development of a wild trout fishery.

Objectives

1. To provide a total catch (by weight) that exceeds the original total weight of the fingerling stocking.
2. A total of 25% of the original number of fingerling trout planted should survive to a size of at least 11inches.
3. Trout populations resulting from fingerling stockings should provide catch rates greater than or equal to 0.5 trout/hour.
4. Fingerling trout stockings should maintain trout populations comprised of two or more age groups of age-1 and older trout.
5. Trout population density provided through fingerling stocking should be at least 20 kg/ha.

Criteria

1. Stream sections considered for fingerling trout stocking should provide a minimum total alkalinity of 10 mg/l.
2. The number of fingerling trout stocked will depend upon a combination of management choices and will be determined by the Area Fisheries Manager. Generally, 2-5" spring fingerling trout will be utilized for stocking from April through June.

In 2011, fingerling trout program evaluation protocols were developed to assess fingerling trout stockings in wadable streams (PFBC 2011). The goal of the fingerling stocked trout program evaluation is to assess all current fingerling stocked trout waters and provide recommendations for the continuation, possible expansion, or reduction of the program. Following implementation of these protocols, a substantial number of wadeable streams stocked with fingerling trout have been evaluated and recommendations followed.

Refuge Areas (58 Pa. Code § 67.2)

Rationale

The use of Refuge Areas (58 Pa. Code § 67.2) for stocking is a management option intended to reduce angler concentration immediately after stocking and to prolong the contribution of each stocking by extending the harvest over a greater period of time. Refuge Areas, or “Wired Areas”, are designated areas of stream approximately 100 meters in length that are closed to angling and public entry from the third Monday in February through June 14. On June 15, these areas are open to angling under Commonwealth Inland Waters regulations. Some

of the trout allocated to these stream sections are stocked within the Refuge Areas each time the stream is stocked. Trout stocked within Refuge Areas are protected from harvest immediately after stocking and may move from these areas over time into portions of the stream that are open to angling. This serves to extend angling opportunity over a longer period of time. This option is designed primarily for small (width class 3), accessible, low alkalinity stream sections of at least 3.2 km (2 miles) in length.

Goal

To extend the duration of adult trout stocked fisheries.

Objectives

1. To reduce instantaneous angling mortality of adult stocked trout.
2. To prolong the contribution of each stocking to the fishery by reducing the availability of freshly stocked trout to immediate harvest.

Regulations

Commonwealth Inland Waters regulations are applied to stream sections managed under this option. However, the areas of stream (approximately 100 meters in length) managed under Refuge Area regulations are subjected to no public entry and no fishing from the third Monday in February through June 14. On June 15, these areas are open to angling under Commonwealth Inland Waters regulations.

Results from Evaluations conducted on Refuge Areas

The use of Refuge Areas as a tool for extending the period of time that a stocking contributes to angling has been documented by studies completed on streams similar to those in the width class 3 category (Weirich 1974). In 2009, examinations were conducted on two stream sections with Refuge Areas. Results from these surveys documented low angler use during 8:00 a.m. angler counts conducted on Monday, June 15, 2009, (0.9 to 2.1 anglers/mile) and Saturday, June 20, 2009 (0 to 1.1 anglers/mile). Follow up electrofishing surveys conducted within four Refuge Areas (two per water) six to seven days after stocking recorded stocked trout residency rates ranging from 18% to 67% (average 43.3%). Electrofishing surveys conducted within the same four sites on June 12, 2009, (between 21 and 24 days after stocking) recorded low stocked trout residency rates ranging from 10% to 27% (average 19.3%).

More recent follow up examinations were conducted on three stream sections with Refuge Areas during the 2021 field season. Results from these surveys recorded a low amount of angler use during 8:00 a.m. angler counts conducted on Wednesday, June 16, 2021, and Thursday, July 1, 2021 (0 to 0.2 anglers/mile). Also, during the 2021 field season, all stream sections with Refuge Areas were evaluated to determine if they were being properly maintained by the sponsoring organization. Results from these evaluations recorded poor maintenance on all of the stream sections.

Based on these examinations and input from staff, there was justification to remove waters from the Refuge Area designation. Some streams were no longer being maintained as marked Refuge Areas, some streams were no longer stocked with trout, and some streams were simply not being well utilized by anglers. These conditions were inconsistent with the initial premise for the use of refuge areas, and 18 streams in 2010 and 17 streams in 2021 were subsequently removed from the program. No waters are currently managed under these regulations.

Hatchery Supported Waters Special Regulation Options

The Commission's Special Regulations Policy (58 Pa. Code § 57.5) also applies to special regulations options designed for hatchery supported fisheries. These include Catch and Release Artificial Lures Only, Catch and Release Fly-Fishing Only, Catch and Release All-Tackle, and Trophy Trout All Tackle. These regulations were described earlier under Section 2.2.6.2. Three special regulation programs apply specifically to stocked waters: 1) the Delayed Harvest Artificial Lures Only Areas program, 2) and the Stocked Trout Water Open to Year-round Fishing program (58 Pa Code § 65.19), and 3) Extended Trout Season (58 Pa Code § 65.26).

Delayed Harvest Artificial Lures Only Areas (58 Pa. Code § 65.6)

Rationale

This option is designed to maintain a recreational trout fishery through stocking. Delayed Harvest management provides for an extended period of catch-and-release angling, then, as angler interest for trout fishing declines and stream conditions become less favorable for survival of stocked trout due to decreased flows and elevated water temperatures, harvest is allowed utilizing a reduced creel limit so that emphasis remains on the angling experience rather than harvest. The harvest season has been set to allow for some harvest before hatchery trout are lost to natural mortality.

In general, Delayed Harvest management has been applied to width class 2, 3, or 1S River sections which range from greater than 13.2 feet to less than or equal to 99 feet in mean width (Table 46). Due to their large size and tendency for elevated late-spring water temperatures, most 1L River sections are not well suited for this option. Conversely, due to their small size and the potential for the overcrowding of fish and anglers, width class 4 stream sections should not be considered for this option.

Prior to the beginning of the 2006 season, the Delayed Harvest program offered two options, an Artificial Lures Only option and a Fly-Fishing Only option. Subsequently, the Delayed Harvest Fly-Fishing Only option was merged with the Heritage Trout Angling program to form the Catch and Release Fly-Fishing Only program in 2006. There are currently 58 stocked trout waters managed under the Delayed Harvest Artificial Lures Only Areas program (Table 11). Table 47 details angling regulations that apply to waters included in the Delayed Harvest Artificial Lures Only Areas program.

Goal

To utilize the stocking of hatchery trout to provide an angling experience that provides for an extended period of high stocked trout abundance by emphasizing catch-and-release angling rather than harvest.

Objectives

1. To provide angler use greater than or equal to 550 angler hours/acre during the spring (March through mid-June).
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.
3. To provide a high catch rate (greater than or equal to 1.0/hr.) based on a high density of stocked trout.
4. To provide for limited harvest between June 15 and Labor Day.

Allocation Strategy

Table 46. Stocking rates and frequencies for Delayed Harvest Artificial Lures Only Areas.

Width class	In-season frequency	Total (trout/acre)
2 or 3	1 or 2 (if stocked in fall)	190
1S or 1L	1 or 2 (if stocked in fall)	133

Regulations

Table 47. Delayed Harvest Artificial Lures Only Areas angling regulations.

Minimum length limit:	9 inches (when harvest is permitted)
Creel limit:	3 from June 15 through Labor Day, and 0 from the day after Labor Day through June 14
Season:	Open year-round, no harvest is permitted from the day after Labor Day through June 14
Gear/lure restrictions:	Artificial lures only (includes flies and streamers)

Criteria

1. Water temperatures should not exceed 21°C (70°F) for prolonged periods (48 hours) prior to June 15.
2. Fall stocking should be conducted at relatively light stocking rates (25-50 trout/acre). However, in the case of some smaller stream sections (less than 6 surface acres) fall stocking rates may need to be increased to attain the minimum allocation of 300 trout. Trout stocked during the fall will be included as part of a water's total annual allocation. Stocking rates will not exceed 133 trout/acre/year for 1S and 1L River sections and 190 trout/acre/year for width class 2 and 3 stream sections.

3. All waters considered for Delayed Harvest management should provide a surface area of at least 1.6 ha (4.0 acres).

Results from evaluations conducted on Delayed Harvest Artificial Lures Only Areas

On average, the angler use and harvest work conducted on five Delayed Harvest Artificial Lures Only waters in 1993 documented high catch rates (1.03 trout/hour) and a good amount of angler use (756 angler hours/acre) throughout the spring (early March through mid-June). The majority of the anglers using these waters were fly-fishing anglers (69%) followed by anglers that used artificial lures (27%). Interestingly, during the opening nine days of the harvest season (June 15-23, 1993), anglers continued to voluntarily release the majority (91%) of their catch (Greene and Weber 1995b). Based on angler use information from the 2005 angler survey, angler effort on two Delayed Harvest stream sections averaged 229 hours/acre during an eight-week period from April 16 through June 12, 2005 (Greene et al 2006).

In addition to use, harvest, and gear preference data, angler opinion data were also collected on these waters in 1993. The consensus of angler opinions rated the overall angling experience on Delayed Harvest waters above average. Anglers also expressed their support for an extension of the no harvest period on Delayed Harvest waters (Greene and Weber 1995b). As a result of support from the angler opinion information, the harvest season was revised on Delayed Harvest waters for the 1995 season. This revision reduced the harvest season from June 15 through the end of February to June 15 through Labor Day. In conjunction with the revised season, fall stocking was implemented on most of the Delayed Harvest areas in 1995. The addition of fall stocking was designed to enhance angler interest and to provide more year-round angling opportunity on Delayed Harvest waters.

As a result of these evaluations most of these stream sections will continue to be managed under Delayed Harvest Artificial Lures Only Areas regulations. As outlined in the strategic plan, staff will continue to evaluate current stream sections managed under these regulations and identify ways to improve and expand this program, including the addition of new sections to this program.

Keystone Select Stocked Trout Waters Program

Rationale

This option is designed to maintain a recreational trout fishery through stocking of large brood trout at numbers that are comparable in abundance to large trophy-sized fish residing in some of Pennsylvania's best wild trout waters. Beginning in 2016, the PFBC launched the Keystone Select Stocked Trout Waters (KS-STW) program. Under the program, streams also managed under the Delayed Harvest Artificial Lures Only Areas program or Miscellaneous Special Regulations are eligible for consideration of inclusion in the KS-STW program. Stream sections managed under the KS-STW program are stocked with large trout, 14 to 20 inches in length, at a rate up to 250 trout per mile. Brood trout are only stocked during the spring stocking period which coincides with the period of peak angler use.

Initially, eight stream sections managed under Delayed Harvest Artificial Lures Only Areas regulations were included in the KS-STW program, but due to its extreme popularity among trout anglers, the program was expanded in 2017, 2018, 2019, and 2020. In 2020, Bald Eagle Creek, Section 03, was added to the Miscellaneous Special Regulations program as an experimental special regulation designed to enhance stocked trout management. This regulation is identical to the current Delayed Harvest Artificial Lures Only Areas regulation; however, all tackle types are permitted. By including this section of Bald Eagle Creek in the KS-STW program it will allow staff to compare angler use, catch, and preferences to other waters in the program that are managed with the traditional artificial lures only restrictions. Currently there are 24 stream sections in the program.

Results from evaluations conducted on waters that are included in the Keystone Select Stocked Trout Waters program

Staff conducted angler counts and interviews on the eight Keystone Select Stocked Trout Waters following the preseason and in-season stockings during 2016. An overwhelming majority of the anglers interviewed supported expansion of the program (97%). A majority of anglers indicated they would make more trips (70%) attributable to the increased number of brood fish allocated to the section, while few (1%) would make less trips (PFBC 2016). Over one-third (36%) of anglers interviewed indicated they were fishing the stream section because it is included in the program and some anglers purchased a fishing license specifically to fish in the section (4%) (PFBC 2016).

As outlined in the strategic plan, staff will continue to evaluate current stream sections managed in the KS-STW program and identify ways to improve and expand this program, including the addition of new stream sections.

Stocked Trout Waters Open to Year-round Fishing (58 Pa. Code § 65.19)

Rationale

Waters included in the Stocked Trout Waters program are closed to fishing from the third Monday in February to opening day of trout season. Some waters included in the Stocked Trout Waters program also provide warm-water angling opportunities in addition to stocked trout. During the closure period, angling opportunities for warm-water species do not exist as Stocked Trout Waters are closed angling during this time, thus diminishing the recreational potential offered by these fisheries. The Stocked Trout Waters Open to Year-round Fishing program provides a management option to allow for year-round angling opportunities for warm-water species in STWs where robust warm-water fisheries exist. Table 48 details angling regulations that apply to waters included in the Stocked Trout Waters Open to Year-round Fishing program.

Goal

To provide year-round angling opportunities for warm-water species in waters that support good warm-water fisheries and are also stocked with trout seasonally.

Regulations

Table 48. Stocked Trout Waters Open to Year-round Fishing angling regulations.

Minimum length limit:	7 inches (when harvest is permitted)
Creel limit:	5 from Opening Day through Labor Day, and 3 from the day after Labor Day to the third Monday in February of the following year
Season:	Open year-round, no harvest is permitted from the third Monday in February to Opening Day

Criteria

1. Water must be included in the Stocked Trout Waters program.
2. All waters considered for Stocked Trout Waters Open to Year-round Fishing management must support robust warm-water fisheries on a year-round basis as determined by the Area Fisheries Manager.

Extended Season (58 Pa. Code § 65.26)

Rationale

To provide extended stocked trout angling opportunities from the day after Labor Day to the third Monday in February in waters managed as Stocked Trout Waters. Some Stocked Trout Waters are stocked with trout during the fall or winter stocking periods, while others may retain some hatchery trout stocked during the spring. This option allows for limited harvest before hatchery trout are lost to natural mortality. Table 49 details angling regulations that apply to waters included in the Extended Season program.

Goal

To extend angling opportunities and allow for the harvest of trout in waters managed as Stocked Trout Waters during the fall and winter.

Regulations

Table 49. Extended Season angling regulations.

Minimum length limit:	7 inches
Creel limit:	5 from Opening Day through Labor Day, and 3 from the day after Labor Day to the third Monday in February of the following year
Season:	Opening day to the third Monday in February

Criteria

1. Water is included in the Stocked Trout Waters program.

2.3 Adult Hatchery Trout in Lakes Subprogram Guidelines

General guidelines for the adult hatchery trout in lakes subprogram are detailed below.

1. The suitability of a lake for trout stocking must be determined through a field survey conducted by the Area Fisheries Manager (AFM). No lake shall be approved for stocking prior to survey.
2. Ponds less than 1.6 hectares (4 acres) and lakes greater than or equal to 516.2 hectares (1,275 acres) which are not presently managed for trout stocking will not be considered for adult trout management in the future. Lakes and reservoirs greater than 81 hectares (200 acres) and less than 516.2 hectares (1,275 acres) will be a low priority for addition to the adult trout stocking program.
3. Public ownership is a requirement for selecting lakes for adult trout management. Exceptions may be made for privately owned lakes according the guidelines detailed below.
   a. Lakes with greater than 50% of the shoreline posted against public access will not be considered.
   b. Lakes with 25 to 50% of the shoreline posted against public access may be considered if the lake is in an urban or suburban classified sub-sub-basin, and public boat access with developed parking is available.
   c. Lakes with less than 25% of the shoreline posted may be considered if no other lakes are stocked with trout in the sub-sub basin, or lake(s) currently stocked are not centrally located in the sub-sub basin, and trout angling opportunities are limited.
   d. A minimum of 1.0 meter (3.3 ft.) of water column with temperatures of 21°C (70°F) or lower and 5 mg/l or greater of dissolved oxygen should be present through May 1 for preseason stocking and June 1 for in-season stocking.
4. The minimum values for pH at the time of stocking shall not be less than 6.0 for all trout species. In cases where acid precipitation is believed to be the cause of low pH and alkalinity values, aluminum concentrations should be determined. Any stocking canceled due to poor water quality will not be rescheduled. The same criteria will be applied when considering the addition of new waters to the adult trout stocking program.
5. No lake shall be stocked if pollutants are known to be present at concentrations exceeding the public health protection levels established by the Pennsylvania Department of Health.
6. Lakes subject to periodic pollution incidents resulting in fish and/or habitat loss will be managed at its classification's lowest stocking rate for one year if no additional incidents occur. The lake will be removed from stocking if an existing problem is not corrected or if pollution becomes chronic. Trout lost to a pollution incident will not be replaced.
7. Due to the fact that lake size has a bearing on total catch and return to the creel, guidelines for total catch and/or return to the creel will be addressed on an individual category basis. Although a lake may be approved for stocking without angler use and harvest data, a subsequent evaluation by the AFM of the lake or a similar lake considered representative of the resource category will be used to assess the continuation of stocking.
8. Choice of species to be stocked will be determined by the AFM. Consideration will be given to habitat characteristics, angling vulnerability, and popularity.
9. In situations where adult trout may conflict with directed warm-water/cool-water management initiatives, the AFM or the Warmwater Unit may recommend that the lake not be stocked with adult trout. The policy objective to manage self-sustaining fish populations

as a renewable natural resource to conserve that resource and the angling it provides should take precedence over trout stocking.

10. A minimum allocation of 300 adult trout will be necessary to constitute an individual stocking.
11. Stocking rates outlined represent the optimum and alternate stocking rates according to classification. In response to a variety of biological, chemical, physical and/or social factors, the AFM's have the latitude to adjust stocking rates downward from these rates. These special case situations should be addressed individually on a case-by-case basis as the AFM's deem necessary.

2.3.1 Lake Resource Categories

Lake Size

Lake size has a bearing on stocked trout management intensity and associated angler use and catch rates. Evaluations of tag return studies indicated that as lakes increase in size, creel returns tended to decline (Selcher 1972). On larger lakes or reservoirs, returns to creel from stocked trout were generally low (Curtis 1951), and angling effort tends to be dominated by boat anglers. Additionally, larger lakes and reservoirs have the potential to absorb a considerable portion of hatchery production even if they are stocked at relatively moderate rates, thus reducing ability to provide adult stocked trout angling opportunities at other lakes statewide. Conversely, small lakes can be intensively managed for high angler catch rates. However, due to their small size the potential for overcrowding exists which may foster unsportsmanlike behavior. Therefore, stocking rates for lakes were developed to reflect trends in diminishing angler use and catch rates with increased lake size. Lake classes are determined by surface area as described in Table 50.

Table 50. Lake classification as determined by surface area.

Class	Criteria	
	Hectares	Acres
1	≤ 8	≤ 20
2	>8 but ≤ 20	>20 but ≤ 50
3	>20 but ≤ 40	>50 but ≤ 100
4	>40 but ≤ 81	>100 but ≤ 200
5	>81	>200

Human Population Density

Potential angler effort is related to human population concentrations. Fishing for trout in lakes is generally viewed more favorably by urban than rural anglers in Pennsylvania. According to the 1991 Trout Angler Telephone Survey, 75-80% of trout fishing in lakes occurs within one hour of the angler's residence (Hummon 1992). Therefore, the provision of adult trout angling opportunities in waters closer to home is of particular importance to the "leisure time" angler residing in populated areas, especially when angling options are limited. The problems and opportunities for public access on lakes are more clearly defined than with streams. For lakes, stocking rates have been adjusted upward to more evenly distribute recreational trout fishing opportunities in populated areas.

The human population density ranking for lakes is based on the number of persons per square kilometer in the immediate area of the lake in combination with the surrounding sub-sub-basin (Tables 51 and 52).

Table 51. Human population density ranking classification for trout stocked lakes.

Human population density rank	Lake rank	Sub-sub-basin rank
1	U	U
	U	S
2	U	R
	S	U
	S	S
3	S	R
	R	U
	R	S
4	R	R

Lake Rank

Human population density is determined from the Pennsylvania Industrial Census Series for the townships and municipalities in which the lake is located.

Human Population Density Classification (Lake Rank)

Table 52. Lake rank as determined by human population density.

Class	Criteria
Urban	Greater than or equal to 125 persons/km^2
Suburban	Greater than or equal to 40 persons/km^2 but less than 125 persons/km^2
Rural	Less than 40 persons/km^2

Sub-sub-basin Rank

Using inventory information for human population density, a median population density was determined for each sub-sub-basin. The median was chosen as a measure of central tendency since the mean may not be typical due to extreme scores (outliers) or small sample sizes. Sub-sub-basin rankings were established by percentile rank at the 33^{rd} and 66^{th} percentiles and defined as Urban (U), Suburban (S) or Rural (R). These rankings have been updated in accordance with 2010 Pennsylvania Industrial Census Series information. A listing of sub-sub-basins is presented in Figure 8, sub-sub-basins and their rank is presented in Table 53.

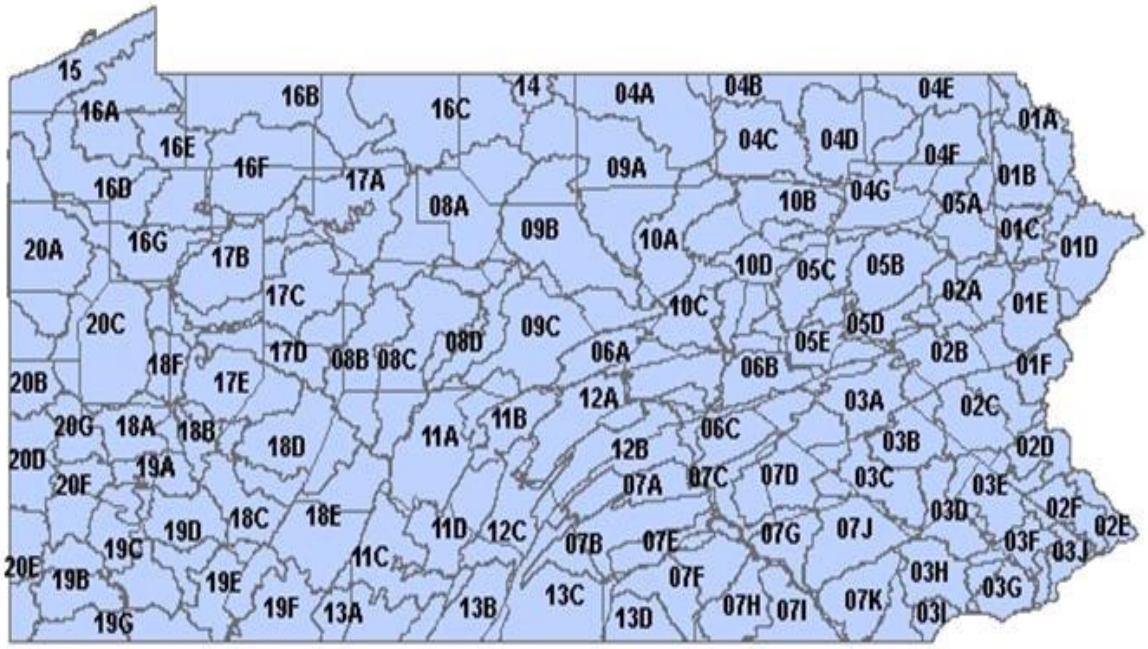

Figure 8. Watershed drainage basins (sub-sub-basins) in Pennsylvania.

Table 53. Sub-sub-basin classification of human population density.

SSB	Class	SSB	Class	SSB	Class	SSB	Class
01A	R	04E	R	09A	R	16G	R
01B	R	04F	S	09B	R	17A	R
01C	R	04G	S	09C	U	17B	R
01D	S	05A	U	10A	S	17C	S
01E	S	05B	U	10B	R	17D	R
01F	U	05C	R	10C	S	17E	S
02A	S	05D	S	10D	S	18A	U
02B	U	05E	S	11A	U	18B	S
02C	U	06A	S	11B	R	18C	S
02D	S	06B	S	11C	R	18D	S
02E	U	06C	S	11D	R	18E	U
02F	U	07A	S	12A	S	18F	R
03A	S	07B	U	12B	R	19A	U
03B	S	07C	U	12C	R	19B	S
03C	U	07D	U	13A	R	19C	U
03D	U	07E	U	13B	R	19D	U
03E	U	07F	U	13C	S	19E	S
03F	U	07G	U	13D	S	19F	R
03G	U	07H	U	14A	R	19G	S
03H	U	07I	S	15A	U	20A	U
03I	R	07J	U	16A	S	20B	S
03J	U	07K	U	16B	R	20C	U
04A	R	08A	R	16C	R	20D	S
04B	R	08B	R	16D	S	20E	R
04C	R	08C	S	16E	R	20F	U
04D	R	08D	R	16F	R	20G	U

Additional Criteria

Each of the lake size groups offers unique management problems and opportunities. Other factors, which could influence the management strategy, are ownership, boating opportunity, access, and non-trout fish community structure. Depending upon the lake type, these factors may have varying degrees of influence on management potential. For example, boating opportunity is not critical to adult trout management on a 4-hectare (10 acre) pond; however, it is on a 75-hectare (185 acre) impoundment. Factors other than lake size and

population density will, therefore, be considered for individual stocking sub-subprograms as their importance to management is warranted.

2.3.2 Management Options

The hatchery trout subprogram is divided into a number of management options with different allocations and rates for the stocking of hatchery trout based on resource categories. Within these options there are alternatives for adding diversity and variety to hatchery trout supported fisheries. A summary of the allocation strategy and distribution options for lakes is presented in Table 54.

Table 54. Summary of allocation and distribution options for lakes.

Lake class	Human population rank	Stocking intensity (trout/acre/year)
1	1	494
	2	475
	3	437
	4	418
2	1	304
	2	285
	3	247
	4	228
3	1	171
	2	152
	3	133
	4	95
4	1	114
	2	95
	3	76
	4	57

Class 1 Lakes

Rationale

This category represents small lakes and ponds of eight hectares (20 acres) or less. Some of these are impoundments with upstream and/or downstream flowing water sections managed with adult trout. Most of these waters are completely open to the general angling public regardless of ownership and provide good public access and parking areas. The major limiting

factors include elevated summer water temperatures and the number of anglers that can be accommodated without overcrowding.

At these waters, adult trout management offers an opportunity to manage small lakes for intensive angler use and excellent catch rates of stocked trout. Results from an angler use and harvest survey conducted on Twin Lakes in 1989 recorded angler effort at 903 angler hours/acre (Greene and Weber 1993b). Based on angler use information collected on stocked trout lakes from 2000 through 2001, angler use on Class 1 lakes averaged 1,016 hours/acre over the first seven weeks of season, and 163 hours/acre during the late winter period (February and March). Stocking rates range from 152 to 494 trout/acre depending upon the classification of the lake (Table 55).

Goal

To provide recreational trout angling opportunities on Class 1 lakes (less than or equal to 8 hectares or less than 20 acres) through the stocking of adult trout.

Objectives

The trout fishery is dependent upon the rate and frequency of stocking. Stocking rates will be adjusted to reflect differences in access and human population density. Objectives for Class 1 lakes are detailed below.

1. To provide an amount of annual angler use greater than or equal to 1,000 angler hours/acre.
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.
3. Where conditions allow, provide more year-round angling opportunity by the use of fall or winter stockings.

Allocation Strategy

Table 55. Stocking rates for Class 1 Lakes.

Human population rank	Stocking rate (trout/acre/year)	
	Optimum	Alternate
1	494	228
2	475	209
3	437	190
4	418	152

Criteria

1. Lakes should be at least 1.6 hectares (4 acres) in total surface area to be considered as an addition to the adult trout program.

2. Class 1 lakes included in the fall or winter options should be at least 2.4 hectares (6 acres) in total surface area. Trout stocked during the fall and/or winter will be included as part of a waters total annual allocation which will not exceed the maximum stocking rate according to classification.

Additional Criteria. – Optimum stocking rates may be applied to all waters in this class except for the following conditions when the alternate rates will be applied.

1. The lake has only one public access road, which is gated at a point 500 m or farther from the lake.
2. The lake has only one public access road, which is classified by the United States Geological Survey (USGS) as unimproved dirt.
3. The lake owner has no desire for intensive management, or the combination of both a preseason and in-season stocking.
4. Other biological, chemical, or social factors limit the suitability for intensive management to either a preseason-only or an in-season-only stocking frequency.

Class 2 Lakes

Rationale

This category represents the group of impoundments that range in size from greater than 8 hectares (20 acres) to less than or equal to 20 hectares (50 acres). Most of these lakes are public owned and allow boating with some type of developed boating access and parking available. Adult trout stocking offers an opportunity to increase angling diversity on these waters. The major limiting factors to management include elevated summer water temperatures and boating restrictions on some waters.

Angler use and catch rates would be expected to be relatively high on this group of waters. Results from angler survey work conducted on Briar Creek Lake in 1993 recorded 372 hours/acre of angler use during the spring and summer (Copeland and Moase 1996). Based on angler use information from the 2000 and 2001 seasons, angler use on Class 2 lakes averaged 483 hours/acre for the first seven weeks of season, and 161 hours/acre during the late-winter period. Stocking rates range from 46 to 304 trout/acre depending upon the classification of the lake (Table 56).

Goal

To enhance angling diversity by providing recreational trout angling opportunities on Class 2 lakes (greater than 8 hectares [20 acres] and less than or equal to 20 hectares [50 acres]) through the stocking of adult trout.

Objectives

The trout fishery is dependent upon the rate and frequency of stocking. Stocking rates will be adjusted to reflect differences in access, human population density, posting, and boat angling opportunity. Objectives for Class 2 lakes are detailed below.

1. To provide an amount of annual angler use greater than or equal to 650 angler hours/acre.
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.
3. Where conditions allow, provide more year-round angling opportunity by the use of fall or winter stockings.

Allocation Strategy

Table 56. Stocking rates for Class 2 Lakes.

Human population rank	Stocking rate (trout/acre/year)		
	Optimum with boating permitted	Optimum with no boating	Alternate
1	304	190	103
2	285	171	84
3	247	152	65
4	228	133	46

Criteria

1. Trout stocked during the fall or winter will be included as part of a waters total annual allocation which will not exceed the maximum stocking rate according to classification.

Additional Criteria. – Optimum stocking rates may be applied to all waters in this class except for the following conditions when the alternate rates will be applied.

1. The lake has only one public access road, which is gated, at a point 500 m or farther from the lake.
2. The lake has only one public access road, which is classified by the USGS as unimproved dirt.
3. Greater than or equal to 50% of the shoreline is posted (closed to the general angling public).
4. The lake owner has no desire for intensive management, or the combination of both a preseason and in-season stocking.
5. Other biological, chemical, or social factors limit the suitability for intensive management to either a preseason-only or an in-season-only stocking frequency.

Class 3 Lakes

Rationale

Lakes represented by this group range in size from greater than 20 hectares (50 acres) to less than or equal to 40 hectares (100 acres). Most of these lakes are public owned with good to excellent access. Generally, boating is permitted and public parking is readily available. The major limiting factors include elevated summer water temperatures and the larger size of these waters.

On Class 3 lakes, adult trout stocking offers the opportunity to provide a more diverse angling experience with reasonable expectations of good angler use. Angler use on this group of waters would be expected to be lower in comparison to smaller impoundments. The size of these waters coupled with any shoreline access limitation will likely affect angler use. Based on angler use information from the 2000 and 2001 seasons, angler use on Class 3 lakes averaged 386 hours/acre for the first seven weeks of season and 81 hours/acre during the late-winter period. Stocking rates range from 27 to 171 trout/acre depending upon the classification of the lake (Table 57).

Goal

To enhance angling diversity by providing recreational trout angling opportunities on Class 3 lakes (greater than 20 hectares [50 acres] and less than or equal to 40 hectares [100 acres]) through the stocking of adult trout.

Objectives

The trout fishery is dependent upon the rate and frequency of stocking. Stocking rates will be adjusted to reflect differences in access, human population density, posting, and boat angling opportunity. Objectives for Class 3 lakes are detailed below.

1. To provide an amount of annual angler use greater than or equal to 450 angler hours/acre.
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.
3. Where conditions allow, provide more year-round angling opportunity by the use of fall or winter stockings.

Allocation Strategy

Table 57. Stocking rates for Class 3 Lakes.

Human population rank	Stocking rate (trout/acre/year)	
	Optimum	Alternate
1	171	84
2	152	65
3	133	46
4	95	27

Criteria

1. Trout stocked during the fall or winter will be included as part of a waters total annual allocation which will not exceed the maximum stocking rate according to classification.

Additional Criteria. – Optimum stocking rates may be applied to all waters in this class except for the following conditions when the alternate rates will be applied.

1. Greater than or equal to 50% of the shoreline is posted (closed to the general angling public).
2. Boating is not permitted.
3. The lake owner has no desire for intensive management, or the combination of both a preseason and in-season stocking.
4. Other biological, chemical, or social factors limit the suitability for intensive management to either a preseason-only or an in-season-only stocking frequency.

Class 4 Lakes

Rationale

This group of lakes range in size from 40 hectares (100 acres) to less than or equal to 81 hectares (200 acres). Generally, these lakes provide well developed access, parking, and boat launch facilities. Most of these are public owned waters, which offer a multi-species fishery where trout comprise a major component of the sport fishery during the spring. Some Class 4 lakes provide suitable water temperatures and dissolved oxygen concentrations to support trout throughout the year. The major limiting factors to management include the size of these impoundments, limited shoreline access, and in some cases elevated summer water temperatures.

Adult trout management provides an opportunity to add diversity to the multi-species fisheries supported by most Class 4 lakes. Due to their large size, these lakes have the potential to absorb a considerable portion of adult trout production if stocked at a high rate. Therefore, management will not be as intensive as with other subprograms representing smaller adult trout stocked lakes. Based on angler use information from the 2000 and 2001 seasons, angler effort on Class 4 lakes averaged 164 hours/acre for the first seven weeks of season and 18 hours/acre during the late winter period. Stocking rates range from 15 to 114 trout/acre depending upon the classification of the lake (Table 58).

Goal

To enhance angling diversity by providing recreational trout angling opportunities on Class 4 lakes (greater than 40 hectares [100 acres] and less than or equal to 81 hectares [200 acres]) through the stocking of adult trout.

Objectives

The trout fishery is dependent upon the rate and frequency of stocking. Stocking rates will be adjusted to reflect differences in access, human population density, posting, and boat angling opportunity. Objectives for Class 4 lakes are detailed below.

1. To provide an amount of annual angler use greater than or equal to 200 angler hours/acre.
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.
3. Where conditions allow, provide more year-round angling opportunity by the use of fall or winter stockings.

Allocation Strategy

Table 58. Stocking rates for Class 4 Lakes.

Human Population rank	Stocking rate (trout/acre/year)	
	Optimum	Alternate
1	114	46
2	95	38
3	76	30
4	57	15

Criteria

1. Trout stocked during the fall or winter will be included as part of a waters total annual allocation which will not exceed the maximum stocking rate according to classification.

Additional Criteria. – Optimum stocking rates may be applied to all waters in this class except for the following conditions when the alternate rates will be applied.

1. Greater than or equal to 50% of the shoreline is posted (closed to the general angling public).
2. Boating is not permitted.
3. The lake owner has no desire for intensive management, or the combination of both a preseason and in-season stocking.
4. Other biological, chemical, or social factors limit the suitability for intensive management to either a preseason-only or an in-season-only stocking frequency.

Class 5 Lakes

Rationale

This category represents a small group of large lakes greater than 81 hectares (200 acres) that are managed with the stocking of adult trout. These lakes are typically dominated by relatively complex fish communities. This group offers the least potential for return to investment from adult trout management considering the desire to provide a satisfactory stocked

trout fishery with a reasonable amount of angler use. The primary limiting factor is the size of these waters. A few waters in this group can absorb a large portion of hatchery production, even at modest stocking rates. Angler surveys have documented low angler use on these waters. For example, angler effort from an angler survey conducted on Lake Carey during the spring of 1989 was recorded at 21 hours/acre (Greene and Weber 1993b). Similarly, angler effort was recorded at 21 hours/acre from an angler survey conducted on Harvey's Lake during the spring and summer of 2002.

To meet the criteria established for adult trout stocking, Class 5 lakes should be capable of supporting trout on a year-round basis. Two-story potential should be provided where a minimum of 1.0 meter (3.3 ft.) of the water column maintains water temperatures less than or equal to 21°C (70°F) and 5 mg/l of dissolved oxygen throughout late-spring and summer. These criteria are based on previous research conducted on trout survival in lakes. For example, the maximum weekly average temperature for growth and the short-term maximum for survival of adult Rainbow Trout during summer months is 19°C (66°F) and 24°C (75°F), respectively (US Environmental Protection Agency 1976). Research on Rainbow Trout depth distribution in California reservoirs documented fish to be near the surface when water temperatures were below 21°C (70°F) but moved to greater depths when the surface water temperatures exceeded 21°C (70°F) and concentrated at a temperature range between 16°C (60°F) and 21°C (70°F) (McAfee 1966). In Minnesota waters, Rainbow Trout survived summer conditions with as little as two feet of oxygenated water and temperatures up to 21°C (70°F) with no detectable losses (Johnson 1978).

To qualify for adult trout stocking, Class 5 lakes should also meet some access requirements. These include the provision of public boat launch facilities, developed public parking areas, and shoreline angler access. Class 5 lakes without suitable thermal and chemical characteristics should not be managed for stocked trout.

Adult trout stocking offers the opportunity to add diversity to the angling experience on Class 5 lakes. Trout stocked may provide for an immediate fishery; however, with the two-story characteristics of these waters, some fish will be expected to survive longer-term to provide a trophy element on these waters. Class 5 lakes that demonstrate good potential to provide a trophy fishery may be considered for special regulations management to enhance the trophy fishery.

Goal

To enhance angling diversity and provide recreational trout angling opportunities on Class 5 lakes (greater than 81 hectares [200 acres]) through the stocking of adult trout.

Objectives

The trout fishery is dependent upon the stocking of adult trout. Objectives for Class 5 lakes are detailed below.

1. To provide an amount of annual angler use greater than or equal to 35 angler hours/acre.

2. To provide an amount of angler use equivalent to one angler trip generated per catchable trout stocked.

Allocation Strategy

For Class 5 lakes allocation strategies have been developed for waters managed under either statewide trout angling regulations or a special trout angling regulations option.

Statewide Regulations

Class 5 lakes that qualify for adult trout stocking under Commonwealth Inland regulations will receive one low density spring stocking. The stocking should occur sometime during the early in-season period (mid-late April). This strategy will avoid a period of closure, which would limit angling opportunity for other fish species. Under this option, adult trout stocking will be conducted at a low rate (maximum annual allocation of 4 trout/acre) and the total allocation should not exceed the hauling capacity of one distribution unit.

Special Regulations

Class 5 lakes that are managed under special regulations (reduced creel limits and elevated minimum size limits) may be stocked during the preseason, in-season, and/or fall distribution periods. This strategy will focus on the provision of a year-round trout fishery, and under this option, adult trout stocking will be conducted at a low rate (maximum annual allocation of 8 trout/acre) and the maximum stocking frequency should not exceed three stockings.

Criteria

To qualify for adult trout stocking, Class 5 lakes should satisfy the criteria detailed below.

1. The lake should provide the potential for a two-story fishery where a minimum of 1.0 meter (3.3 ft.) of the water column maintains water temperatures less than or equal to 21°C (70°F) and greater than or equal to 5 mg/l of dissolved oxygen throughout late-spring and summer.
2. Facilities at the lake should include provisions for developed public parking areas, public boat launching, and shoreline angler access.
3. The adult trout option may apply to lakes that range in size from greater than 81 hectares (200 acres) to less than or equal to 516.2 hectares (1,275 acres).

Results from evaluations conducted on Adult Trout Stocked Lakes

A total of fifteen trout stocked lakes were examined via angler surveys during a seven-week period in the spring during the 2000 and 2001 seasons. Angler use on these waters averaged 592 hours/acre (range 116.3 – 1,098.6 hours/acre), trips per trout stocked averaged 0.68 trips/trout (range 0.41 – 1.1 trips/trout), and catch rates averaged 0.9/hour (range 0.41 – 2.11/hour). An extended survey (April through August) was conducted on one large two-story

lake (Harvey's Lake) in 2002. Angler use on this water was recorded at 21 hours/acre, with 0.99 trips/trout, and a catch rate of 0.18/hour.

Based on the results from the angler use and harvest evaluations, stocking rates and frequencies have been adjusted to provide for more efficient utilization of hatchery trout. As outlined in the strategic plan, stocking efforts on lakes should be concentrated on those waters that receive better angler use and should be reduced or eliminated on lakes that receive lower angler use. By 2024, angler surveys should be conducted to provide a statewide assessment of angler use, catch, opinions, and an estimate of the economic contribution of trout angling on trout stocked lakes.

2.3.3 Management Options: Special Case Subprogram

The purpose of this subprogram is to enable AFM's to increase the diversity of the angling experience. Management options include Fall-Winter and fingerling trout.

Fall-Winter Stocking Program

Rationale

Under the current regular/extended season strategy for stocked trout waters, angling opportunity is available year around except for the period between the third Monday in February to the opening day for the regular season for trout. Spring is the peak fishing period for Pennsylvania anglers seeking trout angling opportunities but fall and winter trout fishing is popular within some segments of the angling public. However, it does not generate the same level of angler use that occurs during the spring. For example, spring angler use averaged 592 hours/acre over a cross section of 15 trout stocked lakes examined via angler surveys between 2000 and 2001. In contrast, fall-winter angler use averaged only 46 hours/acre on three of these trout stocked lakes surveyed in 2001 and 2002. Stocking adult trout during the fall and winter adds variety to the Commission's trout management program by providing more year-round angling opportunity. Because the fall-winter program does not generate the same intensity of angling pressure as compared with the spring program, stocking will be maintained at lower rates and program success will be defined at a reasonably acceptable level.

For the winter period, ice anglers will be the primary beneficiary, but this option is by no means limited to ice fishing. Formation of ice thickness that allows for safe angling has not been, nor should it be, a criterion for this option. Since the first priority for allocating adult trout to lakes will continue to be the spring stocking period, these guidelines are intended optimize fall-winter trout angling opportunities while safeguarding against negative consequences to spring angling opportunities when angler use and demand is highest (i.e., reduced trout allocation during spring).

Goal

To provide recreational trout angling opportunities on select trout stocked lakes during the fall and/or winter through the stocking of adult trout.

Objectives

The fishery is largely dependent upon the provision of fall or winter stockings. Objectives for waters included in the Fall-Winter program are detailed below.

1. To provide an amount of angler use greater than or equal to 75 angler hours/acre during the fall and winter (October through December).
2. To provide an amount of angler use equivalent to one angler trip generated per trout stocked.

Criteria

1. Stock adult trout at relatively low stocking rates during the fall or winter. Frequency will be limited to either the fall or winter stocking periods. One October stocking will constitute the fall option, and one stocking during either November or December will constitute the winter option. Considering rising distribution costs and the fact that angler use is typically much lower during the fall and winter periods as compared with spring, the practice of stocking some lakes during both the fall and winter periods was discontinued in 2009. Lakes designated for stocking during the fall-winter period will receive one stocking to occur during either the fall (October) or winter (November-December) stocking period.
2. Primary categories for fall-winter stocking will be Class 2 and 3 lakes developed for public use with public maintained road access throughout the fall and winter. Class 1 lakes (greater than 2.4 hectares or 6 acres) and Class 4 lakes may be considered if the primary categories are not represented within the sub-sub-basin or are unsuitable for trout stocking due to biological, chemical, or social factors. Class 5 lakes may be considered for the fall option providing that they are managed under a special regulations option.
3. Access, projected use, need, and the status of the fishery will be used to evaluate the potential of new candidates for the program. As a general rule, no more than two lakes should be stocked under this option in urban or suburban sub-sub-basins, and no more than one in rural sub-sub-basins.
4. The stocking rates for fall and winter stockings to individual waters will be specified by the AFM. Trout stocked during the fall-winter period will be included as part of a waters total annual allocation, which will not exceed the stocking rate determined by classification according to program guidelines.
5. A minimum allocation of 300 adult trout will be necessary to constitute an individual stocking.

Results from evaluations conducted on Fall-Winter Stocked Waters

Angler surveys were conducted at three lakes (North Park Lake, George B. Stevenson Reservoir, and Harvey's Lake) during the fall and winter periods in 2001 and 2002. Angler use on these waters averaged 46 hours/acre (range 14.57 – 85.96 hours/acre), trips per trout stocked averaged 1.04 trips/trout (range 0.84 – 1.43 trips/trout), and catch rate averaged 0.6/hour (range 0.31 – 0.80/hour).

Staff should continue to evaluate the cost-benefit of the fall and winter trout stocking program and adjustments should be made to reduce or eliminate fall and winter stockings on lakes where stocking is not cost effective at this time of year.

Fingerling Trout in Lakes

Rationale

The principal goals of trout management in Pennsylvania lakes and reservoirs are to supplement an existing warm-water/cool-water fishery with trout to diversify the angling experience, or to substitute trout as the primary target species where warm-water/cool-water fish populations do not presently sustain a desirable sport fishery. The use of fingerling trout stockings to maintain a fishery in two-story lakes offers a number of potential benefits. The substitution of a fast-growing trout species that feeds at a lower trophic level than warm-water and cool-water fishes usually results in fish of a higher quality in the creel. Other important factors are a more robust food base than what is available in flowing waters, a year-round growing season, cost effectiveness, and the ability to maintain trout fishing opportunities in more waters. Depending on the characteristics of the lake, Brown Trout, Rainbow Trout, and Lake Trout may be managed individually or in combination.

Habitat Considerations

The most desirable situations are those lakes or reservoirs in which the temperature and dissolved oxygen characteristics are compatible with the physiological requirements for salmonids on a year-round basis. For management purposes, at least 1.0 meter (3.3 ft.) of water column with temperatures 21°C (70°F) or lower and 5 mg/l or greater dissolved oxygen throughout summer is considered necessary to satisfy the maintenance of suitable trout habitat on a year-round basis.

High water temperatures may be viewed as unsuitable for fingerling management even if dissolved oxygen criteria are satisfied. The important factor to consider in this situation is the duration of high temperatures and access to deeper, cooler, oxygenated waters. Trout can survive for one to two days at 27°C (80°F) and have been observed to survive for two weeks at temperatures of 23°C (73°F) (Eipper 1964; Eipper and Regier 1962). High daytime temperatures may be offset by nighttime cooling.

Species Characteristics

1. Brook Trout – Stocked as fall fingerlings, Brook Trout may produce a fishery the following spring and early summer. Unless harvest is low, angling quality usually declines the first summer after stocking in smaller lakes. Brook Trout are best suited for small, spring-fed lakes and ponds, which have been reclaimed to remove all competitive fish species. In larger lakes with lower pH and fertility (i.e., alkalinity), Brook Trout may provide the only opportunity to provide a fishery through fingerling trout management. To date, the use of fingerling Brook Trout stockings in Pennsylvania has not produced a consistent and desirable sport fishery.

2. Rainbow Trout – Rainbow Trout usually exhibit higher survival to desirable size, support a fishery of longer duration, and provide more fish of larger size in the second and third year after stocking than Brook Trout. Rainbow Trout are adaptable to a wide variety of conditions and efficiently use available forage to achieve high growth rates.
3. Brown Trout – The ability of Brown Trout to compete successfully with warm-water and cool-water fishes is an advantage over Brook Trout and Rainbow Trout. Brown Trout do not generally produce high angler catch rates when compared to Brook Trout or Rainbow Trout but do survive longer and reach larger size. Therefore, this species provides the best choice to provide a long-term fishery and to enhance the potential to manage for a trophy trout component.
4. Lake Trout – Lake Trout have specific thermal requirements for survival and Pennsylvania is at the very southern end of their native range. As such, Lake Trout are stocked in large-size lakes (i.e., Raystown Lake) that possess cold water habitat on a year-round basis (i.e., two-story lakes). These lakes contain adequate cold water during the summer to accommodate Lake Trout survival year-round. Lake Trout are stocked as fingerling or yearling and are expected to grow to large sizes, which requires multiple years of survival in the lake to allow them to grow to sufficient size for anglers to catch.

Stocking Considerations

Water quality characteristics, the abundance and composition of the warm-water/cool-water fish community, lake productivity, mortality, growth potential, size, and time of year are important factors to consider in choosing the species, size, and time of year to stock. These factors should be addressed on a case-by-case basis by the AFM.

Trout less than 5 cm (2 inches) generally will not provide good survival unless the lake has been reclaimed and all predators removed. In lakes where competition or predation from other species is a viable consideration, best results are obtained with fall fingerlings ranging in total length from 12.5 cm (5 inches) to 15.0 cm (6 inches). Depending upon availability, larger stockings of smaller fish may provide similar results.

Generally, the best time of year for stocking is between April and September. This period approximately corresponds to high growth rates. At present, the hatchery production system is requested to provide approximately 650,000 spring fingerling trout 5-12.5 cm (2-5 inches) for distribution on an annual basis. The use of the smaller spring fingerlings will require larger numbers of trout to produce similar results as those from stockings using larger fall fingerlings.

Goal

To provide recreational trout angling opportunities through the stocking of fingerling trout in lakes capable of supporting trout on a year-round basis.

Objectives

The trout fishery is dependent upon stocking fingerling trout. Objectives for fingerling stocking in lakes are detailed below.

1. To provide a total catch (by weight) that exceeds the original total weight of the fingerling stocking.
2. A total of 25% of the original number of fingerling trout stocked should survive to a size of at least 10 inches.
3. Trout populations resulting from fingerling stockings should provide catch rates greater than or equal to 0.5 trout/hr.
4. Fingerling trout stockings should maintain trout populations comprised of two or more age groups of age-1 and older trout.

Criteria

1. The lake should provide the potential for a two-story fishery where a minimum of 1.0 meter (3.3 ft.) of the water column maintains a temperature less than or equal to 21°C (70°F) with at least 5 mg/l of dissolved oxygen throughout late-spring and summer.
2. The number of fingerling trout stocked will depend upon a combination of management strategies and availability determined by the AFM. Generally, 2-5 inch spring fingerling trout will be utilized for stocking from April through June.

As outlined in the strategic plan, a sampling strategy will be developed to evaluate all fingerling trout stocking efforts and provide recommendations on the continuation and possible expansion, or reduction of these programs.

2.3.4 Guidelines for Determining Stocking Rates

Unless long-term studies of stocking density, growth, survivorship, and yield are undertaken on individual waters, specific guidelines can, at best, be considered approximations. This should not be viewed as a drawback as the weight harvested can be expected to be similar under a wide range of stocking rates. Poor growth or low survivorship will be important indicators to either reduce the stocking rate or eliminate the water from the fingerling trout stocking program. Alternately, good growth and condition may justify an increase in the stocking rate.

The morphoedaphic index (MEI) is a gross indicator of fish production and biomass in north-temperate lakes. It changes in value only with major environmental changes. As a simple index, it offers the best management application until more refined stocking rates can be formulated (Table 59). The following guidelines are adapted or derived from Engstrom-Heg (1979), Ryder (1965), Ryder et al. (1974), and Ryder and Henderson (1975).

1. To compute the MEI:

   MEI = Total Dissolved Solids/Mean Depth.

Total dissolved solids (TDS mg/l) can be determined from specific conductance (SC) adjusted to 77°F according to the formula: TDS = 0.72 (SC) + 7. Total dissolved solids may also be estimated from total alkalinity (A) as follows: TDS = 1.56A + 30. Mean depth is expressed as feet.

2. Determine yield (pounds/acre/year):

   Yield = $2\sqrt{MEI}$

3. Adjust Yield to Standing Stock by multiplying Yield with one of the following constants (K_b):

   K_b = 3.5: Oligotrophic, absence of warm-water/cool-water predators, MEI less than or equal to 1.5

   K_b = 2.0: Mesotrophic, two-story, MEI greater than 1.5

   K_b = 1.0: Poor growth and condition are symptoms when K_b = 1.0

4. Determine the stocking rate (number/acre/year) as the quotient of Standing Stock divided by projected survivorship.

Table 59. Stocked trout survival as a function of the length of trout stocked for computation of the morphoedaphic index.

Length of Fish Stocked		**Survival**
cm	**inches**	**(S)**
less than 7.5	less than 3	0.10
7.5-10.0	3-4	0.15
10.0-15.0	4-6	0.20

5. This approach should be used as a guideline in combination with best professional judgment. Whether a stocking density is too high or low should be evident by the length, weight, condition, and abundance of individual trout collected during a lake examination.

2.4 Toxic and Hazardous Contaminants – Special Restrictions on Fisheries in Polluted Zones (58 Pa. Code § 65.23)

Rationale

Special restrictions on polluted zones (58 Pa. Code § 65.23) are intended for those waters that have been identified to contain toxic and hazardous contaminants that approach or exceed the public health protection levels established by the Pennsylvania Department of Health. Contaminants that are responsible for fish consumption advisories in some waters of Pennsylvania include kepone, mirex, polychlorinated biphenyls, perfluoroalkyl and polyfluoroalkyl (PFAS/PFOS) chemical substances, chlordane, dichlorodiphenyltrichloroethane (DDT), dioxin, and mercury.

Objective

To ensure the health and welfare of the angling public on those waters where competent specialists from agencies with public health responsibility and authority have determined that contaminants in fish flesh pose a risk to the health of those who consume them.

Guidelines

1. For contaminants that exceed public health protection levels, a public news release will be prepared by the Interagency Fish Consumption Technical Workgroup and coordinated with the Bureau of Policy, Planning, and Communication for release just prior to the opening of the statewide trout season. Recommendations will be made to the Pennsylvania Department of Environmental Protection (DEP) to establish an annual monitoring plan.
2. For contaminants that exceed public health protection levels, stocking of adult trout will be terminated within the watershed, or a portion thereof, as circumstances reasonably dictate. Existing season, size, and creel limits will be replaced by regulations that are consistent with consumption advisories. All fish caught will be immediately returned to the water when levels meet or exceed those established for the Do Not Eat advisory. The occurrence and distribution of wild trout may be a factor in establishing the upstream and downstream limits of this regulation. A listing of waters, or portions thereof, under Consumption Advisories will be updated and listed annually as a section within the *Pennsylvania Fishing Summary/Boating Handbook*. Recommendations will be made to the DEP to establish an annual monitoring plan and institute corrective action.

3.0 TROUT PRODUCTION

The management of trout fisheries in Pennsylvania requires a coordinated stocking effort to distribute hatchery-reared trout in the numbers, the species composition, and on the schedules developed by the Division of Fisheries Management for hatchery-supported trout fisheries. Eight hatcheries are presently involved in the production of adult trout. These are Bellefonte, Benner Spring, Corry, Huntsdale, Oswayo, Pleasant Gap, Reynoldsdale, and Tylersville.

The current annual production of adult trout for the preseason, spring in-season, fall, and winter distribution seasons is approximately 3.2 million trout. By species, annual adult trout production is approximately 11% Brook Trout, 21% Brown Trout, and 68% Rainbow Trout.

Trout Hatchery Program

Objectives

1. To produce approximately 3.2 million adult trout annually for distribution in the numbers and on the schedules determined by management according to classification by resource category.
2. To produce approximately 650,000 fingerling trout annually for distribution to support the maintenance of put-and-grow trout fisheries.

Tactical Approach

Develop operational guidelines and trout production goals for each hatchery. These guidelines and goals are to be designed to meet fishery management requirements for the "Hatchery Trout Subprogram" for streams and lakes.

Assignment and Allocation

The Fisheries Management Division (Coldwater Unit), the Division of Fish Production (Southern Hatcheries Fish Production Manager), Stocking Coordinator, and the Information Systems Applications and Development Support staff has have developed an electronic data processing system to make allocation rapid, consistent, and geared to fishery management sub-subprograms. Stocking requests and special stocking instructions are provided by the Division of Fisheries Management, and the assignment of water areas to hatcheries and specific water-by-water stocking instructions are provided by the Division of Fish Production.

Cooperative Nurseries

This program distributes approximately 1.2 million fingerling trout and technical assistance to angler sponsored and operated fish hatcheries. The Cooperative Nursery program is intended to involve anglers directly in providing fish to enhance the Commonwealth's stocked trout fishing opportunities. Fingerling trout provided by PFBC hatcheries are reared to adult size by the angler groups and stocked in PFBC stocked trout waters and other waters open to public

angling with acceptable water quality that do not meet the requirements for the Commission's adult trout stocking program. This program should be in accordance with the PFBC adult trout stocking program and adhere to those stipulations where stocking is prohibited in waters designated as Class A wild trout streams or Wilderness Trout Streams. The Cooperative Nursery program should foster a sense of cooperation and goodwill between the Commission and angler groups and help to provide a mutual understanding of the Commission's programs.

Objectives

1. Provide increased fishing opportunities for public angling.
2. Provide sporting groups with an educational opportunity in culturing fish.
3. Provide educational institutions the opportunity to incorporate fish culture into their educational curriculum.
4. Promote public involvement in PFBC programs.
5. Increase PFBC involvement in local group fishing interests.
6. Support local groups' initiatives to provide fish for special events.

Assignment and Allocation

Stocking of fish reared or salvaged by a PFBC cooperative nursery must be stocked in waters designated by PFBC personnel. Diversion of fish to be stocked to any waters not open or accessible to free public fishing is prohibited.

4.0 LITERATURE CITED

Copeland, T. and R.E. Moase. 1996. Briar Creek Reservoir (405D) Management Report. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Curtis, B. 1951. Yield of hatchery trout in California lakes. California Fish and Game 37:197-251.

Detar, J., D. Kristine, T. Wagner, and T. Greene. 2014. Evaluation of catch-and-release regulations on Brook Trout in Pennsylvania streams. North American Journal of Fisheries Management 34:49-56.

Duda, M. D., M. Jones, T. Beppler, S.J. Bissell, A. Criscione, B. Hepler, J. B. Hepler, A. Richie, C. L. Schilli, T. Winegood, and A. Lanier. 2008. Pennsylvania trout fishing survey. Responsive Management, 130 Franklin Street, Harrisonburg, VA.

Eipper, A.W. 1964. Growth, mortality rates and standing crops of trout in New York farm ponds. Cornell University Agricultural Experiment Station Number 388, Ithaca, NY.

Eipper, A.W. and H.A. Reiger. 1962. Fish management in New York farm ponds. Cornell Extension. Bulletin. 1089.

Engstrom-Heg, R. 1979. Salmonid stocking criteria for New York's fisheries program. New York State Department of Environmental Conservation, Albany, NY.

Greene, R.T. and R.J. Weber. 1993a. Wild trout special regulation summary and evaluation. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Greene, R.T. and R.J. Weber. 1993b. Angler use and harvest on Pennsylvania catchable trout fisheries (1988-1990 & 1991). Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Greene, R.T. and R.J. Weber. 1995a. Class A wild trout program evaluation. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Greene, R.T. and R.J. Weber. 1995b. Delayed harvest angler use and harvest survey 1993. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Greene, R., R. Weber, R. Carline, D. Diefenbach, M. Shields, M. Kaufmann, R. Moase, and B. Hollender. 2005. Angler Use, Harvest and Economic Assessment on Wild Trout Streams in Pennsylvania. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Greene, R., R. Weber, R. Carline, D. Diefenbach, and M. Shields. 2006. Angler Use, Harvest and Economic Assessment on Trout Stocked Streams in Pennsylvania. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Greene, R.T. and R.J. Weber. 2007. Cost-benefit analysis of stocked trout stream angling and an evaluation of two opening days of trout season in Pennsylvania based on opening day angler use count and opinion information from the 2007 season. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Greene, R.T. and R.J. Weber. 2008. Cost-benefit analysis of stocked trout stream angling in Pennsylvania based on opening day angler use counts from the 2008 season. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Hummon, N.P. 1992. The 1991 trout angler telephone survey. University Center for Social and Urban Research, Univiversity of Pittsburgh. Pittsburgh, PA.

Johnson, M. W. 1978. The management of lakes for stream trout and salmon. Minnesota Department of Natural Resources, Division of Fish and Wildlife, Section of Fisheries, Special Publication No. 125.

McAfee, W.R. 1966. Rainbow Trout. Pages 192-215 *in* Inland Fisheries Management. CA Department of Fish and Game.

Nihart, D.C. 2021. Cost-benefit analysis of stocked trout stream angling in Pennsylvania based on opening day angler use counts from the 2021 season. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Pennsylvania Department of Environmental Protection. 2003. Water Quality Antidegradation Implementation Guidance, Document Number 391-0300-002. Pennsylvania Department of Environmental Protection, Harrisburg, Pennsylvania.

Pennsylvania Department of Environmental Protection. 2006. Pennsylvania Integrated Water Quality Monitoring and Assessment Report. Pennsylvania Department of Environmental Protection, Harrisburg, Pennsylvania.

Pennsylvania Fish Commission. 1986. Management of trout fisheries in Pennsylvania waters, 1st edition. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Pennsylvania Fish Commission. 1987. Management of trout fisheries in Pennsylvania waters, 2nd edition. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Pennsylvania Fish and Boat Commission. 1994. Public involvement resource protection agency direction planning for the future of fishing and boating in Pennsylvania. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Pennsylvania Fish and Boat Commission. 1997. Management of trout fisheries in Pennsylvania waters, 3rd edition. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Pennsylvania Fish and Boat Commission. 2011. Fingerling Trout Program Evaluation – Wadable Streams. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Pennsylvania Fish and Boat Commission. 2016. 2016 keystone select socked trout waters angler survey. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Pennsylvania Fish and Boat Commission. 2020. Strategic plan for management of trout fisheries in Pennsylvania 2020-2024. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Pierce, D., M. L. Kaufmann, R.T. Greene, and R. T. Wnuk. 2007. 2006 preseason stocked trout residency study. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Ryder, R.A. 1965. A method for estimating the potential fish production of north-temperate lakes. Transactions of the American Fisheries Society 94:214-218.

Ryder, R.A., S.R. Kerr, K.H. Loftus, and H.A. Regier. 1974. The morphoedaphic index, a fish yield estimator - review and evaluation. Journal of Fisheries Research Board of Canada 31:663-688.

Ryder, R.A. and H.F. Henderson. 1975. Estimate of potential fish yield for the Nasser Reservoir, Arab Republic of Egypt. Journal of Fisheries Research Board of Canada 32:2137-2151.

Selcher, J.W. 1972. Percentage returns of the catchable trout fisheries in Pennsylvania. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Thurow, R.F. and D.J. Schill. 1994. Conflicts in allocation of wild trout resources: an Idaho case history. Proceedings of the Wild Trout V Symposium, Yellowstone National Park, Wyoming.

US Environmental Protection Agency. 1976. Quality criteria for water. US Environmental Protection Agency, Washington, D.C.

Weber, R., R. T. Greene, J. Arway, R. S. Carney, and L. Young. 2008. History of the management of trout fisheries in Pennsylvania. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Weirich, C.B. 1974. An initial study of the return and movement of brown and Rainbow Trout stocked pre-season and in-season and of the use of wired areas in sustaining a catchable trout fishery after in-season stocking. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Wnuk, R. T. 2005. Influence of acclimation temperature on the post-stocking movement of hatchery trout in streams. Master's thesis. East Stroudsburg University, East Stroudsburg, PA.

Wnuk, R. T., D Pierce, M. L. Kaufmann, and R. T. Greene. 2008. 2007 preseason stocked trout residency study. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Wnuk, R. T., D Pierce, M. L. Kaufmann, R. T. Greene and R. J. Weber. 2009. 2008 preseason stocked trout residency study. Pennsylvania Fish and Boat Commission, Harrisburg, Pennsylvania.

Appendix A. Criteria for consideration of requests for continued stocking of Class A wild trout streams.

On September 30, 2014 (effective January 1, 2015), the Statement of Policy at 58 Pa. Code § 57.8a (Class A Wild Trout Streams) was amended to require the Executive Director to obtain approval from the Pennsylvania Fish and Boat Commission (Commission) prior to granting permission to stock a Class A wild trout stream section. Following the update to 58 Pa. Code § 57.8a, staff developed internal decision-making criteria to allow continued Commission stocking of a limited number of Class A wild trout stream sections. Subsequently, 13 stream sections that support strong Class A wild Brown Trout populations were officially designated as Class A wild trout streams during the 2015-2017 timeframe following updated wild trout surveys, and stocking was continued. All stream sections where stocking was continued are heavily fished waters, most located in high-density human population centers, of a size and character that can support a fishery featuring both stocked and wild trout components.

Historically, there have been very few streams where stocking of trout following Class A designation was considered and warranted. However, there are rare cases, beyond the current 13 stocked Class A wild trout stream sections, where a stocking exemption should be considered. To account for these rare circumstances, staff developed additional decision-making criteria to consider internal and external requests for continued stocking of newly designated Class A wild trout streams. These criteria provide staff direction to guide decisions when unusual situations arise but do not automatically result in continued stocking when criteria are met, as most Class A stream sections are best managed solely for wild trout with no stocking. They offer a mechanism for transparent, timely, and consistent consideration of requests to continue the stocking of newly designated Class A wild trout streams. These criteria, listed below, are detailed in the *Operational Guidelines for the Management of Trout Fisheries in Pennsylvania Waters* and available at www.fishandboat.com. No exemptions will be granted for streams where a component of the wild trout fishery is comprised of wild Brook Trout.

1. Pre-existing youth fishing derbies and special use areas that were properly permitted by the Commission and have a history of more than one past occurrence.

2. Pre-existing private stockings on private property on recently designated (i.e., within one year of posting in the *Pennsylvania Bulletin*) Class A stream sections that have been closed to public angling at the time of Class A designation and at least since 2010. Historic stockings need to be verifiable by documentation, stocking records, and have a history of more than one past occurrence.

3. Stream sections stocked by the Commission, a cooperative nursery, and/or a private group or individual the year prior to Class A designation, have a history of more than one past occurrence, and meet the following sub-criteria.
    a) The stream section was stocked with adult trout during the year immediately prior to its designation as a Class A wild trout stream.
    b) Angler use (anglers/mile of stream) in the stream section equals or exceeds the statewide 50th percentile of angler use for the opening weekend of trout season as documented by Commission staff, or the stream section is a special regulation

area under 58 Pa. Code Chapter 65 (relating to special fishing regulations) that was stocked by the Commission the year immediately prior to its designation as a Class A wild trout stream.

c) The trout species to be stocked are not the same species as the primary component of the wild trout population.
d) The stocking numbers and frequency will not exceed those of the year prior to the Class A designation.
e) Stream sections where a component of the wild trout population is comprised of wild Brook Trout will not be considered for stocking.
f) Prior to implementing a decision to stock a Class A wild trout stream, the Executive Director will obtain the approval of the Commission.

4. Previously received an exemption or a Special Activities Permit from the Commission between 2010 and the present to allow for continued stocking of a Class A wild trout stream section. If the exemption was time-limited and not renewed before expiration, it will be considered a new request and a determination will be made according to other exemption criteria.

Exemptions to the prohibition of stocking hatchery trout into Class A wild trout stream sections will be granted only under rare circumstances. Consideration is only given to requests for continued stocking in stream sections within one year of the section being designated as Class A and posted in the *Pennsylvania Bulletin*. However, entities that previously received an exemption or a Special Activities Permit from the Commission between 2010 and the effective date (April 3, 2021) of the amendment to the statement of policy at 58 Pa. Code § 57.8a (Class A Wild Trout Streams) adopted at the January 2021 quarterly Commission meeting and published at 51 Pa.B. 1828 will be eligible for consideration.

Should an exemption be granted, the Commission will determine the species of trout, number of trout, and frequency of stocking consistent with stocking strategies and historical stocking rates of the stream section to minimize impacts to the Class A wild trout population. All stocking provisions will be communicated in writing by the Commission to the entity receiving the exemption for continued stocking on Class A designated waters. Stocking exemptions will be valid for no more than five years at which time the need for continuance may be evaluated. Requests for exemptions to the prohibition of stocking hatchery trout into Class A wild trout stream sections should be submitted to the Pennsylvania Fish and Boat Commission, Bureau of Fisheries, 595 East Rolling Ridge Drive, Bellefonte, PA 16823.

Appendix B. Guidelines for the management of trout fisheries in Pennsylvania with special regulations.

Guidelines for the Management of Trout Fisheries in Pennsylvania with Special Regulations

Pennsylvania Fish and Boat Commission
Division of Fisheries Management

November 30, 2021

Background

The *Guidelines for the Management of Trout Streams in Pennsylvania with Special Regulations* (PFBC 2016a) was developed as part of the *Strategic Plan for Management of Trout Fisheries in Pennsylvania 2016-2017* (PFBC 2016b). These criteria guide staff decisions regarding the application of special regulations to Pennsylvania's trout fisheries. This document updates those criteria and is detailed in the *Operational Guidelines for the Management of Trout Fisheries in Pennsylvania Waters, 5th edition* (PFBC 2022) and available at www.fishandboat.com.

These guidelines will continue to serve as guidance for staff to consistently and transparently review and consider internal initiatives for new special regulations or modify existing special regulations, as well as consider requests from the public to establish new or modify existing special regulations. This includes existing special regulation programs and miscellaneous special regulations applied to trout fisheries. As of December 31, 2020, all waters with existing special regulations will continue to be managed in their existing programs and will only be evaluated with the criteria detailed in this document should there be a need to consider alternative management or upon periodic review of management strategies. This document will be updated in the future as needed.

Overview

Currently, the Pennsylvania Fish and Boat Commission (PFBC) utilizes nine special regulation programs to manage trout fisheries in Pennsylvania (Table 1). These include: 1) Catch and Release Artificial Lures Only (58 Pa. Code § 65.5), 2) Catch and Release Fly-Fishing Only (58 Pa. Code § 65.14), 3) Catch and Release All-Tackle (58 Pa. Code § 65.15), 4) Trophy Trout Artificial Lures Only (58 Pa. Code § 65.7), 5) All-Tackle Trophy Trout (58 Pa Code § 65.4a), 6) Artificial Lures Only Trout Slot Limit (58 Pa. Code § 65.4d), 7) All-Tackle Trout Slot Limit (58 Pa. Code § 65.4c), 8) Delayed Harvest Artificial Lures Only Areas (58 Pa. Code § 65.6 [includes the Keystone Select Stocked Trout Waters program]), and 9) Miscellaneous Special Regulations (58 Pa. Code § 65.24). Miscellaneous Special Regulations are applied on a case-by-case basis to waters that are not good candidates for one of the existing special regulation programs but warrant a special regulation. Additionally, Miscellaneous Special Regulations are used to test new regulations as pilot programs while staff evaluate and consider broader application. A summary of these special regulation programs and their objectives are outlined in

the *Operational Guidelines for the Management of Trout Fisheries in Pennsylvania Waters, 5th edition* (PFBC 2022).

Objectives

Special regulations are utilized at waters managed for both wild and stocked trout in Pennsylvania. They provide a tool for managers to conserve important trout fisheries and optimize angling opportunities; particularly at high-use fisheries. Additionally, special regulations serve to optimize angler participation across a broad range of fisheries while providing a diversity of experiences; however, they are used on a limited basis. Just over 1% of all wild trout stream miles, less than 6% of Class A wild trout stream miles, and less than 5% of stocked trout stream miles are managed with special regulations.

Special regulation program objectives are crafted to reduce or minimize fishing mortality from harvest as well as delayed release mortality; provide an adequate level of protection to unique wild trout populations or a portion of populations from harvest; improve or maintain wild trout population size structure; and maintain high trout population densities to support high angler use and catch rates, including catching individual trout multiple times to optimize recreational use and angling experiences. Occasionally, a special regulation may also be applied to waters due to "Do Not Eat" fish consumption advisories.

Fishing is permitted year-round at waters managed with special regulations to optimize angling opportunities. At wild trout waters, special regulations provide anglers with the opportunity to fish for a natural population of trout where fishing mortality (hooking, handling, and/or harvest) is not a major factor in determining population size structure or abundance. At fisheries sustained or supplemented through stocking, special regulations provide anglers with the opportunity to fish for a stocked trout population similar in density to a Class A wild trout stream where fishing mortality is not a major factor in determining abundance.

Considerations for implementation of or revision to special regulations

Staff carefully consider all internal initiatives and external requests for the application of special regulations. Listed below are the primary factors considered by staff regarding implementation of new special regulations, revision to existing special regulations, and their evaluation.

1. Special regulations must be necessary and supported biologically to improve the quality of the fishery or protect wild trout populations.

    - Special regulations may be considered if fishing mortality (hooking, handling, and/or harvest) negatively impacts the trout population, limits its potential, or limits the recovery of a wild trout population. Negative impacts of high fishing mortality include reduced trout population density and/or reduced size structure. Fishing mortality and/or sublethal effects of hooking may be negatively impacting the population and special regulations may be warranted when biological data suggest a trout population is depressed; a decline in population density or size structure has

occurred; or factors such as poor or degraded physical habitat or water quality, including thermal conditions and short-term climatic events (i.e. droughts and floods) are not the cause. In addition to biological data, angler use and preference data and Area Fisheries Manager (AFM) knowledge of the resource will be considered to determine if fishing mortality is a primary factor limiting the wild trout population and preventing it from reaching its full potential.

2. Harvest and/or delayed release mortality attributable to terminal tackle types are potential factors limiting the quality of the fishery.

    - Fishing mortality and/or sublethal effects of hooking may be negatively impacting the population and special regulations may be warranted when biological data suggest a trout population is depressed; a decline in population density or size structure has occurred; or factors such as poor or degraded physical habitat or water quality, including thermal conditions and short-term climatic events (i.e. droughts and floods) are not the cause. In addition to biological data, angler use and preference data including determination of tackle types used by anglers, and AFM knowledge of the resource will be considered to determine if fishing mortality and/or sublethal effects of hooking are primary factors limiting the wild trout population and preventing it from reaching its full potential. The amount of angler use a stream section receives along with the species of trout present are key factors to consider in determining whether tackle types may be limiting factors.

3. There is angler acceptance for the proposed regulation change.

    - Angler input regarding the proposed regulation changes will be solicited prior to implementation of special regulations to determine the level of public acceptance. At minimum, the proposed regulation change will be posted in the *Pennsylvania Bulletin* and public comments will be accepted through the PFBC's website for at least 30 days prior to Commission consideration of any proposed regulation change. Additionally, notification of proposed changes will be communicated to the public through appropriate social media avenues. AFMs, the Coldwater Unit (CWU), Waterways Conservation Officers (WCO), and other PFBC staff maintain a working knowledge of the user base of streams they manage, and this information is a crucial consideration during the review process. However, when staff knowledge of angler use and preference for management of a stream is limited, on-site angler interviews may also be conducted to collect additional angler opinion information. If deemed necessary, a public meeting may be held regarding a proposed change in regulations. Public meetings are recommended when changes are being considered at high-use waters and/or when changes are substantial.

4. Stream sections managed with special regulations must be able to support increased angler use without negative consequences to the fishery.

    - Special regulations often increase angler use; therefore, these stream sections must be able to support potential increased angler use without causing biological or social

problems. Additionally, a new special regulation water should aim to increase angling opportunities and/or diversify existing trout angling opportunities in the local area. While important biologically, tackle restrictions may limit participation by some segments of the angling public. As such, new waters placed into a special regulations program should be managed to be as inclusive of as many angler groups as possible, unless more restrictive tackle restrictions are needed to meet biological needs or objectives.

5. There is primary riparian landowner acceptance for the proposed regulation change.

    - It is not in the Commission's or angling public's best interest to implement a special regulation only to have landowners close the area to angling because they disagree with the regulation change. As such, there should be general landowner acceptance of the proposed regulations. Riparian landowner opinion will be solicited prior to Commission consideration of any proposed regulation change and afforded the opportunity to provide written and/or verbal comment regarding the proposal. At minimum, landowners accounting for the majority of the riparian corridor along the stream section or public access to at least 85% of the riparian corridor along the stream section should support implementation of new special regulations.

6. The geographic distribution of special regulation waters in the area of the proposed regulation change will be taken into consideration.

    - If an adjacent or nearby stream section is managed with a special regulation, it is often preferred to apply the same regulation to the new stream section for consistency and to avoid regulatory complexity and associated confusion by anglers. In areas that receive high angler use and/or areas of high human population density, more special regulation waters within proximity may be required to alleviate high concentrations of anglers and associated increased fishing mortality at individual waters.

7. Both the biological and social components of the fisheries management process will be considered when determining the need for special regulations.

    - Staff will ultimately need to balance the biological need for the proposed special regulation with social preferences and acceptance, particularly when there is contention among angler groups with a proposed regulation change. Staff will objectively evaluate the need for special regulations and use best professional judgment when making recommendations regarding implementation of new or changing existing special regulations.

Considerations for removal of or revision to a special regulation

1. Public access to the riparian corridor along the stream section declines below 75% of the section length.

2. Water temperatures regularly exceed 70º F by June 1 for stocked trout waters or regularly exceed 68º F throughout the summer for wild trout waters.

3. The stream section can no longer support a high-quality trout population and is not meeting program objectives.

4. The density, size structure, and/or condition factor of the wild trout population becomes substantially reduced.

5. The trout population has better potential to substantially improve under a different regulation.

6. Special regulations are no longer needed to maintain a trout population at an existing high-quality level.

7. Angling opportunities can be provided to a broader user base under a different regulation with low potential for negative impact to the fishery while maintaining the trout population at an existing high-quality level.

8. Angler acceptance of the special regulation by the primary users of the fishery has declined to a low level.

9. Angler use of the stream section has declined to a low level.

Criteria for implementation of new special regulations

Fisheries Management Division staff will obtain the necessary information to decide upon special regulation implementation or changes to existing regulations. If it is determined that a special regulation may be warranted to improve or maintain an existing or developing trout fishery, staff will evaluate whether the stream meets the minimum criteria to implement a special regulation program. The specific regulation program considered will be determined based on the management objectives for the fishery, including both biological needs and social preferences.

Catch and Release Artificial Lures Only and Catch and Release All-Tackle

1. <u>Wild trout</u>

    a) A minimum of 85% of the riparian corridor along the stream section should be open to public angling with majority landowner consent for the regulations.

    b) Water temperatures do not regularly exceed 68º F throughout the summer which will limit thermally induced trout mortality and provide the opportunity for quality angling throughout the summer.

    c) The wild trout population has the potential to substantially improve or remain at its existing high-quality level with the implementation of the special regulations.

    d) Angler acceptance of the proposed new regulation by the primary users of the fishery.

e) New wild trout waters added to the Catch and Release Artificial Lures Only or Catch and Release All-Tackle programs will be managed for wild trout with no stocking.

f) Stream sections should be a minimum of two miles in length or no less than one mile if contiguous with a current special regulation stream section. Extensions of existing special regulation areas may be less than one mile.

2. Stocked trout

a) Due to reduced fitness, environmental conditions, and other factors, few trout stocked as adults survive from year to year. As such, the Catch and Release Artificial Lures Only or Catch and Release All-Tackle programs are primarily geared toward wild trout management and staff do not actively pursue new stocked trout waters to be added to these programs.

Catch and Release Fly-Fishing Only

1. Wild trout and stocked trout

a) This program is intended to reflect the tradition of fly-fishing in Pennsylvania by including those waters long associated with management under fly-fishing only regulations. Due to the fly-fishing only tackle restrictions, this program can limit participation. No new waters were added to this program for over two decades and staff do not actively pursue new waters (wild or stocked) to add to the Catch and Release Fly-Fishing Only program.

Trophy Trout Artificial Lures Only

1. Wild trout

a) A minimum of 85% of the riparian corridor along the stream section should be open to public angling with majority landownership acceptance of the regulations.

b) Water temperatures do not regularly exceed 68º F throughout the summer which will limit thermally induced trout mortality and provide the opportunity for quality angling throughout the summer.

c) The stream section supports a Class A or B wild trout population with the potential for the stream section to support trout greater than or equal to 18 inches in length.

d) The wild trout population has the potential to substantially improve or remain at its existing high-quality level with the implementation of these special regulations.

e) Angler acceptance of the proposed new regulation by the primary users of the fishery.

f) This program is geared toward wild trout management and as such any new waters added to the Trophy Trout Artificial Lures Only program will be managed for wild trout with no stocking.

g) Stream sections should be a minimum of two miles in length or no less than one mile if contiguous with a current special regulation stream section. Extensions of existing special regulation areas may be less than one mile.

2. Stocked trout

a) No stocked trout waters are currently managed under this regulation. This program is intended for wild trout management; therefore, new waters added to the Trophy Trout Artificial Lures Only program will be managed for wild trout with no stocking.

All-Tackle Trophy Trout

1. Wild trout

a) A minimum of 85% of the riparian corridor along the stream section should be open to public angling with majority landownership acceptance of the regulations.

b) Water temperatures do not regularly exceed 68º F throughout the summer which will limit thermally induced trout mortality and provide the opportunity for quality angling throughout the summer.

c) The stream section supports a Class A or Class B wild trout population with the potential for the stream section to support trout greater than or equal to 18 inches in length.

d) The trout population has the potential to substantially improve or remain at its existing high-quality level with the implementation of the special regulations.

e) Angler acceptance of the proposed new regulation by the primary users of the fishery.

f) Despite no wild trout waters currently managed with these regulations, this program is intended for wild trout management or fisheries supported with fingerling trout stocking. As such new waters added to the All-Tackle Trophy Trout program will be managed for wild trout or stocked with fingerling trout only.

g) Stream sections should be a minimum of two miles in length or no less than one mile if contiguous with a current special regulation stream section. Extensions of existing special regulation areas may be less than one mile.

2. Stocked trout

a) A minimum of 85% of the riparian corridor along the stream section should be open to public angling with majority landownership acceptance of the regulations.

b) Water temperatures do not regularly exceed 68º F throughout the summer which will limit thermally induced trout mortality and provide the opportunity for quality angling throughout the summer.

c) The stream section is managed with fingerling trout stocking and supports a combined wild and stocked trout population with the potential for the stream section to support trout greater than or equal to 18 inches in length.

d) The trout population has the potential to substantially improve or remain at its existing high-quality level with the implementation of the special regulations.

e) Angler acceptance of the proposed new regulation by the primary users of the fishery.

f) Stream sections should be a minimum of two miles in length or no less than one mile if contiguous with a current special regulation stream section. Extensions of existing special regulation areas may be less than one mile.

Artificial Lures Only Trout Slot Limit

1. Wild trout

a) A minimum of 85% of the riparian corridor along the stream section should be open to public angling with majority landownership acceptance of the regulations.

b) Water temperatures do not regularly exceed 68º F throughout the summer which will limit thermally induced trout mortality and provide the opportunity for quality angling throughout the summer.

c) The wild trout population has the potential to substantially improve or remain at its existing high-quality level with the implementation of these special regulations.

d) Angler acceptance of the proposed new regulation by the primary users of the fishery.

e) Stream sections should be a minimum of two miles in length or no less than one mile if contiguous with a current special regulation stream section. Extensions of existing special regulation areas may be less than one mile.

2. Stocked trout

a) No stocked trout waters are currently managed under this regulation. This program is intended for wild trout management; therefore, new waters added to the Artificial Lures Only Trout Slot Limit program will be managed for wild trout with no stocking.

All-Tackle Trout Slot Limit

1. Wild trout

a) A minimum of 85% of the riparian corridor along the stream section should be open to public angling with majority landownership acceptance of the regulations.

b) Water temperatures do not regularly exceed 68º F throughout the summer which will limit thermally induced trout mortality and provide the opportunity for quality angling throughout the summer.

c) The trout population has the potential to substantially improve or remain at its existing high-quality level with the implementation of the special regulations.

d) Angler acceptance of the proposed new regulation by the primary users of the fishery.

e) Stream sections should be a minimum of two miles in length or no less than one mile if contiguous with a current special regulation stream section. Extensions of existing special regulation areas may be less than one mile.

2. Stocked trout

a) No stocked trout waters are currently managed under this regulation. This program is intended for wild trout management; therefore, new waters added to the All-Tackle Trout Slot Limit program will be managed for wild trout with no stocking.

Delayed Harvest Artificial Lures Only Areas

1. Wild trout

a) No wild trout waters are currently managed with this regulation. This program is intended for stocked trout management; therefore, new waters added to the Delayed Harvest Artificial Lures Only Areas program will be managed for stocked trout. No waters managed for wild trout will be added to this program.

2. Stocked trout

a) A minimum of 85% of the riparian corridor along the stream section should be open to public angling with majority landownership acceptance of the regulation.

b) Water temperatures do not regularly exceed 70º F by June 1 for prolonged periods of time (48 hours) which will limit thermally induced trout mortality and provide the opportunity for quality angling throughout the spring period when most stocked trout angling occurs.

c) The fingerling or adult stocked trout fishery has the potential to substantially improve or remain at an existing high-quality level with the implementation of these specific regulations.

d) Angler acceptance of the proposed new regulation by the primary users of the fishery.

e) New waters added to the Delayed Harvest Artificial Lures Only Areas program will be managed for stocked trout.

f) Stream sections should be a minimum of two miles in length or no less than one mile if contiguous with a current special regulation stream section. Extensions of existing special regulation areas may be less than one mile.

Waters with Miscellaneous Special Regulations

1. Wild trout

a) The stream and associated fishery is either not a good candidate for an existing special regulation program and/or a new regulation is being evaluated.

b) A minimum of 85% of the riparian corridor along the stream section should be open to public angling with majority landownership acceptance of the regulations.

c) Water temperatures do not regularly exceed 68º F throughout the summer which will limit thermally induced trout mortality and provide the opportunity for quality angling throughout the summer.

d) The trout population has the potential to substantially improve or remain at its existing high-quality level with the implementation of these specific regulations.

e) Angler acceptance of the proposed new regulation by the primary users of the fishery.

f) Stream sections should be a minimum of two miles in length or no less than one mile if contiguous with a current special regulation stream section. Extensions of existing special regulation areas may be less than one mile.

2. Stocked trout

a) The stream and associated fishery is either not a good candidate for the Delayed Harvest Artificial Lures Only Areas program and/or a new regulation is being evaluated.

b) A minimum of 85% of the riparian corridor along the stream section should be open to public angling with majority landownership acceptance of the regulation.

c) Water temperatures do not regularly exceed 70º F by June 1 which will limit thermally induced trout mortality and provide the opportunity for quality angling throughout the spring period when most stocked trout angling occurs. In the rare case that a lake is managed for stocked trout under a miscellaneous special regulation (e.g., Harveys Lake), the lake must have the ability to support trout year-round.

d) The stocked trout fishery has the potential to substantially improve or remain at an existing high-quality level with the implementation of these specific regulations.

e) Angler acceptance of the proposed new regulation by the primary users of the fishery.

f) Stream sections should be a minimum of two miles in length or no less than one mile if contiguous with a current special regulation stream section. Extensions of existing special regulation areas may be less than one mile.

Monitoring and evaluating of special regulations waters

Previously detailed in the document, as of December 31, 2020, all waters with existing special regulations will continue to be managed in their existing programs and will only be evaluated with the criteria detailed in this document should there be a need to consider alternative management or upon periodic review of management strategies. Monitoring and evaluation of new special regulation areas and changes to existing special regulations will be conducted on a case-by-case basis; based on need, priority, staff availability, and funding.

References

Pennsylvania Fish and Boat Commission. 2022. Operational guidelines for the management of trout fisheries in Pennsylvania waters, 5th edition. Pennsylvania Fish and Boat Commission. Harrisburg, Pennsylvania.

Pennsylvania Fish and Boat Commission. 2016a. Guidelines for the management of trout streams in Pennsylvania with special regulations. Pennsylvania Fish and Boat Commission. Harrisburg, Pennsylvania.

Pennsylvania Fish and Boat Commission. 2016b. Strategic plan for management of trout fisheries in Pennsylvania 2016-2017. Pennsylvania Fish and Boat Commission. Harrisburg, Pennsylvania.

Table 1. Statewide summary of trout streams managed with special regulations as of January 2022.

Special regulation program	Creel limit	Minimum size limit	Terminal tackle	Stocked trout		Wild trout	
				Number of stream sections	Stream miles	Number of stream sections	Stream miles
Catch and Release Artificial Lures Only	0	-	Artificial lures & flies	3	8.53	16	35.74
Catch and Release Fly-Fishing Only	0	-	Flies only	26	46.22	8	17.69
Catch and Release All-Tackle	0	-	Artificial lures, flies & bait	2	11.36	23	111.30
Trophy Trout Artificial Lures Only	2/day Opening Day - Labor Day, C&R remainder of year	14"	Artificial lures & flies	0	0	10	26.72
All-Tackle Trophy Trout	2/day Opening Day - Labor Day, C&R remainder of year	14"	Artificial lures, flies & bait	1	9.16	0	0
Delayed Harvest Artificial Lures Only	3/day June 15 - Labor Day, C&R remainder of year	9"	Artificial lures & flies	58	119.49	0	0
Miscellaneous Special Regulations*	Various	Various	Various	5	29.51	2	14.98
			Total	95	214.27	59	206.43

*Youghiogheny River, Section 06, (46.57 miles) was not included in the miscellaneous special regulations summary because this stream section does not support wild trout and is not stocked by the Commission. This stream section primarily supports a warm-water/cool-water fishery. The miscellaneous special regulation allows for year-round harvest of trout.

Appendix C. Summary of allocation and distribution options utilized for stream resource categories from 1983-1993.

Biomass	Recreational Use Potential	Width	Population	Stocking Intensity (trout/acre/year)
High Yield Membership				
C	High	2 or 3	U, S, or R	425
D	High	2 or 3	U, S, or R	425
Optimum Yield Membership				
B	High	2 or 3	U, S, or R	275
	Good	2 or 3	U	400
			S	300
			R	200
	High	4	U, S, or R	150
C	Good	2 or 3	U	400
			S	300
			R	200
	High	4	U, S, or R	150
D	Good	2 or 3	U	400
			S	300
			R	200
	High	4	U, S, or R	150
Low Yield Membership				
B	Good	4	U, S, or R	75
	Low	2, 3 or 4	U, S, or R	75
C	Good	4	U, S, or R	75
	Low	2, 3 or 4	U, S, or R	75
D	Good	4	U, S, or R	75
	Low	2, 3 or 4	U, S, or R	75

Width	Recreational Use Potential	Population	Stocking Intensity (trout/acre/year)
River Membership			
1S	High	U	185
		S	165
		R	150
	Good	U	115
		S	90
		R	80
	Low	U, S, or R	50
1L	High	U	125
		S	100
		R	85
	Good	U	75
		S	70
		R	55
	Low	U, S, or R	50

Appendix D. Summary of allocation and distribution options utilized for stream resource categories from 1994-2009.

Biomass	Recreational Use Potential	Width	Population	Stocking Intensity (trout/acre/year)
High Yield Membership				
C	High	2 or 3	M	380
D	High	2 or 3	M	380
E	High	2 or 3	M	380
C	High	2 or 3	U, S, or R	340
D	High	2 or 3	U, S, or R	340
E	High	2 or 3	U, S, or R	340
Optimum Yield Membership				
B	High	2 or 3	M, U, S, or R	155
	Good	2 or 3	M	340
		2 or 3	U	300
		2 or 3	S	200
		2 or 3	R	100
	High	4	M, U, S, or R	60
	Good	4	M, U, S, or R	60
C	Good	2 or 3	M	340
		2 or 3	U	300
		2 or 3	S	200
		2 or 3	R	100
	High	4	M, U, S, or R	60
	Good	4	M, U, S, or R	60
D	Good	2 or 3	M	340
		2 or 3	U	300
		2 or 3	S	200
		2 or 3	R	100
	High	4	M, U, S, or R	60
	Good	4	M, U, S, or R	60
E	Good	2 or 3	M	340
		2 or 3	U	300
		2 or 3	S	200
		2 or 3	R	100
	High	4	M, U, S, or R	60
	Good	4	M, U, S, or R	60

Biomass	Recreational Use Potential	Width	Population	Stocking Intensity (trout/acre/year)
Low Yield Membership				
B	Low	2, 3 or 4	M, U, S, or R	60
C	Low	2, 3 or 4	M, U, S, or R	60
D	Low	2, 3 or 4	M, U, S, or R	60
E	Low	2, 3 or 4	M, U, S, or R	60

Width	Recreational Use Potential	Population	Stocking Intensity (trout/acre/year)
River Membership			
1S	High	U	144
		S	128
		R	116
	Good	U	88
		S	68
		R	60
	Low	U, S, or R	36
1L	High	U	96
		S	76
		R	64
	Good	U	56
		S	52
		R	40
	Low	U, S, or R	32