

The Purpose of this wild trout management plan is to provide a suite of themes, goals, and strategies that will protect and conserve wild trout habitats and populations while maintaining and improving recreational fishing opportunities. Looking forward, the Fisheries Division will be more adaptive and responsive to wild trout conservation, protection, and restoration in order to meet the changing landscape and environmental conditions, and desires and preferences of Connecticut's residents. The plan focuses on a **two-pronged** approach which will focus on:

1) **Sustainability**

- Conserve, protect, and enhance wild trout populations while increasing awareness and educating the public of the benefit of these efforts.

2) **Recreational fishing**

- Promote responsible, sustainable, and equitable recreational fishing for wild trout.

This approach is supported by **four pillars**:

- 1) Conservation and restoration of wild trout habitat
- 2) Conservation and restoration of wild trout populations
- 3) Restoration of extirpated wild trout populations and expansion of wild trout populations
- 4) Education and dissemination of wild trout information

Introduction: This plan was developed by CT Department of Energy & Environmental Protection Fisheries staff and reviewed and approved by Bureau and Branch Leadership. As well, the plan was presented to the public where comment was solicited, reviewed, and incorporated into the final document. This is the first wild trout management plan developed by the State of Connecticut and will serve as a guide to better manage the State's wild trout resources into the future. The plan is intended to be malleable and updateable as new issues arise.

The Overarching Goal of this 10-year management plan is to conserve, protect, enhance, and restore wild trout populations (naturally produced in the environment) throughout the state while simultaneously providing sustainable, equitable recreational fishing opportunities. Participants at the 2019 trout and salmon public discussions placed a high value on wild trout populations and were supportive of the Fisheries Division investing additional resources to protect and improve habitat, restore populations where practical, and identify additional catch and release fishing opportunities¹.

Due to rapidly changing landscape (development) and environmental conditions (climate change), a comprehensive management strategy is required to protect and sustain Connecticut's wild trout populations. This strategy will include identifying cold water resources, protection of trout habitats and populations, restoration of degraded trout habitats through physical and chemical improvements, restoration of extirpated or declining populations, evaluation of DEEP's and private trout stocking practices, and education and outreach to promote protection and sustainable use of wild trout habitat and populations.

¹ [A Summary of Public Input Related to Trout and Salmon in Connecticut](#)

Brook Trout (*Salvelinus fontinalis*) and Atlantic Salmon (*Salmo salar*) are the only salmonid species native to Connecticut. During early colonial settlement in the 1700's, populations of both species experienced significant declines (salmon were extirpated) due to landscape modifications that included deforestation of mature forests and installation of dams for milling grain, irrigation, drinking water supply, and power. In the late 1800's, attempts were made to restore brook trout through large scale restocking efforts. Of these two native salmonids, only the Brook Trout has self-sustaining populations. The non-native Brown Trout (*Salmo trutta*) is the only other salmonid that has established self-sustaining populations within Connecticut's rivers and streams. Reproduction from feral Rainbow Trout (*Oncorhynchus mykiss*) has been documented in several locations and waters over time; however, to date, documentation of a self-sustaining population has been elusive, and currently none is known to exist.

Brown Trout tend to tolerate slightly warmer water temperatures, live longer, grow more quickly, and reach larger sizes than Brook Trout. These characteristics can be a benefit to anglers as self-sustaining populations can develop in many places which would otherwise require stocking to maintain a Brook Trout fishery. However, the same characteristics can cause Brown Trout to displace native, wild Brook Trout.

The [Statewide Stream Survey](#) (1988-1995) estimated wild trout were present in 4,000 miles of stream. Most of the waters were first [order streams](#) (2,800 miles), with the remainder in the second to third order range. Only 300 miles of stream covering 286 waters contained enough wild fish to support a significant amount of catch and release fishing. Within this subset, Brook Trout were found in 221 streams, Brown Trout in 22 streams, and a combination of the species in 43 streams. When it comes to supporting harvest-based angling, the number of streams with wild trout were 44 with Brook Trout, five (5) with Brown Trout, and 9 streams with both Brook and Brown Trout. Based on these data, the Fisheries Division developed Wild Trout Management Areas (Classes 1, 2, and 3) to support recreational fishing for wild trout on lands with public access (Hyatt et al. 1999).

A probabilistic re-sample of the stream survey project sites was conducted during the summers of 2018-2019. From this work it was determined that there has been a 36%² reduction in the number of locations where Brook Trout were present from the initial project (1988-1994). A second finding was that in locations where wild Brook Trout were present, the average densities significantly decreased from prior sampling.

The Fisheries Division's [Habitat Conservation and Enhancement Program](#) (HCE) has focused some efforts on projects to increase connectivity of wild trout populations through the modification of migration barriers, restoration of riparian and instream habitat, and requiring appropriate fish passage modifications. This has primarily been done through HCE staff review of various DEEP permit applications and requesting appropriate permit conditions to avoid impacts to wild trout and other fisheries resources.

Regionally, the identification and management of wild trout populations by state, federal, and non-governmental organizations is increasing as cumulative changes to the landscape and environment create conditions that are not favorable for native salmonids. In addition, there is an increasing interest

² [Eltz 2020, A Random Revisit of the Statewide Stream Survey Project: A Focus on Wild Brook Trout](#)

in the fishing community to have wild trout resources available. Work accomplished within the themes, goals, and strategies outlined below will expand upon previous work within the Coldwater Program³.

Pillar 1: Conservation/Preservation/Restoration of existing wild trout habitat.

The purpose of **Pillar 1** is to ensure habitat of sufficient quantity and quality to sustain wild trout populations in Connecticut. The goals and strategies within this pillar focus on identifying and mapping wild trout habitat; implementing polices, Best Management Practices (BMP), and regulations to protect existing habitat; and to restore degraded habitat.

Theme 1: Protection of wild trout habitat quality and quantity.

Goal 1: Identify and create an interactive map of existing wild trout habitats (physical habitat & water quality and quantity). Outcome: interactive map created and available to the public.

Objective: Create an interactive map of known wild trout habitat by 2026.

Strategy 1: Identify and map critical spawning, nursery, thermal and summer/winter refuge habitats for conservation.

Strategy 2: Identify and map critical groundwater inputs flowing into Connecticut's streams. Utilize State of Connecticut Superficial Aquifer Potential Map ([Surficial Aquifer Potential Map \(ct.gov\)](http://www.ct.gov/surficial)) for guidance.

Strategy 3: Incorporate wild trout habitat information from citizen science, public, and angler findings.

Goal 2: Implement measures to protect wild trout habitat and quality. Outcome: miles of streams or number of catchments (watersheds) protected.

Objective: Protect wild trout habitats in 10 number of streams by 2031.

Strategy 1: Utilize map created in Pillar 1/Goal 1 to prioritize habitat protection efforts.

Strategy 2: Permanently protect important riparian habitats along waters supporting wild trout, via purchase, easement, formal agreement, or other means. Utilize Connecticut's [Cold Water Stream Habitat Map \(ct.gov\)](http://www.ct.gov/coldwater) as guidance for prioritizing areas for protection.

Strategy 3: Negotiate with stakeholders in developing water use, flow and groundwater withdrawal agreements.

Strategy 4: Update setback (riparian zone) guidance to include slope adjacent to streams. [Inland Fisheries Division Riparian position Statement \(ct.gov\)](http://www.ct.gov/inland).

Strategy 5: Create incentives for the private landowners to maintain "healthy riparian zones". [whatisavegetatedriparianareapdf.pdf \(ct.gov\)](http://www.ct.gov/whatisavegetatedriparianareapdf.pdf)

³ Connecticut Brook Trout Conservation Strategy – unpublished draft (Barry 2017).

Strategy 6: Work with local governments to encourage sound land-use practices near waters of the state including techniques to compensate for increases in impervious cover.

Strategy 7: Participate in state and federal environmental regulatory processes to protect wild trout habitats.

Goal 3: Restore/enhance degraded wild trout habitat (work with municipalities, NGO, DOT, other DEEP programs, and Fisheries Habitat Conservation and Enhancement Program to restore and enhance degraded habitat). Outcome: miles of streams or number of catchments restored/enhanced.

Objective: Improve wild trout habitat (riparian, in-stream, and water quality and quantity) in 10 streams or catchments by 2031.

Strategy 1: Continue to collaborate with the Fisheries Division's Habitat Conservation and Enhancement Program to identify and prioritize areas for habitat work including those that are currently impacted or potentially threatened by:

- Thermal pollution
- Loss of woody debris
- Loss of riparian habitat
- Sedimentation
- Barriers (artificial and natural)
- Beaver activity

Strategy 2: Evaluate and identify where road salt usage may be detrimental to wild trout ([Evaluating chloride trends due to road-salt use and its impacts on water quality and aquatic organisms \(usgs.gov\)](https://www.usgs.gov/evaluating-chloride-trends-due-to-road-salt-use-and-its-impacts-on-water-quality-and-aquatic-organisms)).

Strategy 3: Utilize stream crossing guidelines developed by the CT Fisheries Division ([Stream Crossing Guidelines \(ct.gov\)](https://www.ct.gov/stream-crossing-guidelines)) to ensure unrestricted passage of wild trout and other aquatic organisms where appropriate. Data collected and entered into the North Atlantic Aquatic Connectivity Collaborative database can be utilized for prioritizing sites for improved road crossings.

Strategy 4: Support in-stream habitat restoration by NGO and municipalities in wild trout streams.

Strategy 5: Develop and implement Best Management Practices (BMP) that improve water quality and quantity.

Strategy 6: Continue to engage in DEEP permitting proceedings that effect groundwater withdrawals adjacent to wild trout streams.

Pillar 2: Conservation/Preservation of existing wild trout populations (Spatial Distribution, Population Densities, & Population Trends).

The purpose of **Pillar 2** is to conserve and protect existing wild trout populations by maintaining data on the spatial distribution of wild trout as well as the status of wild trout within stream reaches/catchments. Monitoring trends/changes in spatial distribution and population metrics over time will be important to shape policies and regulations that impact wild trout. Additional strategies to mitigate against disease, competition from non-native species, stocked fish, and harvest are suggested to conserve and protect wild trout. Finally, create or identify sustainable funding sources dedicated toward wild trout protection.

Theme 1: Determine current status of wild trout stocks.

Goal 1: Determine spatial distribution of wild trout. Outcome: miles of streams or presence/absence in catchments.

Objective: Monitor changes to the spatial distribution of wild trout over time.

Strategy 1: Create an interactive map to display existing wild trout data (including all sample locations to indicate positive or negative finding of wild trout). Incorporate wild trout population information from citizen science, and public and angler findings.

Strategy 2: Identify current gaps in spatial distribution data (where additional data are required).

Strategy 2: Monitor populations within selected stream sections known to harbor wild trout. Use prior Fisheries Division Data to identify and develop a schedule to re-sample these locations on a set and regular basis.

Strategy 3: Conduct fish surveys on stream sections expected (but not confirmed) to harbor wild trout. Utilize Eastern Brook Trout Joint Ventures (EBTJV) sub watersheds map ([EBTJV Sub Watersheds — EBTJV \(easternbrooktrout.org\)](#)) and occupancy modeling as a survey guide to help identify potential wild trout populations.

Strategy 4: Identify, evaluate, and utilize emerging genetic sampling techniques (eDNA) to help detect new wild trout populations.

Goal 2: Determine population status of wild trout. Outcome: densities of wild trout present and number of year classes present.

Objective: Update the population status of wild trout populations monitored on a set and regular basis. Build upon work conducted during the recent resample of wild Brook Trout sites ([A Random Revisit of the Statewide Stream Survey Project](#)).

Strategy 1: Conduct quantitative, standardized population assessments on known wild trout populations on a set and regular basis.

Strategy 2: Develop metrics for determining the resiliency of wild trout populations for future rankings to determine which streams or watersheds

provide the greatest opportunity for wild trout populations to persist into the future.

Strategy 3: Develop metrics for determining the vulnerability of wild trout populations for future rankings to determine which streams or watersheds are at risk for future wild trout population losses.

Strategy 4: Develop a metrics-based population sustainability index using variables that contribute to resiliency, vulnerability and connectivity.

Strategy 5: Evaluate variables that may be useful in predicting recruitment (from YOY to age 1) and develop a recruitment index.

Strategy 6: Identify and evaluate emerging techniques for assessing genetic integrity of wild trout populations. Build upon work conducted by Nathan and Vokoun ([BrookTroutGeneticsInterimReportpdf.pdf \(ct.gov\)](#)).

Theme 2: Protect existing wild trout stocks.

Goal 1: Protect wild trout populations from exotic and non-indigenous fishes, aquatic species (including vegetation), and diseases or parasites that may adversely impact wild trout populations or their habitat. Outcome: guidelines developed.

Objective: Develop guidelines concerning the deliberate introduction of non-native fish and aquatic organisms by 2026.

Strategy 1: Develop and implement policies, programs, and regulations that minimize the risk of introducing known non-native, aquatic species to waters containing wild trout.

Strategy 2: Minimize potential impacts of serious fish diseases upon cultured and wild trout stocks through continued management of a statewide fish health program.

Strategy 3: Continue to monitor for external parasites (e.g., gill lice) on salmonids that staff encounter during population sampling. Use the same protocol developed by Eltz 2020 ([Brook-Trout-Gill-Lice-Sampling-Findings_Final.pdf \(ct.gov\)](#)).

Strategy 4: Evaluate the use of sterile, triploid trout to minimize genetic risks (introgression) to nearby wild populations (brook or brown), and to minimize the risk of establishing competing populations (avoid displacement) where the use of cultured fish is justified to meet recreational needs.

Strategy 5: Evaluate the benefits and risks associated with ongoing early-life stage stocking programs (Brown Trout and Atlantic Salmon fry) and determine if such stockings affect wild trout populations.

Strategy 6: Evaluate current regulatory structure to determine if wild trout are sufficiently protected from the private stocking of waters designated for wild trout management.

Goal 2: Protect allopatric Brook Trout populations from non-native trout. Outcome: miles of streams or number of catchments protected.

Objective: Maintain the current number of allopatric Brook Trout populations in the State.

Strategy 1: Evaluate current catchable-size trout stocking practices and potential impact on wild Brook Trout populations (displacement). Manage small upland streams supporting naturally reproducing populations of wild Brook Trout as wild Brook Trout Waters (i.e. no stocking), unless specific evaluations indicate the stocking of cultured trout is justified. These waters often support moderate to dense populations of wild Brook Trout and are unlikely to attract high enough fishing pressure to warrant stocking.

Strategy 2: Stock sterile, triploid salmonids in locations where stocked trout and wild Brook Trout interact to reduce the potential for hybridization (introgression) of hatchery reared fish and wild fish where the use of cultured fish is justified to meet recreational needs.

Strategy 3: Increase the proportion of Rainbow Trout stocked into streams to reduce introgression between stocked and wild Brook Trout and displacement of wild Brook Trout by Brown Trout. No known self-sustaining wild populations of Rainbow Trout exists in the State of Connecticut.

Strategy 4: Minimize potential impacts of serious fish diseases and parasites upon cultured and wild Brook Trout stocks through continued management of a statewide fish health program.

Strategy 5: Evaluate the need for current ongoing early-life stage salmonid stocking programs (Brown Trout and Atlantic Salmon fry) in areas where conflicts with wild trout are expected and determine if there are negative effects on wild trout populations generated through these stockings.

Strategy 6: Investigate the need to revise or enact policies or laws (regulations or statutes) to restrict private stocking of waters designated for wild Brook Trout management.

Strategy 7: Educate the public concerning the negative effects that non-native trout can impose on allopatric Brook Trout populations.

Strategy 8: Maintain existing artificial barriers (dams and culverts) to isolate allopatric Brook Trout populations from non-native wild trout.

Theme 3: Promote and increase sustainable, equitable recreational fishing opportunities for wild trout.

Goal 1: Identify, promote, and increase recreational fishing opportunities for wild trout.
Outcome: miles of streams or number of catchments.

Objective: Increase access to 10 wild trout fisheries by 2031.

Strategy 1: Investigate appropriate wild trout regulations such as (but not limited to) seasonal closures on streams with populations of concern, minimum length requirements, daily creel limits, catch and release regulations, and bait or hook type restrictions to conserve/enhance trout populations level and size structure.

Strategy 2: Provide information on the status and location of sustainable wild trout resources.

Strategy 3: Maintain existing, enhance, and increase access to recreational fishing opportunities to waters supporting wild trout, via purchase, easement or formal agreements. Create new suite of Class 1 Wild Trout Management Areas (catch & release year-round fishing) in Connecticut State Forests.

Strategy 4: Improve infrastructure (parking, trails, signage, etc....) to gain or sustainably improve physical access to wild trout resources.

Strategy 5: Periodically conduct both angler surveys (including the use of trail cameras) on selected streams and utilize online surveys to better manage wild trout fisheries.

Strategy 6: Determine the number and economic impact of wild trout anglers in Connecticut.

Theme 4: Dedicated monies for wild trout resources.

Goal 1: Seek alternative funding sources dedicated towards wild trout resources.
Outcome: new funding stream identified or developed.

Objective: Identify or create a new funding stream dedicated for wild trout resources by 2026.

Strategy 1: Identify new funding sources to support wild trout (e.g. Conservation Reserve Enhancement Program (CREP), Wildlife Habitat Incentive Program (WHIP), Recovering America's Wildlife Act (RAWA), State Wildlife Grant (SWG) Program, CT Income Tax Check-off Fund, etc....)

Strategy 2: Implement a voluntary "aquatic habitat stamp" or "conservation stamp" to provide a mechanism for anglers and non-anglers to contribute to aquatic habitat and connectivity work.

Strategy 3: Educate the public on how purchasing a fishing license and gear benefits fisheries conservation.

Pillar 3: Restoration of extirpated and expansion of wild trout populations.

The purpose of **Pillar 3** is to restore or expand wild trout (brook or brown) in a responsible manner to suitable habitat where populations have been extirpated due to natural or human related causes. Strategies within this pillar focus on the establishment of responsible Standard Operating Procedures for transplanting wild trout from a donor population, identification of candidate vacant habitat, and to determine the appropriate species for restoration.

Theme 1: Develop Standard Operating Procedures (SOPs) for restoring Brook Trout to waters with suitable habitat where they have been extirpated and for expanding wild Brown Trout where habitat is no longer suitable for Brook Trout.

Goal 1: Develop SOPs for restoring and expanding wild trout populations. Outcome: SOPs developed.

Objective: Develop and implement SOPs to help guide restoration efforts where wild Brook Trout have become extirpated from suitable habitat and for expanding wild Brown Trout to habitat no longer suitable (degraded past the point of restoration) for wild Brook Trout by 2026.

Strategy 1: Review data on restoration/expansion practices utilized by Connecticut Fisheries staff in the past.

Strategy 2: Review literature for best restoration/expansion practices developed by other states or trout groups. Things to consider are numbers and year-classes needed to successfully restore/expand a population.

Theme 2: Expand the spatial distribution and/or increase density of wild trout.

Goal 1: Reintroduce/expand or improve wild Brook Trout populations. Outcome: miles of streams or number of catchments restored or improved.

Objective: Re-introduce/establish or improve densities of Brook Trout in 10 streams by 2031.

Strategy 1: Utilize habitat map created in Pillar 1/Goal 1, spatial distribution data, and population status data for prioritizing Brook Trout reintroductions and areas for improving population status (densities).

Strategy 2: Consider removing wild Brown Trout from sympatric brook and brown trout populations to create more favorable conditions for wild brooks; thereby, reducing the possibility of displacement by wild browns.

Strategy 3: Consider genetic rescue to improve population health or population status (density).

Goal 2: Expand the distribution of wild Brown Trout occurrence to habitat no longer suitable for wild Brook Trout. Outcome: miles of streams or number of catchments expanded.

Objective: Establish new Brown Trout populations in 10 streams by 2031.

Strategy 1: Identify streams outside of the historic range of wild Brook Trout or where attempts to re-establish wild Brook Trout have been unsuccessful.

Pillar 4: Education and dissemination of wild trout information.

The purpose of **Pillar 4** is to increase the awareness of wild trout populations to the residents of Connecticut. The presence of wild trout generally equates to environmental conditions that are highly favored by people. Linking the benefits many desire, to the occurrence of wild trout populations, will greatly facilitate the implementation and success of the pillars and strategies in this document.

Theme 1: Increase public knowledge of wild trout importance and angling opportunities.

Goal 1: Increase public knowledge of the ecological importance of wild trout and of sustainable wild trout angling opportunities. Outcome: number of informational/educational products or opportunities produced/created, and usage tracked.

Objective: Increase the number of citizens concerned for or angling for wild trout in Connecticut.

Strategy 1: Complete a "CT wild trout ArcGIS StoryMap" for general distribution.

Strategy 2: Disseminate information to the general public via various media outlets (web, news releases, brochures, CT Fishing Guide, etc.) stressing the importance of habitat to the conservation, preservation, restoration, and appreciation of wild trout populations in Connecticut, the public's responsibility and role toward protecting and enhancing this important resource, and potential threats of exotic species and disease/parasite introductions and expansions within Connecticut.

Strategy 3: Create an interactive map on the distribution and status of wild trout resources.

Strategy 4: Develop age-appropriate support materials for teachers on trout life history, distribution, habitat needs and threats.

Strategy 5: Increase private landowner participation in habitat improvement programs.

Strategy 6: Develop partnerships with NGO's, municipalities, land trusts, and other organizations that foster Brook Trout and coldwater conservation.

Strategy 7: Support partners' outreach programs that support wild trout

Strategy 8: Develop a detailed and comprehensive "Wild Connecticut Trout Fishing Guide"

Strategy 9: Support Trout in The Classroom and other programs (U.S. Forest Service youth snorkeling program)

Strategy 10: Develop a “Wild Trout Appreciation Day”, much like “World Fish Migration Day”. A “Wild Trout Appreciation Day” would raise local awareness to healthier trout habitat, cleaner waters, healthier trout populations, and restored river connections for wild trout and other aquatic species.

Strategy 11: Create an educational video characterizing the life histories of wild trout in Connecticut.

Strategy 12: Create a new freshwater class to the Connecticut State Fish and assign the Brook Trout as the Connecticut Freshwater State Fish. Retain the American Shad as the Connecticut Diadromous State Fish and assign a saltwater fish to a newly created Saltwater Connecticut State Fish.

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