

# **A Report to the Environment Committee of the Connecticut General Assembly Pursuant to Section 2 of Public Act 24-13 - An Act Concerning the Water Resources of the Upper Farmington River Valley**

**Recommended courses of action for the Department of Energy  
and Environmental Protection to manage the waters contained in  
Colebrook River Lake between the levels of seven hundred one feet  
and six hundred forty-one feet**



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Recommended courses of action for the Department of Energy and Environmental Protection (DEEP) to  
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hundred forty-one feet

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Commissioner  
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Front cover- the "tower" at Colebrook River Lake Dam is 243 feet tall. The vertical white line has the elevation in feet above sea level. The reservoir level in this photo, taken on October 17, 2017 is 641.1 feet. The elevation of 708 feet is considered by the United States Army Corps of Engineers (USACE) to be the normal or permanent pool for flood risk management. Photo by the DEEP Fisheries Division.

Back cover- the village of Riverton has hosted a fishing derby to kick off the spring trout fishing season for 75 years. The derby continues to draw large numbers of anglers seeking to win a custom-made Hitchcock Chair for catching the largest trout (photo by Bill Eppridge in Sports Illustrated, April 21, 1986. Vol. 64, No. 16. *Ready, Set, Fish!* by E.M. Swift).



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# EXECUTIVE SUMMARY

This report, prepared for the Connecticut General Assembly's Environment Committee, outlines recommendations for managing certain waters contained in Colebrook River Lake (CRL) per [Public Act 24-13](#). The primary goal of this report is to lay out a plan for optimal flow management on the Farmington River to balance needs for fish, wildlife, recreation, river health, flood mitigation, tourism, hydropower, and safety by utilizing established water storage zones, or “pools” within CRL and adhering to seasonal flow targets.

Per authority provided in Public Act 24-13, as well as a letter sent to Department of Energy and Environmental Protection (DEEP) by the Metropolitan District (MDC) (Appendix C), DEEP will make requests to release the water stored between elevations 644-701 feet in CRL to achieve the targeted releases shown in Table 1. The plan provides DEEP with options to modify the volume requested for release based on environmental conditions such as surface flows monitored by the [United States Geologic Survey](#) (USGS), trends in precipitation data as published by the [Connecticut Interagency Drought Workgroup](#), the pool elevation within CRL, and local/regional weather forecasts and conditions. It is important to note that all existing legal and statutory “rules” of the river would remain in place.

To determine the targeted release values in Table 1, this report considers the following factors:

**A. Fish and Wildlife/River Health:** Special focus on maintaining cold-water flows critical for trout survival and supporting a sustainable “[Survivor Strain](#)” brown trout program. Water stored in the Fisheries pools are to be used to manage for optimal habitat.

**B. Recreation and Tourism:** Adjusted flow levels to enhance recreational activities like fishing, tubing, and kayaking while ensuring economic benefits through tourism.

**C. Flood Risk Reduction:** The United States Army Corps of Engineers (USACE) maintains elevation levels to accommodate floodwaters, with strategic storage reallocations to minimize sudden, large-volume releases.

**D. Hydropower:** Continued support for energy generation at existing facilities without negatively affecting river operations.

**E. Safety:** Collaborative efforts to prevent excessively high flows and flooding downstream, considering unpredictable weather events. USACE decisions will always have to take priority.

**F. Stakeholder Engagement:** Extensive consultations with government bodies, Non-Governmental Organizations (NGOs), and community members to ensure all interests are represented.

**G. Challenges:** Lower-than-expected natural inflows and potential dry years pose sustainability issues, requiring flexible management and possibly reduced flow targets.

**Table 1.** Targeted release values by month from Colebrook River Lake Dam in Cubic Feet per Second (CFS).

| Month     | Targeted Release (CFS) |
|-----------|------------------------|
| January   | 125                    |
| February  | 125                    |
| March     | 150                    |
| April     | 150                    |
| May       | 200                    |
| June      | 250                    |
| July      | 250                    |
| August    | 250                    |
| September | 200                    |
| October   | 150                    |
| November  | 125                    |
| December  | 125                    |

This report reflects minor revisions based upon engagement with stakeholders.

## The three existing legal and statutory “rules” of the river:

1. MDC shall pass 50 cubic feet per second from Goodwin Dam, at all times.
2. MDC shall pass from Goodwin Dam all “natural” inflow up to 150 cubic feet per second.
3. MDC shall pass from Goodwin Dam all releases from the Otis Reservoir.



This detailed framework prioritizes ecological preservation, recreational benefits, and flood risk management while addressing legislative requirements and stakeholder expectations. The Farmington River is a great example of a flow-managed river that supports many uses. These uses all rely upon the availability of high-quality water impounded in both CRL and the West Branch Reservoir. Effectively balancing the requirements for various fish, wildlife, and human uses is critical for maintaining the river as we have known it for future generations.

***Note on pool elevations. All elevations (feet) in this report refer to Mean Sea Level (MSL) (National Geodetic Vertical Datum 1929) unless otherwise noted.***

*Public Act 24-13 requires DEEP to prepare a report with recommendations on management of the waters contained in the storage space in CRL between elevations 641 and 701 feet. However, elevation “641” should be elevation “644” feet as originally defined when the CRL Dam was constructed. The CT Department of Public Health approved the abandonment of water stored between elevations 644 and 701 feet in the “Amended Source Abandonment Permit” issued January 2024, and in its the letter to Commissioner Dykes, MDC only relinquished rights to control of the water stored between those elevations.*

*DEEP believes the pool between elevations 644 and 701 feet, approximately 10 billion gallons (BG), is sufficient to meet the legislative intent of optimizing flow on the Farmington River. After construction of the dam and reservoir were completed, revised operating procedures were developed and the boundary elevations of the various storage zones were adjusted by USACE to more accurately reflect the intended storage capacities of the individual storage zones. This is why some boundary elevations in this report, such as 701.2 feet vs 701.0 feet differ from the elevations in the original contract agreement.*



The unique ability to ameliorate summertime low flows and elevated water temperatures with high-quality cold water provides ideal conditions for optimizing brown trout growth and survival in the Farmington River. For over 30 years, the Fisheries Division has been managing the “Survivor” strain of brown trout in the Farmington River. Anglers from across the world travel to Connecticut to try and land their own “Survivor”. View a [short video](#) about this special fish. Photo courtesy DEEP Fisheries.



# INTRODUCTION AND BACKGROUND

The Farmington River has a rich history of use, including powering multiple industries and supplying ice and drinking water to residents of growing metropolitan areas. The Farmington River watershed is approximately 600 square miles (Figure 1). The Farmington River originates in Massachusetts and is the largest tributary to the Connecticut River in CT. The mainstem of the Farmington River begins in New Hartford, CT at the confluence of the East and West branches of the Farmington River. Much of the smaller East Branch watershed in Connecticut consists of the Barkhamsted Reservoir and Lake McDonough, both owned by the MDC. The Barkhamsted Reservoir is the primary source of drinking water for the greater Hartford area.

The West Branch watershed originates in Becket, MA and flows southeast to Connecticut through CRL, managed by the USACE, and then into West Branch Reservoir (AKA “Hogback” or “Goodwin” Reservoir), managed by MDC. In Otis, MA, Otis Reservoir drains into the West Branch Farmington River and can be a significant source of flow at times. The design and operation of CRL and West Branch Reservoir support exceptional cold-water habitat and a world-class year-round trout fishery in downstream reaches of the Farmington River. The river also supports recreation for many people who enjoy whitewater kayaking, canoeing, and tubing through “Satan’s Kingdom” and other parts of the river. The largest tributary to the West Branch Farmington River is the Still River/Sandy Brook. With a watershed comprising about 50 square miles, this tributary is a key contributor to water temperature and flow conditions in the West Branch of the Farmington River. It is important to note that the upstream watershed of the outflow from Colebrook River Lake Dam is mostly in Massachusetts and consists of 118 square miles. Precipitation in this watershed determines the amount of inflow to CRL.

## About Colebrook River Lake

In many USACE flood control areas water is only stored when necessary, during times of excessive precipitation. However, the construction of CRL Dam resulted in legislation, policies, and standard operating procedures that allocated several water storage zones based on elevation (herein referred to as “pools”) to various entities and help to manage releases from said pools for various purposes.

## Colebrook River Lake multi-purpose storage zones

The following is a listing of the different existing water storage zones (AKA pools) and elevations by controlling entity. Please refer to Appendix A1/A2 for schematics of these storage zones. The origin of the specified boundary elevations for the various storage zones (pools) was in the “*Contract between the USA and MDC for Water Storage Space in Colebrook River Reservoir -1965*”, which was revised in 1975. After construction of the dam and reservoir were completed, revised operating procedures were developed and the boundary elevations of the various storage zones were adjusted by USACE

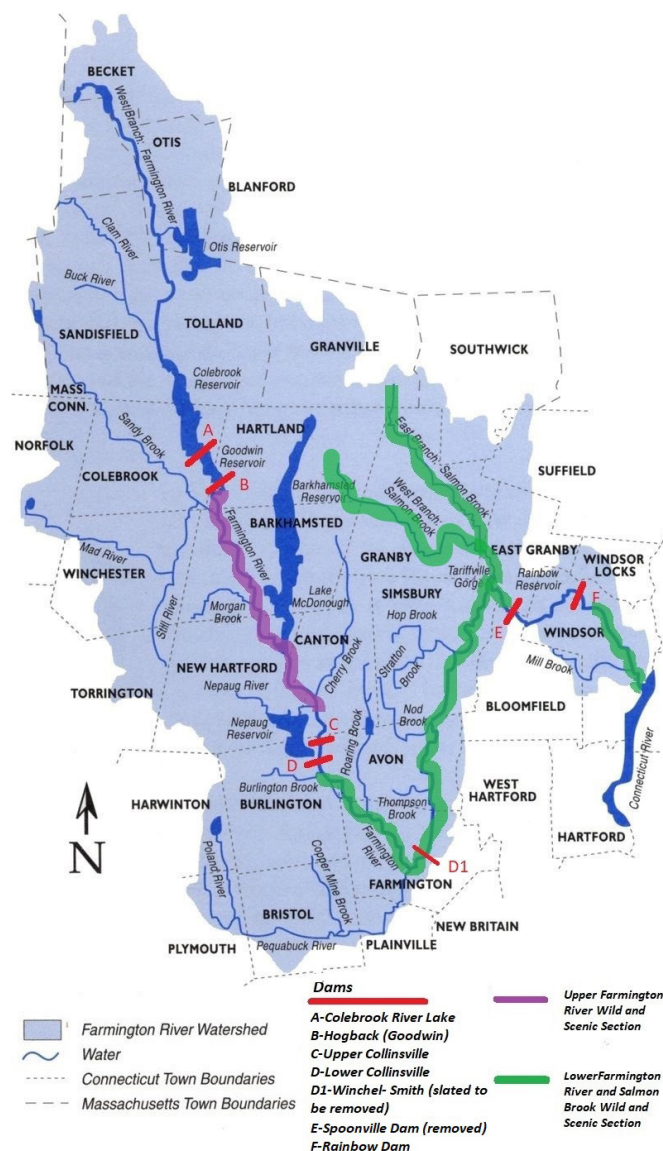


Figure 1. The Farmington River Watershed. Base map courtesy of the [Farmington River Watershed Association](#). Dams and boundaries of the Wild and Scenic sections added by CT DEEP. The water available within CRL is Dependant upon environmental conditions within a 118 square mile watershed (the land area upstream of “A” in the map).

to more accurately reflect the intended storage capacities of the individual storage zones. This is why some boundary elevations in this report, such as 701.2 feet vs 701.0 feet differ from the elevations in the original contract agreement. The information on storage zones was obtained from notes from a meeting on October 29, 1998 between MDC, the USACE, DEEP, Farmington River Power Company, and Stanley Works to discuss operational releases from CRL during low flows and from schematics provided by MDC (Appendix A1/A2).

**-Flood Control Zone (USACE): Elevations 708.0 to 761.0 feet.** Note that this zone contains the **“Spring Pool” AKA “Spring Shad” Fishery Storage (USACE/DEEP) 708.0 to 714.5 feet.** This 1.63 BG is retained until DEEP requests specific withdrawal or July 1, whichever comes first. The USACE must have CRL’s surface at elevation 708 or lower by July 1 until April 1 unless there is a need to store floodwater. USACE decisions regarding release or storage have priority.

**-Fall Trout Fishery Storage Zone (DEEP): Elevations 701.2 to 708.0 feet.** This 1.63 BG pool is exclusively allocated for improving fish habitat and is retained until the DEEP requests withdrawal.

**-Water Supply Zone (MDC): Elevations 598.0 to 701.2 feet.** The traditional use of this pool was to support riparian releases for the Farmington River Power Company and to hold for potential future water supply. MDC has relinquished its rights to the 10 BG “water supply zone” storage space located between elevations 644 to 701 feet per the letter to Commissioner Dykes (Appendix C). MDC retains its rights to the pre-existing 3.5 BG “water supply” zone storage space located between elevations 598 to 644 feet.

**-Sediment and Dead Storage Zone: Elevations 567.0 to 598.0 feet.** This zone, originally estimated to hold approximately 326 MG of MDC’s water, is expected to fill in over time through the accumulation of sediment behind Colebrook River Dam. MDC was given the equivalent 326 MG zone in CRL between elevations 641 feet and 644 feet known as the “replacement storage” zone to replace the MDC water lost due to the predicted accumulation of sediment over time.

## A long history of flow modification

The flow of water within the Farmington River has been altered since early colonial times through the construction of multiple dams along the mainstem river and tributaries. Some of the earliest dams, built with local old growth timber, were used to power gristmills, sawmills, and support manufacturing. Most of these dams no longer exist as they have been lost to major flood events. More recently, construction of the [Goodwin Dam](#) (AKA Hogback Dam) est. 1960, the [Colebrook River Lake Dam](#) est. 1969, and associated infrastructure have resulted in complex laws and policies to support natural resources, recreation, flood mitigation, hydropower, and manufacturing. ***It is important to note that the river conditions, as many have come to know it and use it during dry and warm summer months, rely completely on augmentation of flow via release of high-quality cold water stored within CRL (Figure 2) and MDC’s West Branch Reservoir.***



Colebrook River Lake and the control tower on October 17, 2017 when the surface elevation was 641.1 feet. Photo by the DEEP Fisheries Division.



### **Flow augmentation: recent background**

The MDC has been seeking release from financial obligations associated with its contract with the USACE that require MDC to pay a certain percentage of maintenance costs at CRL in exchange for the rights to the water storage space in CRL between a pool elevation of 644 feet and 701 feet, a volume of approximately 10 BG when full (Appendix A1/A2). As part of this effort to obtain release from contractual obligations, MDC functionally relinquished its rights to the 10 BG pool beginning in the spring of 2022, leading to noticeable deviations from past flow regimes in the West Branch and mainstem of the Farmington River.

During dry periods, especially during May-August, flows were lower than in past years as MDC was no longer making contractual riparian releases for the Farmington River Power Company from the 10 BG pool. Due to the lack of riparian releases, DEEP released 1.5 BG of the water from its Fisheries Pool in 2022 to maintain suitable conditions for fish and aquatic resources.

During wet periods in 2023, CRL was often at atypically high levels due to the lack of riparian releases, leading to more high volume releases over a short period of time by the USACE to return the lake to levels required for flood control purposes (at or below pool elevation 708 feet). These releases, determined essential for flood mitigation watershed-wide, produced downstream flows up to 1,000 to 2,000 cubic feet per second (CFS) during which time the river was unusable for most users. The deviations from “normal” flow patterns in 2022 caused anglers, other recreationists, and members of the public to contact elected officials, DEEP, MDC, and the USACE to express concern, especially during the summer of 2022 when flows in the river were consistently low and many members of the public perceived CRL as being “full”.

### **Flow augmentation: current situation**

Public Act 24-13 (Appendix B) was signed by Governor Lamont on May 14, 2024. Section 1 requires DEEP, in consultation with the MDC, to request that the USACE release or hold back water in CRL as needed to achieve an optimum flow in the Farmington River for such purposes as fish and wildlife, recreation, the river’s health, flood risk reduction, tourism, hydropower, and safety. Section 2 requires DEEP to submit a report on recommended courses of action for the state to manage waters contained within CRL between pool elevations of 644 feet to 701 feet (i.e., the pool relinquished by MDC) by January 1, 2025.

Concurrently, the MDC put forth an interim 2024 minimum flow regime for the period from May 1 through December 31 in a letter to DEEP Commissioner Dykes (Appendix C). This regime assumes DEEP will make requests to the USACE to release water from the 10 BG pool between 644 and 701 feet elevation in CRL in order to make up any difference between the recommended minimum flow value (Table 2) and obligatory releases by MDC (see call out box below). Note that these releases would be separate and distinct from any releases from the 1.63 BG Spring Fisheries Pool (708 to 714.5 feet) or the 1.63 BG Fall Fisheries Pool (701 to 708 feet) that DEEP has rights to and manages as needed exclusively for fisheries resources.



View of the West Branch Reservoir from the access road on top of the Colebrook River Lake Dam on October 17, 2017. Photo by the DEEP Fisheries Division.

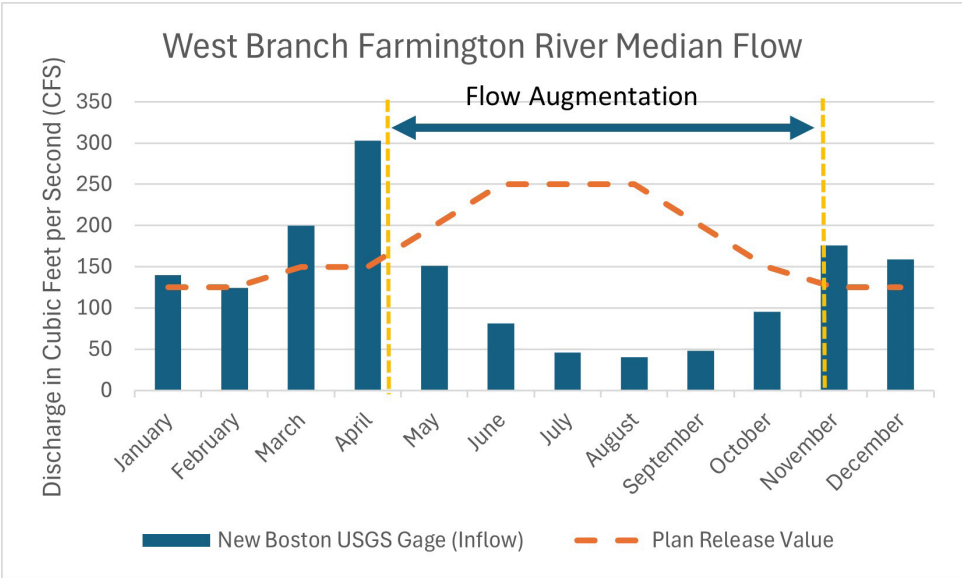


MDC indicated that their proposed 2024 minimum flow regime is loosely based on historical average augmentation release rates primarily resulting from riparian releases made by MDC at the request of the Farmington River Power Company (as noted previously, MDC is no longer making such riparian releases). The interim regime also reflects suggestions from DEEP Fisheries Division staff to allocate more water during fall months to provide adequate habitat for trout spawning and egg incubation.

This plan conforms to the framework for Farmington River flows developed in the [1992 Farmington River Instream Flow Study](#) that was prepared as part of the Wild and Scenic designation process and is also represented in the [2013 update of the Upper Farmington River Management Plan](#) (plan developed for management of the designated Wild and Scenic Upper Farmington River by the [Farmington River Coordinating Committee](#)).

**Table 2.** Targeted release values by month from Colebrook River Lake Dam (CFS). The targeted release value includes natural inflow up to 150 CFS (with a minimum of 50 CFS required of MDC at all times) and any release from the Otis Reservoir. Values for the months of September to March were modified or established by DEEP with stakeholder input.

| Month     | Targeted Release (CFS) |
|-----------|------------------------|
| January   | 125                    |
| February  | 125                    |
| March     | 150                    |
| April     | 150                    |
| May       | 200                    |
| June      | 250                    |
| July      | 250                    |
| August    | 250                    |
| September | 200                    |
| October   | 150                    |
| November  | 125                    |
| December  | 125                    |



**Figure 2.** A comparison of the long-term monthly median (N=111 years) inflow to Colebrook River Lake (New Boston USGS stream gage data shown as blue bars) and the targeted release values from the 10 BG storage pool of water (elevation 644 to 701 shown as an orange dashed line) by month. It is important to note that the targeted release values during the summer flow augmentation period (start and end dates indicated by vertical broken yellow lines) are much higher than natural inflow. In years when inflow is below the long-term median requested, release values will likely be lower than planned to ensure enough water is reserved to provide suitable flows and water temperatures for trout for the entirety of the year.

### Converting Cubic Feet Per Second to Gallons Per Day

This report contains values for discharge or flow in CFS, but also references volumes in gallons (often as billion gallons = BG). The conversion of discharge to gallons is often calculated to determine how much water is being released from the various storage zones (pools) and how long that release can be sustained. The formula used to calculate gallons per day = cubic feet per second x 7.481 gallons/cubic foot x 24 hours/day x 60 minutes/hour x 60 seconds/minute (or for simplicity, gallons per day = CFS x 0.6463). Appendix E shows conversion from CFS to (million gallons per day) MGD for 0 to 500 CFS in 5 CFS increments.



# MANAGEMENT OF RELEASES

DEEP evaluates inflow, CRL surface elevation (Appendix D), water temperature, and weather forecasts to inform decisions about release requests (Table 3). In particular, DEEP relies heavily upon the streamflow measured at United States Geological Survey on the West Branch Farmington River at New Boston, MA ([gage number 01185500](#)). Other gages like the West Branch Farmington River at Riverton, CT ([gage number 01186000](#)), and Still River at Robertsville (AKA Sandy Brook), CT ([gage number 01186500](#)) also aid in determining release values. DEEP will communicate any requested changes to prevailing releases to both the USACE and MDC via a weekly email request, usually on Friday (unless there is an immediate need).

Occasionally, there may be a need for a short-term temporary change in the flow regime to facilitate recreational, scientific, or infrastructure maintenance activities. Any request to modify the targeted release should be sent to DEEP at least two weeks in advance via email to [deep.inland.fisheries@ct.gov](mailto:deep.inland.fisheries@ct.gov) or by phone to 860-424-3474.

The USACE must maintain CRL, except in time of flood, at or below elevation 708 feet (the normal or permanent pool for flood risk management) from July 1 to April 1. In wet years, when water in CRL is approaching 708 feet and inflow values are much above normal between July 1 and April 1, DEEP recommends increasing monthly flow values (Table 3) in the West Branch Farmington River to reduce the need for the USACE to release large volumes of water over a short period of time.

## Data Used to Inform Decisions

| United States Geologic Survey Percentile Classes for Stream Flow Data |              |              |              |                   |
|---|--------------|--------------|--------------|-------------------|
| < 10th  | 10th to 24th | 25th to 75th | 76th to 90th | > 90th            |
| Much Below Normal   | Below Normal | Normal       | Above Normal | Much Above Normal |
|   |              |              |              |                   |

DEEP uses the categories of surface river flow (much above normal, above normal, normal, below normal, much below normal), as published by the [United States Geologic Survey](#) (USGS) for stream gages in New Boston, Riverton, and Robertsville to inform water release decisions.

| Connecticut Interagency Drought Workgroup Drought Classification |                  |                |                 |                     |
|--|------------------|----------------|-----------------|---------------------|
| Abnormally Dry   | Moderate Drought | Severe Drought | Extreme Drought | Exceptional Drought |
| D0   | D1               | D2             | D3              | D4                  |
|  |                  |                |                 |                     |

DEEP follows trends in precipitation data (abnormally dry, moderate drought, severe drought, extreme drought, and exceptional drought), as published by the [Connecticut Interagency Drought Workgroup](#), [Massachusetts Drought Management Task Force](#), and by the [pool elevation within Colebrook River Lake](#) to help inform water release decisions.

This process would mimic the natural hydrology in the West Branch of the Farmington River by providing more flow during periods of heavy precipitation. During these periods of higher than normal flow, the [Reservoir Control Center](#) program (part of the USACE) reviews river levels basin wide for the Connecticut River and makes appropriate releases to prevent downstream flooding and facilitate safety (potentially overriding release values in Table 2). As this program mitigates against flooding for the entire Connecticut River Basin, certain hydrologic conditions may dictate the timing and frequency of large volume releases or holdbacks (holdbacks may reduce flows to as low as 50 CFS) from CRL. USACE decisions to release or holdback water will always have to take priority.

This plan seeks to collaborate with the owners of each dam (USACE – Colebrook River Lake Dam and MDC – Goodwin (Hogback) Dam) to ensure their standard operating procedures and release plans meet the needs of the river. That said, there will be times of extreme precipitation and runoff in the watershed which cannot be contained by current infrastructure or where sudden large volume increases may be necessary to protect human life and property downstream. Information on USACE's current outflow guidance and ramping rates (see page 11) for Colebrook Dam can be found on the [USACE webpage](#).

**Table 3.** Goals and strategies to maintain optimal flow in the Farmington River based upon the amount of water available from precipitation. In “wet” years with above normal or much above normal precipitation, releases may not be needed from the 10 BG storage pool. DEEP will collaborate with the USACE and MDC to minimize extended periods of high flows in the river. During “dry” years with below normal or much below normal precipitation, releases may need to be reduced to ensure some water can be released throughout the entire “dry” period.

| Precipitation year to date and recent past | Overall Goal for Releases from the 10 BG pool  | Strategy for Release  |
|--|--|---|
| Much above normal                          | Mitigate against chronic elevated flows which could impact recreation, safety, and flood risk.     | Reduce / do not request releases if water exceeds elevation 708. Likely no need to augment as the USACE will likely need to release water temporarily held in the flood zone to drop to elevation 708. Collaborate with the USACE and MDC to minimize chronic high flows while concurrently mitigating downstream flooding. |
| Above normal                               |  |   |
| Normal                                     | Implement the proposed targeted release values. Augmentation of flows are needed in summer months. | In a normal year there will likely be adequate water to support the targeted releases.  |
| Below normal                               | Conserve water.  | Request a reduced volume of release. Follow targeted release volumes for key times to support recreation, like weekends and holidays.   |
| Much below normal                          |  | Request lower release values to support suboptimal habitat (95 CFS). Take action to protect fish and wildlife and river health.   |



The northern portion of Colebrook River Lake during the fall of 2016. The entire flow of the West Branch of the Farmington River (15.9 CFS at the New Boston gage on 10/21/16 at 11:00 am) can be seen flowing under the Harvey Mountain Bridge and into the remaining Colebrook River Lake pool (elevation of 634.9 feet). The deck of the bridge is exposed when the lake is at 646.5 feet.

Photo by the DEEP Fisheries Division



**The release volumes in this plan equate to a total annual release of 37.4 BG of water if implemented in full, which is more than three times the water that can be stored between elevations 644 and 701 feet in CRL.** During a dry year, the planned flow regime is unsustainable. In years with below normal or much below normal inflow and pool elevation indicates storage is below 50% capacity (approximately 673 feet), DEEP may make alterations to the minimum release values (Table 4). During below normal inflow or much below normal inflow the actual releases would need to be managed at a lower level (possibly much lower). Under these conditions, we recommend more sustainable values as described within the Farmington River Instream Flow Study.

**Table 4.** Colebrook River Lake surface elevations for July, August, September, and after September with associated release action. Elevation values were based on average weekly elevation data from 1993-2023 provided by the MDC (Appendix D). As the total volume of this plan equates to more than three times the volume of water that can be stored at one time, responsible management to prevent 100% use of the pool is advised during “dry” periods.

| Elevation/Date                                      | Action   |
|---|--|
| Above 690.0 feet prior to July 1 or                 | Proceed with targeted release values as described in Table 2   |
| 689.9 to 680.0 feet prior to August 1 or            |  |
| 679.9 to 665.0 feet prior to September 1 and after  |  |
| 689.9 to 680.0 feet prior to July 1 or              | Reduce targeted release values in Table 2 depending on environmental conditions at the time and rate of water use by the targeted releases |
| 679.9 to 670.0 feet prior to August 1 or            |  |
| 664.9 to 655.0 feet prior to September 1 and after  |  |
| Less than 680.0 feet prior to July 1 or             | Greatly reduce targeted release values in Table 2 to the suboptimal scenario from the Farmington River Instream Flow Study (95 CFS)        |
| Less than 670.0 feet prior to August 1 or           |  |
| Less than 655.0 feet prior to September 1 and after |  |

## National Wild and Scenic Designations

Much of the watershed has been designated as a [National Wild and Scenic River](#). The upper section (14 miles) from the confluence with the Nepaug River upstream to the West Branch Reservoir was established in 1994 and is overseen by the [Farmington River Coordinating Committee](#). The lower section (37 miles) and the Salmon Brook Watershed (26 miles), established in 2019, is overseen by the [Lower Farmington River & Salmon Brook Wild and Scenic River Committee](#). The lower Wild and Scenic section begins 0.2 miles below the lower Collinsville Dam and ends at the confluence with the Connecticut River (*excluding a section from the former Spoonville Dam downstream to one half mile below the Rainbow Dam*).



Kiosks like this one bordering the river educate visitors and river users about the history of the river and the benefits it provides. Photo by the DEEP Fisheries Division.

# ACHIEVING OPTIMAL FLOWS

## 1. FISH AND WILDLIFE

The Farmington River is unique as it is the largest “tailwater” fishery in Connecticut. The design and operation of the CRL and Goodwin (Hogback) Dams result in the ability to augment flows during typical low flow summer months with very cold (approximately 55 °F) and well-oxygenated water, providing beneficial summertime conditions for trout. Additionally, the warmer than natural water temperatures (provided by the bottom releases) in fall and early spring create an extended growing season for trout. The Farmington River Instream Flow Study defines the optimal flow to support fishing as a range of 150 to 350 CFS. Angler surveys, conducted by the DEEP Fisheries Division, indicate conditions are favorable for fishing when flows below the Still River are 150-400 CFS. Without the ability to artificially augment natural flows to achieve these discharge rates, the fisheries of the West Branch of the Farmington River would be dramatically different. The availability of cold-water releases from upriver dams allows the Fisheries Division to manage a world-class trout fishery in the Farmington River. The Fisheries Division’s unique “[Survivor](#)” [strain brown trout](#)” program uses a combination of wild brown trout and hatchery-reared holdover brown trout that have successfully lived in the river for at least a year as spawning stock to produce a strain of trout uniquely adapted to the Farmington River.

In addition to the unique water quality and quantity found in the Farmington River, the lands within the watershed have remained largely undeveloped and forested. The large block of connected forest, wetlands, lakes, ponds, and rivers within the Farmington River watershed provide habitat for a diverse range of amphibians, reptiles, birds, mammals, and invertebrates.

**Water temperature and fish habitat:** Water temperature is critical to maintain the world class trout fishery in the Farmington River. Occasionally, a combination of low precipitation and excessively warm air temperatures (especially warm overnight temperatures) will result in elevated water temperatures. The DEEP Fisheries Division monitors environmental conditions within the Farmington River and releases water from DEEP’s fisheries pools to mitigate detrimental conditions for trout. Occasionally, holdbacks or releases, are required to optimize/protect spawning habitat, egg incubation, and fry development.

### ***Fisheries Pools in Colebrook River Lake***

The DEEP controls two 1.6 BG “pools” of water storage space in CRL allocated exclusively for fisheries use (Appendix A1/A2). The “**fall pool**” is a stand-alone storage space located between elevation 701 to 708 feet. This water is for fisheries use only and is released at DEEP’s discretion.

The “**spring pool**” is located within the flood control storage space owned and controlled by the USACE (elevation 708 to 714.5 feet), which was established during the construction of the dam to increase the amount of water to support diadromous fish runs, especially American shad. However, by July 1 of each year, to prepare for potential excessive inflow (tropical storms, hurricanes, etc.) the USACE must ensure adequate capacity for flood storage by keeping the water at elevation 708 feet or lower (except when absorbing flood water). The spring pool, if not used by July 1, has traditionally been allowed to “float” on top of the MDC’s 10 BG pool for use by the DEEP later in the calendar year. This plan envisions relocating the spring pool (1.6 BG) to be within the 10 BG storage space. As such, any water above elevation 708 will be at the discretion of the USACE year-round.





**Ramping Rates:** This term is often used when referencing hydroelectric power generation operations at a dam. Ramping rate is the rate of change of streamflow when a diversion is started, stopped, or fluctuated. Ramping rates are a concern for fish protection because a rapid decrease in flow can strand fish, as well as dewater redds, or fish eggs. Information on USACE’s current outflow guidance and ramping rates for Colebrook Dam can be found on the [USACE webpage](#).

**Table 5.** Recommended actions to maintain optimal flow in the Farmington River for **“Fish and Wildlife”** based upon the amount of water available as a result of precipitation. Utilize the 10 BG storage pool in conjunction with DEEP’s two fisheries pools to maintain optimal flows for fish and wildlife, while considering impact of releases on other stakeholder categories and adjusting as practical. In “wet” years with above normal or much above normal precipitation, releases may not be needed from the 10 BG storage pool. DEEP will collaborate with the USACE and MDC to mitigate against chronic high flows in the river. Information on USACE’s current outflow guidance and ramping rates for Colebrook Dam can be found on the [USACE webpage](#). During “dry” years with below normal or much below normal precipitation, releases may need to be lowered to ensure some water can be released throughout the entirety of the “dry” period.

| Precipitation<br>Much Below Normal   | Precipitation<br>Below Normal   | Precipitation<br>Normal            | Precipitation<br>Above Normal   | Precipitation<br>Much Above Normal   |
|--|---|------------------------------------|---|--|
| Adjust releases to be much lower than Table 2 monthly target values. Augment flows, as possible, to ensure adequate water temperature for trout, spawning habitat, and/or egg incubation (sub optimal habitat flow of 95 CFS). | Adjust releases to be lower than Table 2 monthly target values as practical, augment flows to ensure adequate water temperature for trout, spawning habitat, and/or egg incubation. Adjust releases to be lower than monthly values (optimal habitat value of 150 CFS). | Use Table 2 monthly target values. | Adjust releases to be higher than Table 2 monthly target values as practical, adjust timing of releases to facilitate fishing and other recreation. | Adjust releases to be higher than Table 2 monthly target values as practical, occasional large volume releases to mitigate against flooding. |



The habitat provided by the Farmington River supports a diverse biological community. Photos by the DEEP Fisheries Division.



## 2. RECREATION

As the Farmington River drops in elevation from West Branch Reservoir to Rainbow Reservoir, one can float or paddle through a variety of conditions. Alternating sections of rapids and long slow pools offer a varied combination of experiences. The Farmington River also has several sections in which white water rapids reach world-class conditions during elevated flows (Satan's Kingdom and Tarriffville Gorge). Optimal flow conditions for tubing, canoeing, paddleboarding, and kayaking are varied and can occur at some frequency during normal, above normal, and much above normal flow conditions. As precipitation and runoff wane, flow augmentation is required to support these activities. When pool elevations indicate that storage is less than 50% capacity, resulting from prolonged below normal or much below normal flow conditions, the targeted releases will not be sufficient to provide sustained periods of elevated flows desirable for some recreational activities.

**Table 6.** Actions to maintain optimal flow in the Farmington River for **“Recreation”** based upon the amount of water available as a result of precipitation. In “wet” years with above normal or much above normal precipitation, releases may not be needed from the 10 BG storage pool. DEEP will collaborate with the USACE and MDC to mitigate against chronic high flows in the river. During “dry” years with below normal or much below normal precipitation, releases may need to be lowered to ensure some water can be released throughout the entirety of the “dry” period.

| Precipitation<br>Much Below Normal   | Precipitation<br>Below Normal  | Precipitation<br>Normal  | Precipitation<br>Above Normal   | Precipitation<br>Much Above Normal   |
|--|--|--|---|--|
| Adjust releases to be much lower than Table 2 monthly target values. Augment flows to facilitate fishing, boating, and tubing on important weekends/holidays during traditional use if possible. | Adjust flows to be lower than Table 2 monthly target values as practical. Augment flows to facilitate fishing, boating, and tubing on weekends/holidays during traditional use if needed and the volume of water will be sustainable if conditions degrade into “much below normal”. | Use Table 2 monthly target values. Support requests for changes to monthly values for special events on as needed basis. | Adjust releases to be higher than Table 2 monthly target values as practical, adjust timing of releases to facilitate fishing, boating, and tubing on weekends/holidays during traditional use. | Adjust releases to be higher than Table 2 monthly target values as practical, occasional large volume releases to mitigate against flooding, adjust timing of releases to facilitate fishing, boating, and tubing on weekends/holidays during traditional use. |



Paddling down river in a canoe or kayak is a great way to experience the Wild and Scenic River. The late David P. Sinish (red and yellow kayak). Photo by the Farmington River Watershed Association.





Tubing is supported through a vendor located at Satan's Kingdom. The cold water and augmented flows make this activity popular even when other rivers do not have enough flow. Photo by the Farmington River Watershed Association.

**Table 7.** Flow values for recreational activities from the [Farmington River Instream Flow Study](#). Preliminary conclusions on the minimum and optimum flow levels for the primary recreational uses were developed by integrating results of the surveys and field evaluations. Those findings were presented to representatives of the major user groups and were revised based on their input. Other local experts were also contacted for their opinions on critical issues such as how different flows affect safety considerations. Note that the values below are for flow just below the confluence with the Still River and not for the West Branch Reservoir release itself.

| Activity         | Minimum Flow (CFS) | Optimal Range (CFS) |
|------------------|--------------------|---------------------|
| Tubing           | 100<br>150*        | 200-980<br>250-350* |
| Canoeing         | 250                | 360-980             |
| Kayaking         | 250                | 540-980             |
| Paddleboarding** | 50                 | 100-700             |
| Fishing          | 100                | 150-350             |
| Scenic Enjoyment | N/A                | 240-540             |

\*Values provided by Farmington River Tubing. Operation of the concession is suspended at values 100 CFS or less or 1000 CFS or more.

\*\*Please note that at the time of the 1992 Instream Flow Study, paddleboarding was not a popular recreational activity. The values for paddleboarding were estimated by DEEP for this report and as paddleboarding primarily occurs on the impoundment in Collinsville, most flows are likely within an optimal range.



The river has world-class white water when flows are too high for many other recreational uses.

Photo by the Farmington River Watershed Association

### 3. THE RIVER'S HEALTH

As flow in the Farmington River is highly managed, a mandate to ensure “river health” can be interpreted as ensuring that management of the river continues to support the diverse flora and fauna that have come to call the watershed home. This plan does not deviate from management that has occurred over the past several decades and as such will continue to support fish and wildlife in the Farmington River as we know it.

High flow events are part of the ecology of a natural river and result in important natural processes such as redistribution of stream bottom substrates, channel reconfiguration, and deposition of large wood material that provides important in-water habitat. In regulated rivers like the Farmington River, high flow events only result when the water levels exceed the spillway height or purposeful releases are made through discharge infrastructure. Fortunately for the Farmington River, the Still River and Sandy Brook are not fully regulated and can offer natural high flows as they occur.



An angler enjoying an afternoon fishing at the confluence of the Still River and West Branch of the Farmington River. Summer fog is common along the river as the cold water release interacts with warmer and humid air. Photo by the DEEP Fisheries Division

**Table 8.** Actions to maintain optimal flow in the Farmington River for “*The River’s Health*” based upon the amount of water available as a result of precipitation. In “wet” years with above normal or much above normal precipitation, releases may not be needed from the 10 BG storage pool. DEEP will collaborate with the USACE and MDC to mitigate against chronic high flows in the river. Information on USACE’s current outflow guidance and ramping rates for Colebrook Dam can be found on the [USACE webpage](#). During “dry” years with below normal or much below normal precipitation, releases may need to be lowered to ensure some water can be released throughout the entirety of the “dry” period.

| Precipitation<br>Much Below Normal   | Precipitation<br>Below Normal   | Precipitation<br>Normal            | Precipitation<br>Above Normal   | Precipitation<br>Much Above Normal   |
|--|---|------------------------------------|---|--|
| Adjust releases to be much lower than Table 2 monthly target values, likely to suboptimal habitat level of 95 CFS. Augment flows, when needed, to mitigate against elevated water temperature. | Adjust releases to be lower than Table 2 monthly target values, likely to optimal habitat level of 150 CFS. Augment flows, when needed, to mitigate against elevated water temperature. | Use Table 2 monthly target values. | Adjust releases to be higher than Table 2 monthly target values as practical. | Adjust releases to be higher than Table 2 monthly target values as practical, occasional large volume releases to mitigate against flooding. |



## 4. FLOOD RISK REDUCTION

Following catastrophic flooding in August of 1955, a network of flood control dams was constructed by the USACE across the state. In the Farmington River watershed, these include dams on the Mad River, Sucker Brook, and the West Branch of the Farmington River. The primary function of CRL Dam is flood mitigation. The facility is one of many in the Connecticut River watershed that are operated in sync to manage flows from the headwaters to the river's mouth in Old Saybrook. To be able to absorb any major runoff from large scale precipitation events, USACE is required to keep the water behind the dam below elevation 708 feet from July 1 through April 1. The "Spring Fisheries Pool" is held temporarily by the USACE from elevation 708 to 714.5 feet until July 1. Any large releases of water over a short duration may occur after storage from a large precipitation event where water is above the 708 elevation level. The standard operating procedure for [USACE Reservoir Control Center](#) (RCC) is to get back to 100% capacity for flood storage (back to 708) as quickly as possible, within USACE standards for release, so the USACE can best handle the next precipitation event. DEEP envisions relocating the spring pool (1.6 BG) within the 10 BG storage space. As such, any water above elevation 708 feet would be managed at the discretion of the USACE year-round. This small change in operation will likely reduce the number of short duration large volume water releases needed by the USACE to remain at or below elevation 708.

**Table 9.** Actions to maintain optimal flow in the Farmington River for "**Flood Risk Reduction**" based upon the amount of water available as a result of precipitation. In "wet" years with above normal or much above normal precipitation, releases may not be needed from the 10 BG storage pool. DEEP will collaborate with the USACE and MDC to mitigate against chronic high flows in the river. Information on USACE's current outflow guidance and ramping rates for Colebrook Dam can be found on the [USACE webpage](#). During "dry" years with below normal or much below normal precipitation, releases may need to be lowered to ensure some water can be released throughout the entirety of the "dry" period.

| Precipitation<br>Much Below Normal                 | Precipitation<br>Below Normal                      | Precipitation<br>Normal                  | Precipitation<br>Above Normal  | Precipitation<br>Much Above Normal   |
|--|--|--|--|--|
| N/A for releases;<br>capture any excess<br>inflow. | N/A for releases;<br>capture any<br>excess inflow. | Use Table 2<br>monthly target<br>values. | Adjust releases to<br>be higher than Table<br>2 monthly target<br>values as practical.<br>Collaborate with the<br>USACE and MDC to<br>keep CRL at or below<br>elevation 708 feet.<br>USACE decisions to<br>release or holdback<br>water have priority. | Adjust releases to be<br>much higher than Table<br>2 monthly target values<br>as practical, occasional<br>large volume releases to<br>mitigate against flooding.<br>When pool elevation<br>exceeds elevations 708 feet<br>the USACE takes on full<br>management of releases.<br>Additionally, if there are<br>flooding concerns for the<br>Connecticut River basin,<br>the USACE will step in to<br>modify releases for flood<br>control purposes in the<br>basin. USACE decisions to<br>release or holdback water<br>have priority. |



Occasionally, during periods of sustained high precipitation, water spills over the Goodwin Dam. A key function of the Colebrook River Dam (far background in photo) is to mitigate against flooding in the watershed. Photo by the Farmington River Watershed Association.

## 5. TOURISM

Connecticut has many attributes attractive to a wide variety of vacationers and stay-cationers. The Farmington River and surrounding public lands are one such attraction. This plan supports tourism through maintaining river flows as they have been for decades. We do not envision any negative impact to tourism resulting from this plan.



With folks traveling from far and wide to fish the Farmington (over 100,000 hours of fishing effort annually) or to float the many miles of wild and scenic river, the Farmington River is a destination for many. The draw for recreation, wildlife watching, hiking nearby state forest trails, and of course fishing, brings millions of dollars annually to the State of Connecticut. Photo by the DEEP Fisheries Division (top left); by Raymond Lass (top right); by the Farmington River Watershed Association (bottom).



## 6. HYDROPOWER

Currently, there are three facilities capable of using the river to generate power: Goodwin Dam (AKA Hogback), Upper Collinsville Dam, and Rainbow Dam (Figure 1).

[Goodwin Hydroelectric Project](#) (FERC Project P-4297) is a 3.2-megawatt (MW) hydropower facility with two Francis turbines owned and operated by the MDC that became operational in 1986. The facility operates under a Federal Energy Regulatory Commission (FERC) exemption in run-of-river mode with an operational range of 100 to 400 CFS. No fish passage facilities are present at the Goodwin Hydroelectric Project. (MDC stocks the West Branch Reservoir annually with trout).

[Upper Collinsville Project](#) (P-10822) is a 1 MW hydropower facility with a single vertical Kaplan turbine operated by the Town of Canton that became operational in 2023. The facility operates under a FERC license in run-of-river mode with an operational range of 277 to 636 CFS. The Town of Canton constructed and operates upstream and downstream fish passage facilities designed and currently being evaluated in consultation with DEEP, United States Fish and Wildlife Service (USFWS), and National Ocean and Atmospheric Administration (NOAA).

Rainbow Dam, the most downstream dam on the Farmington River, is an 8.2 MW hydropower facility with two vertical Francis turbines owned and operated by Stanley Black and Decker (SBD) subsidiary Farmington River Power Company that became operational in 1925. SBD has a longstanding riparian flow agreement with the MDC that allows SBD to request upstream releases necessary to operate their hydropower works within certain limits. The turbines at this facility are aging. Current upstream and downstream fish passage is ineffective, causing the fish ladder to be closed. Rainbow Dam is the subject of significant advocacy from members of the environmental community due to the negative impacts to fish passage, streamflow, and toxic algal blooms in Rainbow Reservoir.

The flows proposed in this plan may impact hydro operations differently, depending on where in the watershed the facilities listed above are located. However, the targeted flows outlined in this plan will provide consistency and predictability that hydro facilities can factor into their plans for water management and energy generation.



What is old is also new. A view looking downstream from the Route 179 bridge in Collinsville, CT. On the left is the "[Collins Company](#)," established in 1826 to manufacture edge-based tools like axes and scythes. The stone dams still visible today were built in 1867 to increase the amount of water available to power machinery. To the right is the newly operational [upper Collinsville Hydropower facility](#) operated by the town of Canton. Photo by DEEP Fisheries Division.

## 7. SAFETY

Safety will be managed on the Farmington River primarily by preventing excessively high flows, if possible. For the purpose of this report, under very high flow conditions resulting from excessive amounts of precipitation over a short period of time (flash flooding) or from large sustained storms like hurricanes, releases would not be requested from water within the 10 BG pool. Additionally, if there are flooding concerns for the Connecticut River basin, the USACE will step in to modify releases for flood control purposes. USACE decisions to release or holdback water have priority over other uses. Information on USACE's current outflow guidance and ramping rates for Colebrook Dam can be found on the [USACE webpage](#).

The DEEP will work collaboratively with the USACE to use Colebrook River Dam as well as other flood control dams within the watershed to protect against loss of life and/or property. When and where possible, excessive runoff can be retained (to a point) to prevent catastrophic flooding. The Farmington River has a network of medium to large tributaries, which do not have any mechanism to control excessive runoff, so in some cases even though water is being retained upstream, mainstem flows below the Still River could be extremely high and dangerous.

**Table 10.** Actions to maintain optimal flow in the Farmington River for “**Safety**” based upon the amount of water available as a result of precipitation. In “wet” years with above normal or much above normal precipitation, releases may not be needed from the 10 BG storage pool. DEEP will collaborate with the USACE and MDC to mitigate against chronic high flows in the river. Information on USACE's current outflow guidance and ramping rates for Colebrook Dam can be found on the [USACE webpage](#). During “dry” years with below normal or much below normal precipitation, releases may need to be lowered to ensure some water can be released throughout the entirety of the “dry” period.

| Precipitation<br>Much Below Normal           | Precipitation<br>Below Normal                | Precipitation<br>Normal                | Precipitation<br>Above Normal   | Precipitation<br>Much Above Normal   |
|--|--|--|---|--|
| N/A for releases; capture any excess inflow. | N/A for releases; capture any excess inflow. | Use Table 2 for monthly target values. | Adjust releases to be higher than Table 2 monthly target values as practical. Maintain elevation of 708 feet. | Adjust releases to be higher than Table 2 monthly target values as practical, occasional large volume releases to mitigate against flooding. When the pool exceeds elevation 708 feet the USACE takes on full management of release values. Additionally, if there are flooding concerns for the Connecticut River basin, the USACE will step in to modify releases for flood control purposes in the basin. |



The Farmington River means so much to so many. Photo by CT DEEP Fisheries Division



## CONCLUSION

This plan was developed by the DEEP in consultation with the MDC, the USACE, NGOs, and other stakeholders to fulfill the requirements set forth in Section 2 of Public Act 24-13. The Farmington River has a long history of supporting a variety of natural resources and recreational activities. The world class brown trout fishery, developed by the DEEP Fisheries Division, is a direct result of coordinated management of high-quality cold water stored within CRL and the West Branch Reservoir when natural conditions would otherwise be unfavorable for trout survival.

This plan describes how DEEP intends to manage and request releases (or holdbacks) from water between elevations 644 and 701 feet in CRL to achieve an optimum flow for the varied purposes delineated in Section 2 of Public Act 24-13.



A cool fall morning on the river. Photo - Tom Cameron



# STAKEHOLDER ENGAGEMENT AND ACKNOWLEDGMENTS

## Acknowledgments

DEEP would like to acknowledge the valuable input received from Tim Anthony and Jim Randazzo (MDC), Matt Coleman, Peter Upsham, and John Haluchack (USACE). To the Farmington River Watershed Association for providing photos contained in this report.

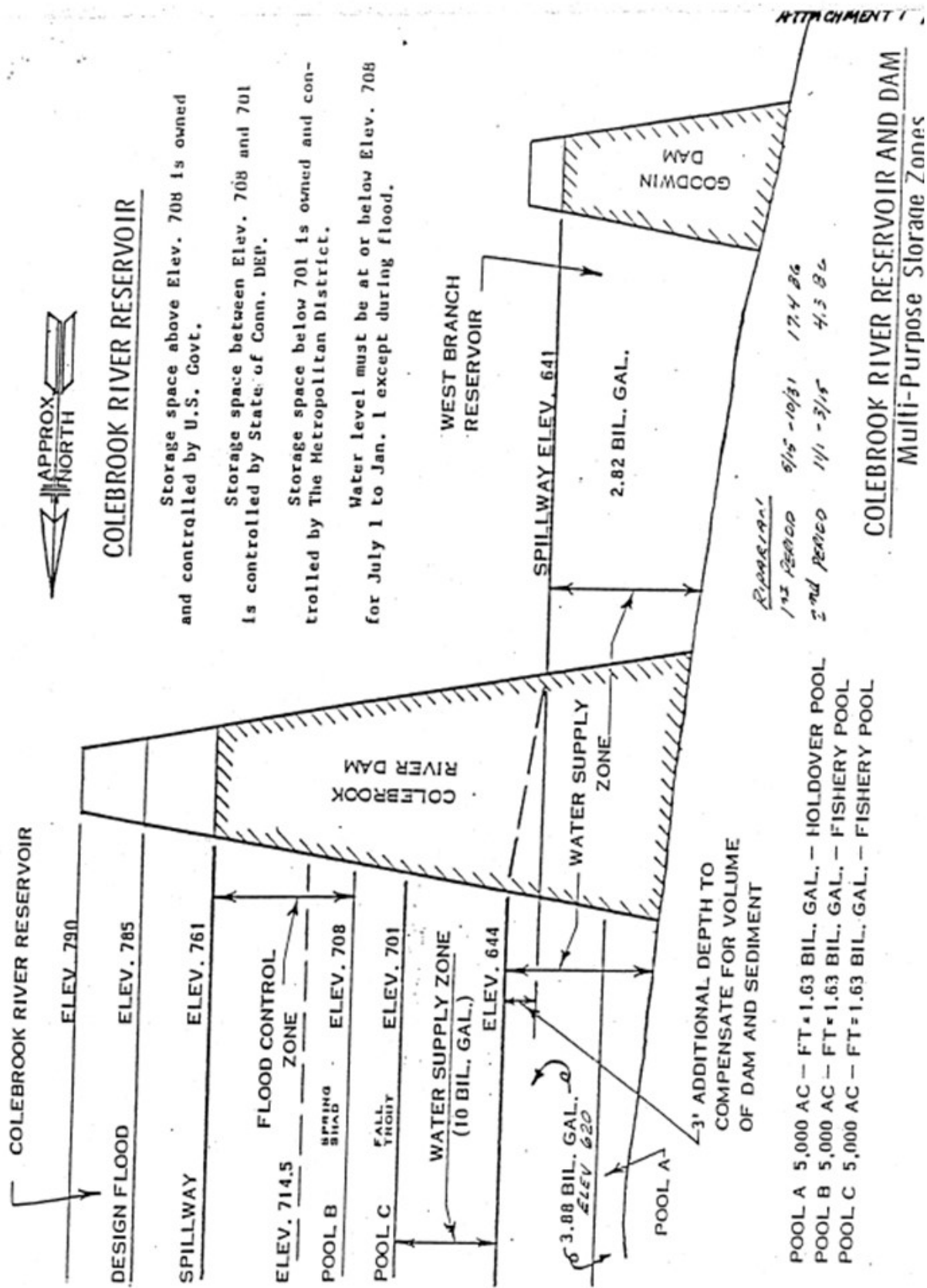
## **The DEEP executed the following to maximize the number of people to review and provide comment (Appendix F) on this report.**

1. Published a web page containing link to the draft plan, a link to provide comment, and a link to register for the public informational session.
2. Posted information about the plan and provided the web page link on the CT Fish and Wildlife Facebook and Instagram accounts.
3. Highlighted the report and solicited comments in the January 2025 edition of the e-newsletter CT Fishin' Tips.
4. Presented the draft plan to the Farmington Valley Chapter of Trout Unlimited at their December 2024 meeting (by invitation).
2. Facilitated a virtual informational session held on January 22, 2025 via ZOOM (21 attended).
6. Emailed an invitation to review, provide comment, and register for the informational session to (sorted alphabetically):

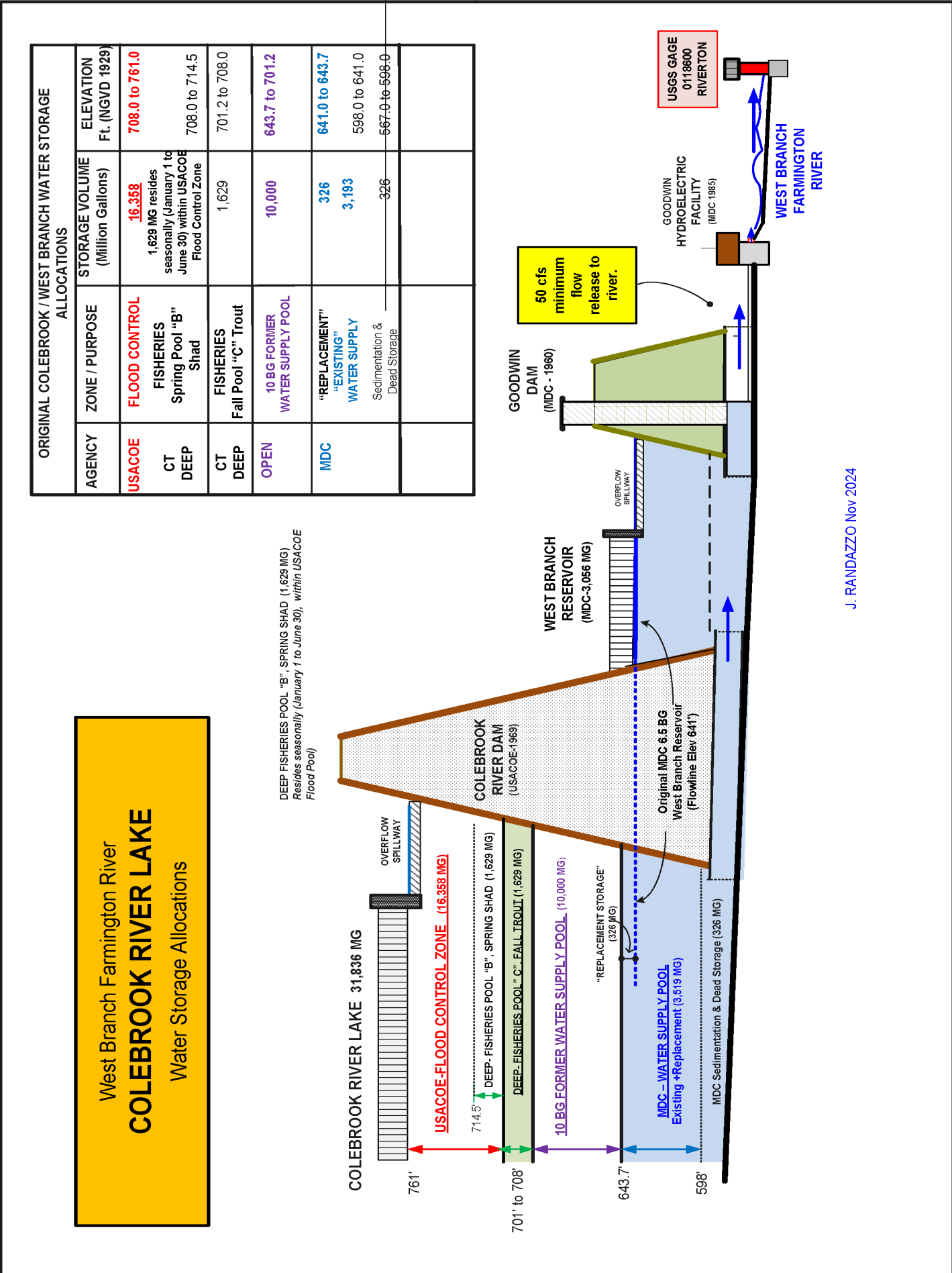
Chief town officer for Hartland, Colebrook, Barkhamsted, New Hartford, Canton, Farmington, Avon, Simsbury, East Granby, Bloomfield, Windsor, Windsor Locks.  
Collinsville Canoe and Kayak,  
Connecticut River Conservancy,  
Connecticut Fly Fisherman's Association,  
Connecticut Conservation Advisory Council,  
Farmington River Angler's Association,  
Farmington River Coordinating Committee,  
Farmington River Fishing Guides Association,  
Farmington River Watershed Association,  
Farmington Valley Chapter of Trout Unlimited,  
Fisheries Advisory Council,  
Friends of American Legion and Peoples State Forest,  
Lower Farmington River and Salmon Brook Wild and Scenic Committees,  
Mainstream Canoes and Kayaks,  
National Park Service,  
Northwest Connecticut Sporting Goods,  
Rivers Alliance of CT,  
Riverton Fishing Derby Association,  
Satan's Kingdom tubing concessionaire,  
Save the Sound,  
SBD/Farmington River Power Company,  
Town of Canton Hydro/ WWS-Wasserkraft,  
Trophy Trout Club,  
Up Country Sportfishing.



Appendix A1: Schematic of pool names and elevations for water behind Colebrook River Lake Dam (MDC memo).



Appendix A2: Schematic of water storage allocations for Colebrook River Lake (Jim Randazzo, MDC).



J. RANDAZZO Nov 2024



## Appendix B: Public Act 24-13

Substitute House Bill No. 5355  
Public Act No. 24-13

### AN ACT CONCERNING THE WATER RESOURCES OF THE UPPER FARMINGTON RIVER VALLEY.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section 1. (NEW) (Effective from passage) (a) The Commissioner of Energy and Environmental Protection, in consultation with the Metropolitan District Commission, shall make Colebrook River Lake Dam release and holdback requests to the United States Army USACE of Engineers, as needed, to achieve an optimum flow in the Farmington River for: (1) Fish and wildlife, (2) recreation, (3) the river's health, (4) flood risk reduction, (5) tourism, (6) hydropower, and (7) safety.

(b) Notwithstanding any provision of the general statutes or any special act, the Metropolitan District Commission shall release from the Goodwin Dam any amount of water released from the Colebrook Dam based on a request of the Commissioner of Energy and Environmental in furtherance of the provisions of subsection (a) of this section.

Sec. 2. (Effective from passage) Not later than January 1, 2025, within available resources, the Commissioner of Energy and Environmental Protection shall submit a report, in accordance with the provisions of section 11-4a of the general statutes, to the joint standing committee of the General Assembly having cognizance of matters relating to the environment, on recommended courses of action for the state to manage the waters contained in Colebrook River Lake between the levels of **seven hundred one feet and six hundred forty-one feet**<sup>1</sup> in the event that the federal government releases the Metropolitan District Commission from responsibility for such waters. Such report shall address the state's interest in achieving an optimum flow for: (1) Fish and wildlife, (2) recreation, (3) the river's health, (4) flood risk reduction, (5) tourism, (6) hydropower, and (7) safety. The commissioner shall consult relevant stakeholders in the preparation of such report.

Approved May 14, 2024

<sup>1</sup> Note on pool elevations. Public Act 24-13 requires DEEP to prepare a report with recommendations on management of the waters contained in the storage space in CRL between elevations 641 and 701 feet. However, elevation 641 should be elevation 644 feet as originally defined when Colebrook River Dam was constructed. The CT Department of Public Health approved the abandonment of water stored between elevations 644 and 701 feet in the "Amended Source Abandonment Permit" issued January 2024, and in its letter to Commissioner Dykes, MDC only relinquished rights to control of the water stored between those elevations. DEEP believes the pool between elevations 644 and 701 feet, approximately 10 billion gallons (BG), is sufficient to meet the legislative intent of optimizing flow on the Farmington River.

**Appendix C: MDC's letter to DEEP Commissioner Dykes concerning DEEP requests for releases of water impounded behind Colebrook Reservoir Dam between elevation 644 and 701.**



The Metropolitan District  
water supply · environmental services · geographic information

May 31, 2024

Commissioner Katie Dykes  
State of Connecticut  
Department of Energy and Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127

Dear Commissioner Dykes:

As you may know, on July 20, 2023, the State Department of Public Health approved an application filed by MDC (attached) to abandon rights that the MDC may have in the Colebrook Reservoir as it relates to “future drinking water”. As a result, the MDC no longer makes claim to water that may be impounded behind the Colebrook Dam at level 644 ft to level 701 ft and located in the Colebrook Reservoir.

As such, in the event that the department makes a request or series of requests of the USACE for release(s) of water impounded behind the Colebrook Reservoir Dam between elevation 701 and 644, the MDC does not object to any such requests or resulting releases since the MDC will not use the water storage space from which the requested water will be drawn.

MDC is committed to utilize its 6.5 BG, from both the “Existing 3.5 BG water supply” at level 598 ft to level 644 ft within Colebrook Reservoir, and the 3 BG water supply within Goodwin Reservoir, for the sole purpose to support Wild and Scenic. MDC, since January 2019, no longer prioritizes its available water for purposes to meet its riparian rights obligations, therefore releases can be prioritized based on recreation and fishing. MDC has notified Farmington Power Company of this fact, and provides financial compensation as authorized under contract.

MDC has met and discussed with state legislative leadership, Senator Seminara, and State Representative Anderson, ACOE and Stakeholders to review the traditional “Regime Flow” and determine if there is a more appropriate flow that would benefit the Farmington River Community.

MDC has offered based on historical releases prior to January 2019, recommendations of a minimum flow release strategy that can be offered as interim plan for 2024 starting in May outlined below in **Table 1** below:



**TABLE 1**

| Month | Minimum Flow<br>Release from West<br>Branch |
|-------|---|
| May   | 200   |
| Jun   | 250   |
| Jul   | 300   |
| Aug   | 250   |
| Sep   | 125   |
| Oct   | 125   |
| Nov   | 125   |
| Dec   | 125   |

**PROPOSED INTERIM FLOW RELEASE STRATEGY for 2024**

**The basic legal and statutory “rules” of the river will remain in place:**

- 50 cubic feet per second (cfs) minimum flow from Goodwin Dam, at all times, as established under state statute;
- passing of all “natural” flows up to 150 cfs;
- passing of all releases from *Otis Reservoir*;
- passing of CT DEEP requested fisheries flow releases from DEEP fisheries pool storage in Colebrook;
- When minimum flows are not met by “natural” flows up to 150 cfs, the minimum release amount (provided in TABLE 1) will be met through the release of water from the 10 BG pool.

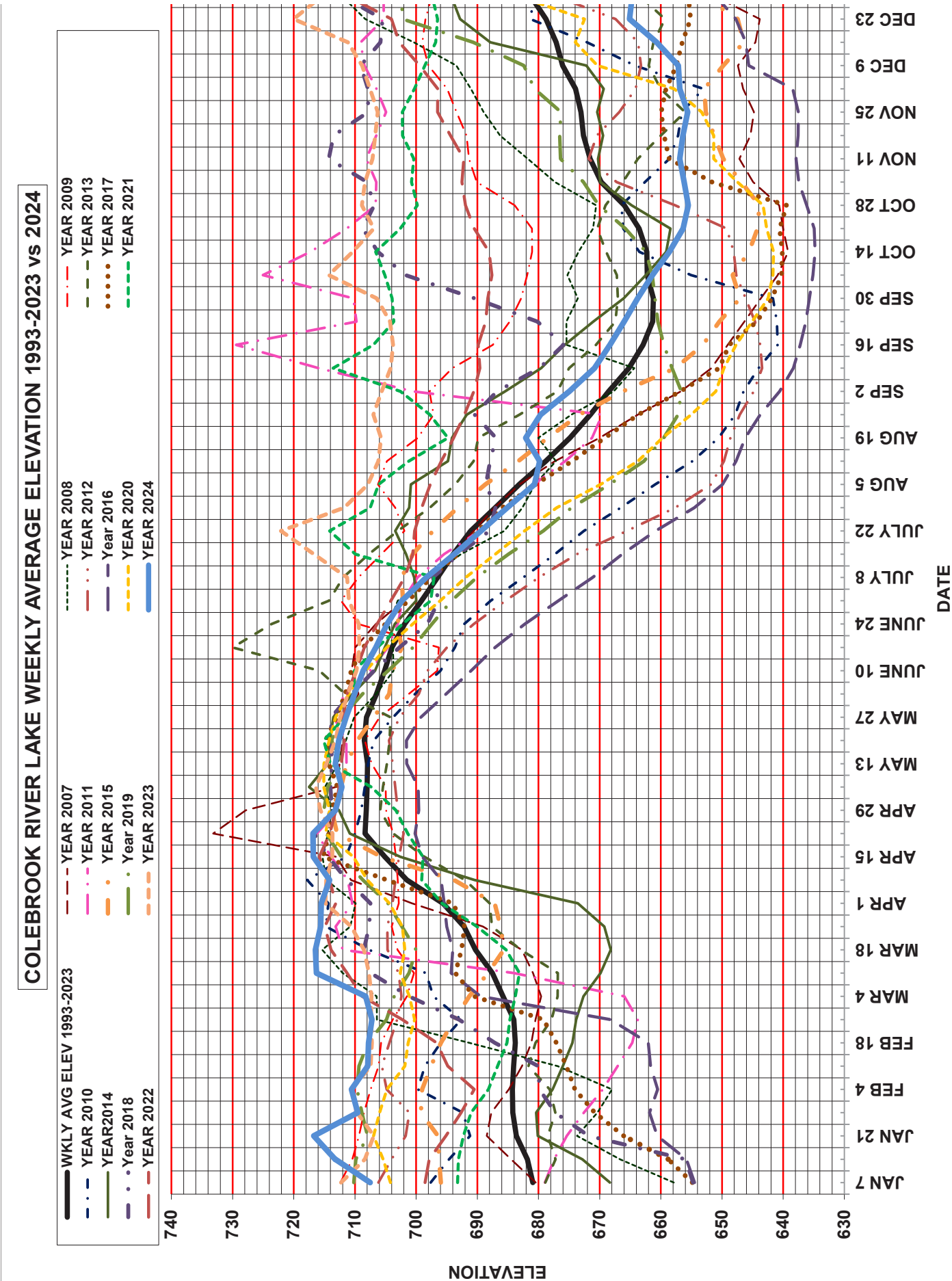
We fully support the State of Connecticut DEEP, ACOE, and the local community discussing the recreational priorities and augment the Farmington River flows as necessary.

Thank you for your attention.

  
Scott W. Jellison, P.E., CEO

Cc: Chairman Donald Currey, MDC  
Christopher Stone, MDC  
Mr. Eric C. Pedersen, U.S. Army Corps of Engineers  
Mr. Ryan T. Killman, U.S. Army Corps of Engineers  
Senator Lisa Seminara  
Representative Mark W. Anderson  
Mr. Graham Stevens, Connecticut DEEP  
Attorney Michael J. Cicchetti

Appendix D: Weekly average surface elevation of Colebrook River Lake since 1993 as compared to the overall average (solid black line). The solid blue line is 2024 data. Graphic courtesy Tim Anthony, MDC.





**Appendix E: Table showing the conversion from Cubic Feet per Second (CFS) to Million Gallons per Day (MGD). The formula is CFS x 7.481 cubic feet/gallon x 24 hours/day x 60 seconds/minute x 60 minutes/hour. A simple formula is MGD = CFS x .6463**

| CFS | MGD    | CFS | MGD    | CFS | MGD    | CFS | MGD    | CFS | MGD   |
|-----|--------|-----|--------|-----|--------|-----|--------|-----|-------|
| 500 | 323.15 | 400 | 258.52 | 300 | 193.89 | 200 | 129.26 | 100 | 64.63 |
| 495 | 319.92 | 395 | 255.29 | 295 | 190.66 | 195 | 126.03 | 95  | 61.40 |
| 490 | 316.69 | 390 | 252.06 | 290 | 187.43 | 190 | 122.80 | 90  | 58.17 |
| 485 | 313.46 | 385 | 248.83 | 285 | 184.20 | 185 | 119.57 | 85  | 54.94 |
| 480 | 310.22 | 380 | 245.59 | 280 | 180.96 | 180 | 116.33 | 80  | 51.70 |
| 475 | 306.99 | 375 | 242.36 | 275 | 177.73 | 175 | 113.10 | 75  | 48.47 |
| 470 | 303.76 | 370 | 239.13 | 270 | 174.50 | 170 | 109.87 | 70  | 45.24 |
| 465 | 300.53 | 365 | 235.90 | 265 | 171.27 | 165 | 106.64 | 65  | 42.01 |
| 460 | 297.30 | 360 | 232.67 | 260 | 168.04 | 160 | 103.41 | 60  | 38.78 |
| 455 | 294.07 | 355 | 229.44 | 255 | 164.81 | 155 | 100.18 | 55  | 35.55 |
| 450 | 290.84 | 350 | 226.21 | 250 | 161.58 | 150 | 96.95  | 50  | 32.32 |
| 445 | 287.60 | 345 | 222.97 | 245 | 158.34 | 145 | 93.71  | 45  | 29.08 |
| 440 | 284.37 | 340 | 219.74 | 240 | 155.11 | 140 | 90.48  | 40  | 25.85 |
| 435 | 281.14 | 335 | 216.51 | 235 | 151.88 | 135 | 87.25  | 35  | 22.62 |
| 430 | 277.91 | 330 | 213.28 | 230 | 148.65 | 130 | 84.02  | 30  | 19.39 |
| 425 | 274.68 | 325 | 210.05 | 225 | 145.42 | 125 | 80.79  | 25  | 16.16 |
| 420 | 271.45 | 320 | 206.82 | 220 | 142.19 | 120 | 77.56  | 20  | 12.93 |
| 415 | 268.21 | 315 | 203.58 | 215 | 138.95 | 115 | 74.32  | 15  | 9.69  |
| 410 | 264.98 | 310 | 200.35 | 210 | 135.72 | 110 | 71.09  | 10  | 6.46  |
| 405 | 261.75 | 305 | 197.12 | 205 | 132.49 | 105 | 67.86  | 5   | 3.23  |



## Appendix F

### **Summary of comments submitted for stakeholder review of DEEP's draft report to the CT General Assembly Environment Committee - Flow Management Plan of the Upper Farmington River in compliance with Section 2 of Public Act 24-13.**

Compiled by Mike Beauchene, Fisheries Division  
February 5, 2025

## Introduction

Section two of [Public Act 24-13](#) required stakeholder engagement as part of DEEP's development of a plan to manage flows in the Farmington River. To that end, the DEEP held a [public informational session](#) via ZOOM on January 22, 2025 and solicited comments through messages on social media, the monthly e-newsletter [CT Fishin' Tips](#), as part of the public informational session, and via direct email to a diverse group of organizations, businesses, town leaders, and Non-Government Organizations likely to be interested in the river. Comments were accepted via an online form and/or email over a two-week period. The comment period closed at 11:59 pm on January 31, 2025.

## Comments received

The DEEP received 30 unique comments from 21 individuals and 5 organizations (Appendix 1).

## Summary of Comments by Themes

Overall, the comments were supportive of the plan with 17 out of 30 comments expressing sentiment along these lines *"Thank you for the thoughtful and comprehensive plan."*

Thirteen (13) comments suggested changes or actions to help improve the plan, specific sections of the plan, or actions not mentioned in the plan. These comments will be grouped into the following categories:

1. DEEP has revised the draft plan to address the comment(s).
  2. DEEP may support future work responsive to the comment(s) but will not revise the draft plan to address the comment(s).
  3. DEEP will not be able to address the comment(s) because the request is beyond DEEP's direct control and requires action by other parties.
- 
1. **DEEP has revised the draft plan to address the comment(s):**
    - a. **Targeted release values:** The Targeted Release Volumes (Table 1 and 2 in the draft plan) are just that, a target goal for when conditions are "normal" and support such releases. As environmental conditions each year will vary, these target values will likely be higher or lower depending on conditions. That said, several comments



suggested modification of the Targeted Release Volumes (Table 1 and 2 in the draft plan). DEEP agrees with the suggestions to lower some of the spring/summer values and increase some of the fall values. DEEP's final target values will be:

| Month     | Targeted release in the draft plan (CFS) | Revised release value (CFS) | Change (CFS) |
|-----------|--|-----------------------------|--------------|
| January   | 125                                      | 125                         | 0            |
| February  | 125                                      | 125                         | 0            |
| March     | 150                                      | 150                         | 0            |
| April     | 200                                      | 150                         | -50          |
| May       | 200                                      | 200                         | 0            |
| June      | 250                                      | 250                         | 0            |
| July      | 300                                      | 250                         | -50          |
| August    | 250                                      | 250                         | 0            |
| September | 125                                      | 200                         | +75          |
| October   | 125                                      | 150                         | +25          |
| November  | 125                                      | 125                         | 0            |
| December  | 125                                      | 125                         | 0            |

- b. Protect Brown Trout spawning and egg incubation:** Several comments called attention to the importance of fall trout spawning and egg incubation. Commentors would like DEEP to ensure adequate flow is available to support trout access to spawning habitat and to ensure there is enough water to ensure successful egg incubation and survival of newly hatched fry. The Fisheries Division, for decades, has monitored river temperature and flow to maximize habitat and growth for trout in the Farmington River. Prior to the passage of PA 24-13, any water required to augment flow to protect trout spawning and survival has come from the dedicated fall fisheries pool (elevations 701-708 feet). With passage of PA 24-13 DEEP will have additional waters to support fish and wildlife in the river. It should be noted that in very dry conditions, like fall of 2024, the DEEP may have to hold back flow prior to spawning to prevent trout from entering side braids and channels as there may not be adequate water remaining in Colebrook River Lake to keep these side channels submerged during spawning and throughout the egg incubation period. These comments were addressed by the slight increases in September and October target flow values detailed above.

2. DEEP may support future work responsive to the comments, but will not revise the draft plan to address the comment(s):
- a. **Publish data on the website:** These comments suggest DEEP should increase transparency and aid interested parties in better understanding current flow conditions and decision making.
  - b. **Initiate a second instream flow study:** These comments indicate DEEP should undertake or fund a second instream flow study as a follow-up to the instream flow study conducted in 1992, as commentors indicated climate and environmental conditions have changed since 1992.
  - c. **Build a model to optimize releases:** Several comments indicate the DEEP should pursue the development of an empirical model that uses historic and contemporary data to inform optimization of future release decisions.
  - d. **Increase water temperature monitoring:** Several comments indicate DEEP should acquire equipment to obtain real-time water temperature data in key downstream locations. These data should be made publicly available on the website.
  - e. **Conduct a post plan implementation study of biological conditions:** Several comments suggest DEEP should implement or fund a study to evaluate biological condition in the river following several years of this new flow plan.
  - f. **Ramping Rates and Control of Large Fluctuations:** Multiple comments, from a single individual, referenced the need for inclusion of Ramping Rates (explicit stipulations concerning the rate at which river flows are increased/decreased when adjusting flows) in the report. Several other commenters requested mitigation against large/sudden releases. Fortunately, neither of the two dams (Colebrook River Lake and Goodwin aka Hogsback) of concern for this report operate as “pond and release”, meaning they do not typically release large amounts of water in a short period of time. DEEP understands the literature regarding flow releases and the importance of providing variable flow patterns in the resulting hydrograph (magnitude, duration, timing, rate of change) to maintain or restore processes that sustain natural riverine characteristics. The plan seeks to collaborate with the owners of each dam (USACE – Colebrook River Lake Dam and MDC – Goodwin (Hogsback) Dam to ensure their standard operating procedures and release plans meet the needs of the river. That said, there will be times of extreme precipitation and runoff in the watershed which cannot be contained by current infrastructure or where sudden large volume increases may be necessary to protect human life and property downstream. Information on USACE’s current outflow guidance and ramping rates for Colebrook Dam can be found [here](#). While we did not add explicit recommendations/stipulations in the report concerning ramping rates and



avoiding large/sudden releases, text was added to page 11 of the report to define and briefly discuss ramping rates.

3. DEEP will not be able to address the comment(s) as request is beyond DEEP's direct control and requires action by other parties.
  - a. Require dam owners to change their policies and standard operating procedures:
    - I. Increase storage above elevation 708 behind Colebrook River Dam beyond July 1 of each year.
    - II. Increase the flow-through requirement to be greater than the current 150 CFS. Meaning all water must be passed at a flow that would support at least 1000 CFS at Unionville USGS gage.
    - III. Change the current mandate that MDC pass all flows originating from Otis Reservoir.
    - IV. Automate gate changes based on computer generated evaluation of river conditions.
  - b. **Changing references in the report from the "Still River" to "Sandy Brook":** Currently there is some ambiguity regarding the official name of the stretch of river from the confluence of Sandy Brook and the Still River to the confluence with the West Branch Farmington River. The USGS currently lists their stream gage in this river section as "Still River, Robertsville", so DEEP has used that name to reference this river section in the report to avoid confusion about which stream gage is being used as a data source. If/when USGS changes the name of their gage station to "Sandy Brook", DEEP will update references accordingly in this document.

## Conclusion

The DEEP appreciates the thoughtful comments submitted regarding *DEEP's draft report to the CT General Assembly Environment Committee - Flow Management Plan of the Upper Farmington River in compliance with Section 2 of Public Act 24-13*. DEEP is looking forward to managing flows to meet the seven categories contained within Public Act 24-13.

**Appendix 1. Comments as submitted by various individuals and organizations.** Note some of these comments were received via email and some were submitted using the online form.

1. Good plan to help protect a good resource. **Anonymous**

2. Please allow this to go through! **Anonymous**

3. I fully support this proposed Flow Plan for the Farmington River. I trust the DEEP involvement will be an asset both environmentally and economically for our state. I thank you for listening to the concerns of all that use the Farmington River to maintain their mental health. **Gary Steinmiller**

4. Good evening, The reason why the Farmington Flow discussion started was based on Rapid intra-day Fluctuations. Major changes on flow in very short period of time. (Ramping Rates). After reviewing the reports Ramping Rates are missing which is a best management practice by many and incorporated in several ferc licenses.

The minimum flows are defined but the intra day Ramping Rates are missing. These sudden changes has destructive consequences to the environment and safety concerns.

The question is how do they determine the rate the flows change in any given

We can give you ramping rate documentation that shows the damages it causes if not correctly managed.

Under section 3

River Health Ramping Rates should have been discussed Max rate water changes within an hour.

Why didn't DEEP look at this portion of flow Optimization Management. Rate of change is missing which qualifies this report incomplete and doesn't address important parts of the issue.

This was a oversight which has impact and doesn't address a key part of the data and plan going forward.

Thank you for all you do

Good morning Mark,

The plan covers a lot of ground and that's commendable but is missing a key piece Ramping Rates.

Ramping Rates is a core piece is just as impactful as the whole report plus address the rate of flow per hour which is not even in the report.

Informational for you because it's missing the rate of Intra day Flow changes which is a major component (Ramping Rate). It should be part of the operational rules that the Army Core should be party to the rules of releases.



We will reach out to DEEP Fisheries about how , when and where to comment since it didn't specify. On Facebook it said don't comment on the FB page but didn't specify next steps.

Sudden Flow changes cause environmental and safety issues which is not in the report and plan.

Gradual changes of flow is a best practice by many and mandated by many countries ahead of us because they have the data to show impact and why ramping are incorporated.

A ramping rules document is attached ,  
See table 1 as an understanding.

Bottom line without ramping Rates  
Environmental damage and public safety is at risk.  
Thank You, **John Brewery**

5. Yes I strongly urge that this act be passed. **Anonymous**

6. Yes I strongly agree to this plan. **Anonymous**

7. The Farmington River Flow should be kept at a rate that best protects the ecosystems above all others reasons. **Anonymous**

8. Thank you! Finally, common sense has prevailed, and government organizations have found a way to talk with each other. Good job Mark, on this legislation. **David Longfritz**

9. I think the plan is a good idea especially in view of the lack of rainfall we have had in the past years in order to protect the fish and flood control to protect residents along the river. **Maryann Beauchene**

10. Colebrook River reservoir has released so much water that you can no longer boat there. The boat ramp is no longer in the water. They need to store more water so the lake fills up and makes the boat ramp usable again. **Tom Boyle**

11. Good morning, Mike, A great job on the Flow plan author by yourself and the DEEP team. A lot of work. A couple of thoughts, Thank you for referring to and including Hogback Dam when noting the Goodwin Dam. In Hartland, it is preferred. I swan as a boy in the now vanished pool by the hogback ridge.

On page three, I believe the USGS changed the confluence of the Farmington and Still Rivers to the confluence of the Farmington River and Sandy Brook. They determined that the Sandy had a larger flow than the Still thus the change.

Again, a very excellent effort, **Dan Bowler** ,

12. I support the DEEP plan to manage water flow on the Farmington river. **Charles McCaughtry**

13. Good morning CT DEEP Commissioner Dykes, Since this is your responsibility

Just wanted to give you a heads up on the Farmington Flow Bill Report / Plan.

Saw you signed this and wanted to provide insight.

We reviewed the plan and it needs Ramping Rate Operational Best Practices included to ensure a

complete broad based, Environmentally safe and Public safe comprehensive operational support plan. There is a need to include Ramping Rates within the report / plan which would be the changes of flow within an hourly basis. It is an Operational Best Practice used to prevent damage Environmentally and Upward changes that create public safety issues. Gradual rate changes should be implemented , the rate of change needs to be part of the plan and operations. It really needs to be implemented and included into the report and plan going forward.

As the report / plan stands now , Ramping Rates were not mentioned or included . Ramping Rates are needed to ensure the integrity of Flow Rates on the Farmington River. Grammatic changes in flow cause damage which needs attention to detail.

Some of the repercussions of not implementing Ramp Rates. Stranded Fish in channels , reduced insect life and stranded Anglers due to upward flows with dramatic change vs gradual natural change.

Environmental damage would occur including erosion which is appearant in the upper stretch of the river.

Thank you for all you do. **John Brewery**

14 . Thank you for the thoughtful and comprehensive plan. I am an avid fly fisherman and greatly appreciate your efforts.

After reviewing the data and doing some calculations, I am pleased to verify that your math regarding inflows versus outflows seems correct. The outflows planned versus the historical averages of inflow do indeed equate to about 10 billion gallons of managed flows per year. I am wondering however whether the flow changes must occur on monthly boundaries, as river conditions can certainly change rapidly even in the course of a day. I think it would be a simple matter of measuring flow below the confluences (say in Satan's Kingdom) and feeding back that data to the dam operators daily or even continuously. I am not sure whether you have automated dam control, but I suspect humans are in the loop. It would be easy for a computer to calculate optimal flows continuously and adjust them every 15 minutes or so. I know these are long shot goals you are already aware of.

Finally, perhaps it would be better to "smooth" the proposed monthly regime to avoid the abrupt flow changes (to better simulate how nature raises and lowers the flow). If you replaced your proposed values with 3-month mean-filtered values, you would get: [83 133 158 183 217 250 267 225 167 125 125 83] cfs per month, and this would avoid the big changes on the 1st of each month.

Thank you for your consideration. **Alain C. Barthelemy, PhD**

15. I agree with the proposal because it increases the health of river and provides boating, fishing and recreation for state parks along the river. If in the future conditions change requiring more reserves in the reservoir changes can be made. **Jim English**

16. Please maintain the flow of cold water from the dam to ensure proper and consistent levels and temperatures necessary to promote a healthy and sustainable reproductive population of all trout and salmon in the west branch of the Farmington River throughout its length. **George D Morton III**

17. The rainbow damn needs to be removed, regardless of ownership issue. There is no reason the farmington river should be on the list of most endangered rivers in the nation. Removal of the damn



rates and example of who and where they have been used.

<https://www.law.cornell.edu/cfr/text/33/part-384>

<https://www.law.cornell.edu/cfr/text/33/384.7>

Thank you for all you do More to come this week J , **John Brewery**

20. Good morning Mike

Did some more review .

See below

The Cornell Review of Laws says the USACOE will work with the Water Owners. The USACOE will develop with the water rules with the water owners if you have that conversation with them

Its not the guys in the control room. CT DEEP needs to figure out who in the USACOE is responsible for who is the appropriate contact to modify the play book.

The Cornell report says in Statutes that USACOE will work with the Water Owners to create the rules. If the MDC operates the last gates then All parties need to be involved and avoiding a ping pong affect.

Most likely they push back that it takes to much time which is not acceptable to the public.

Are there other Divisions within DEEP collaborating on this? I would hope Water Resources is part of this because of regulatory authority and monitoring ( Somebody has watch the Hen house).

Set and forget is not good Management

Resetting the gate may be needed several times a day.

Whoever is managing the gates between Godwin Dam and the Farmington River has the responsibility of doing the best possible management and take a little time to do it right.

More to come Thank you, **John Brewery**

21. I am writing in support of Public Act 24-13. It seems like a thoughtful way to balance environmental needs as will and human needs. I appreciate the compromise. **Amanda Thompson**

22. FVTU appreciates the dedication, research and attention to detail D.E.E.P. has done in developing this plan. We also appreciate past efforts by D.E.E.P. for their short-term flow management on the Farmington and hope the plan will be approved and implemented soon.

The Farmington Valley Chapter of Trout Unlimited has reviewed the draft Flow Management Plan submitted by D.E.E.P and has the following comments:

#### CUBIC FEET PER MINUTE TABLES:

The projected flow releases appear to be generally appropriate to ensure the overall health of the trout population. There are a few situations where slight adjustments may be appropriate:

- April/May/June-Reduce target flow to 150 with the anticipation that Spring rains would augment the stated release

- July-Slight reduction to 250 in order to “bank’ some water for later in the summer

- September-Slight increase to 200 offset extended summer heat conditions

- October through March-Perhaps an increase in flow to 150 to create more potential redd habitat but flow must be maintained or slightly increased to protect eggs on redds from freezing

## FARMINGTON VALLEY CHAPTER TROUT UNLIMITED CFS SUGGESTIONS

| MONTH     | DEEP TARGETED RELEASE | FVTU RECOMMENDED |
|-----------|-----------------------|------------------|
| JANUARY   | 125                   | 125              |
| FEBRUARY  | 125                   | 125              |
| MARCH     | 150                   | 150              |
| APRIL     | 200                   | 150              |
| MAY       | 200                   | 200              |
| JUNE      | 250                   | 250              |
| JULY      | 300                   | 250              |
| AUGUST    | 250                   | 250              |
| SEPTEMBER | 125                   | 200              |
| OCTOBER   | 125                   | 150              |
| NOVEMBER  | 125                   | 150              |
| DECEMBER  | 125                   | 125              |

### DETAILS OF ACTUAL FLOW MANAGEMENT DECISIONS:

The draft plan references various metrics used to determine actual flow releases. What is unclear is how the actual CFS volume is determined. Mention is made of USGS gaging stations, USAOCE Reservoir Control Center, and the CT. Interagency Drought Workgroup but exactly how they all interact is not described. Our thoughts are that an engineered computer modelling program should be developed using the following dynamic inputs to achieve the one ultimate output...FLOW

Inflow from measured USGS stations at Riverton & Still River stations using not just CFS but also looking at the rate of rise or rate of fall.

Long range weather forecast modelling. While sudden torrential rainfalls cannot be predicted in time, hurricane forecasting is longer term and can be accounted for in level control at CRL.

Rate of rise or rate of fall of actual elevations in CRL. In the past there were many instances where flows were greatly increased over short periods of time with no major storm events being predicted. There did not appear to be any active monitoring of the rate of rise (or fall) as the levels began to approach the 708-foot flood control level and no rationed and controlled proactive releases entered into play. There were also instances where excess water was flowing over spillways thus increasing downstream water temperatures, which can prove lethal to the cold-water fisheries. Avoiding spillway overflows is not only beneficial to the cold-water fishery but also aid in hydropower output. Cold water is denser resulting in more mass passing through the turbine which results in higher energy productions.

Dynamic input using computer or AI based algorithms could prove extremely beneficial in actual flow management decisions.

### FUTURE CONSIDERATIONS

Spring Shad Pool-While probably outside the realm of the draft D.E.E.P flow management plan, perhaps there should be some future discussions about utilizing the water from elevation 708-714.5 feet year-



round to create an additional buffer during low flows enabling more flexibility in future water management decisions. While this would require some level of federal intervention, it is something to consider.

In-stream flow study- The original in-stream flow study was performed and completed in 1992 in conjunction with the development and subsequent passing of the original Wild & Scenic and congressionally approved legislation. Since then, climate change over recent years has resulted in far more severe and drastic weather events that affect water levels in the Colebrook and Hogback reservoirs. In addition, and since the Wild & Scenic act has been in effect, the recreational uses of the river and economic impacts on businesses and surrounding towns have changed considerably. We feel that an updated in-stream flow study is in order. **Tom Carpenter**

23. I read the draft document and attended the Jan 22 public presentation; I fully support the DEEP plan with confidence. I will also add that there is a measurable positive impact on area business revenue (from both instate and out of state) owing to the world class fishery. Any long time fly-fisherman of the Farmy will tell you how many more fisherman and out of state auto license plates are out there now.

**Chris Barba**

24. On behalf of Resource Protection sub committee of the Lower Farmington River and Salmon Brook Wild and Scenic, we are excited for this Plan that ensures water flow to the Farmington River. We fully support it! **Bill Salazar**

25. Do what's ever best for the trout on the Farmington River everything else I don't think really counts.

**Jerry wade**

26. The Connecticut Fly Fisherman's Association

Philip Apruzzese, CFFA Vice President Environment

The CFFA has reviewed the DEEP's draft report to the CT General Assembly Environment Committee - Flow Management Plan of the Upper Farmington River in compliance with Section 2 of Public Act 24-13.

The DEEP has done an excellent job outlining the course of action it will take to manage the waters of Colebrook River Lake, Colebrook dam and Hogback dam. It has successfully delineated how its requested releases will impact the seven areas outlined in the Public Act. We commend all the authors of the DEEP plan and encourage continual reflection of the data to make adjustments to the plan as necessary.

Connecticut is fortunate to have such a renowned fishery, one that draws anglers from all over the United States. The DEEP plan is based on 30 years data management of the Farmington. CFFA understands that there are varying factors, mostly weather conditions related that affect such a plan. The dedication, research and detail shown in this plan gives confidence that Connecticut will have this fishery far into the future.

Thank you for the opportunity to respond to this report.

Recommendations:

1. The CFFA strongly supports developing plans that preserve lands of the Farmington River Watershed

and protect appropriate flow levels to maintain fish habitats and recreational functions that meet the seven components established in public act 24-13. Meeting these components will provide economic opportunities for municipalities bordering the river.

2. For DEEP to oversee an updated in-stream flow study that would assist with long term management of the river which is not stated in public act 24-13 but would be beneficial since the last study was completed in 1992.

3. That the State provide temperature monitoring apparatus at the dams and on the river as well and report it on their website.

4. That DEEP determines appropriate flow levels during the brown trout spawning season and does everything in its power to maintain those levels.

5. That DEEP provide flow levels on its website. ***Philip Apruzzese, CFFA Vice President Environment***

27. Dear Mr Beauchene, Dear DEEP Team,

Thank you for the opportunity to provide feedback on the proposed water release plan for the Colebrook Lake Reservoir. As operators of the Upper Collinsville Hydroelectric Project, we appreciate the effort to balance ecological, recreational, and hydropower priorities. However, we would like to highlight several critical considerations regarding the plan's impact on our operations:

1. **\*Optimum Operating Discharge for Hydropower:\*** The optimal discharge for our hydropower facility is between **\*800 and 1,000 cfs\***, measured at the **\*USGS Unionville gage\***. Flows below **\*250 cfs** at the Unionville gage\* contribute only minimally to power production and are typically insufficient for effective operation. Please note that all referenced flow values pertain to measurements at the **\*Unionville gage\***, rather than release values directly from the Colebrook Reservoir.

2. **\*Reservoir Refill Conditions:\***

We strongly recommend that **\*reservoir recharging** only occurs when flows in the Farmington river exceed **1,000 cfs\***. (**\*Unionville gage\***) Recharging at lower flows would negatively impact power generation capacity. Maintaining this threshold is therefore critical for ensuring that both ecological and hydropower priorities are met. Without knowing the exact discharge figures at Colbrook Reservoir, we expect the threshold for refill there to be at 300 cfs.

3. **\*Monthly Flow Allocations and Seasonal Adjustments:\***

While the proposed monthly flow allocations (table 2 .. e.g., January 125 cfs, February 125 cfs, March 150 cfs, April 200 cfs, etc.) represent a well-considered strategy, we recommend **\*shifting some of the higher allocations from spring (e.g., May or June) to late summer and early fall (e.g., August, September, and October)\***. Historically, the driest months have been **\*August,**



September, and October\*, and additional flows during this period would provide greater operational benefits and better support overall river health during these critical low-flow months.

**\*Request for Further Collaboration and Support\***

We kindly request that the DEEP incorporate these considerations into the final plan to ensure that both ecological and hydropower objectives are met. Additionally, we propose that by \*observing and comparing the discharge volumes at the respective gauges in the coming months and years\*, we work together with the DEEP to optimize the discharges and find a solution that benefits both sides. Such collaboration would enable us to address potential challenges proactively while refining strategies over time.

Thank you for your attention to these concerns. We remain available for further dialogue and cooperation.

Kind regards,

**Claus Maier**

**Cantonhydro LLC**

**Upper Collinsville Hydroelectric Project , Claus Maier**

28. Excellent job on the plan. I agree with all of the recommended monthly "target" release values, with the caveat that day-to-day decisions re the 300 cfs listed for July should be made very conservatively. There have been many years when warm and dry conditions have persisted throughout August, September, and October. I suspect that late summer and early fall hot/dry periods are going to become more frequent in the future.

One recommended change: I believe that the 250 cfs "minimum" value listed for canoeing and kayaking should be changed to 150 cfs. I have canoed the entire West Branch and mainstem Farmington River many times at almost every possible flow level. Have canoed the West Branch a number of times when releases were ~100 and very little flow was entering via the Still River. It gets challenging to negotiate a course at levels under 150, but it isn't impossible. At releases of 150 and higher it is easily done. I admit that the experience is more pleasant, particularly for a novice canoeist, at 250 or higher. But 250 is too high to be considered a minimum value. I recommend changing the listed minimum release for canoeing and kayaking to 150 cfs. Bill Hyatt

29. The Farmington River Watershed Association is in support of the Farmington River Flow Plan which was drafted in response to Public Act 24-13. We understand that this plan is to release water from the 10BG pool stored between 644-701 feet in Colebrook River Lake to achieve targeted releases. We believe that this will help the Farmington River maintain sufficient flows to balance the needs of fish, wildlife, and the health of the Farmington River while considering flood mitigation, recreation, and safety. FRWA is appreciative of the collaborative efforts between MDC, USACE and CT DEEP resulting in this plan's submittal to the Connecticut General Assembly's Environment Committee. **Aimee Petras**

30. Trout Unlimited Response and Recommendations to: A Report of the Environmental Committee of the Connecticut General Assembly Pursuant to the Section 2 of Public Act 24-13 – An Act Concerning the Water Resources of the Upper Farmington River Valley Recommended Courses of action for the

Department of Energy and Environmental Protection to manage the waters contained in Colebrook River Lake between the levels of seven hundred one feet and six hundred forty-one feet

Dear Mr. Beauchene, Trout Unlimited (TU) welcomes and commends the Connecticut Department of Energy and Environmental Protection's (CTDEEP) "Recommended Courses" of action to manage waters contained in Colebrook River Lake (CRL) as a new approach to manage flows through Colebrook River Lake Dam (CRLD). We believe that the plan is appropriate and reflects the thoughtfulness and scientific rigor of CTDEEP staff. The mission of TU is to conserve, protect, and restore North America's coldwater fisheries and their watersheds. We bring together diverse interests to care for and recover rivers and streams so our children can experience the joy of wild and native trout and salmon. The long-term goal implicit in our mission is achieving self-sustainability of salmonid populations<sup>1</sup>.

TU fully supports the guiding principles of the plan to strive for optimizing flow management on the Farmington River to balance the needs for fish, wildlife, recreation, river health, flood mitigation, tourism, hydropower, and safety while utilizing established water storage zones or "pools" in CRL and adhering to seasonal flow targets.

#### Analysis Flow Management

TU supports CTDEEP's strategy and approach that is designed to promote and maintain abundant wild trout, while also providing opportunities for wildlife, recreation, river health, flood mitigation, tourism, hydropower, and safety while utilizing established water storage zones or "pools". Keeping in mind the existing legal and statutory rules of the river and the concerns of all interested parties, the targeted release values from CRLD for each month and the factors they consider are all encompassing and backed by scientific vigor. One of TU's significant concerns is the ecological interactions between trout and their watershed during low flow summer and early fall months. Trout depend on connectivity in the river system to ensure bidirectional movement. This movement allows the fish to locate and utilize cold water thermal refuge during hot summer months, when water temperatures are warmest. Limited movement of fish, increase populations' vulnerability to water temperatures above their thermal tolerance (Wehrly et al., 2007), can cause extirpation of populations from entire reaches of rivers (Baird and Krueger, 2003). Connected streams from mainstem to the headwaters are necessary to support self-sustaining trout populations; to ensure that trout can find new habitat, gain access to suitable spawning grounds (Gowan et al. 1994, Fausch and Young 1995), recolonize habitats following catastrophic events (such as flooding or drought) and seek access to summer thermal refuge (Kaeding 1995). While TU supports the proposed targeted release values for spring and summer, we recommend a similar strategy of incremental fall releases from August to September. The proposed cubic feet per second (CFS) released from CRLD would be cut in half from 250 CFS in August to 125 CFS in September. The reduction in flow has the potential to drastically alter connectivity in low flow periods of the year leaving trout vulnerable to being stranded in suboptimal habitat with limited access to spawning grounds. Ensuring more flow during September increases the odds of trout accessing spawning grounds in October when flows are historically lowest in the system. This flow adjustment will protect and help to ensure a resilient self-sustaining trout population in the Farmington River.

#### Recommendations

Recommendation #1 – Increase target release values for low flow periods in September and October to create an incremental reduction in flow. The additional CFS in the fall will create a more well- rounded hydrograph by decreasing the flow gradually. It will match the incremental increase of CFS in the spring. A more subtle decline of flow releases during fall low flow periods will be better for river health and resilience, allowing more time for fish to migrate to preferable habitat.

Recommendation #2 - Additional fall time flows can be derived from a reduction in spring release during seasonal high water. The proposed reduction in targeted release in the spring will help reduce potential downstream high-water damage during seasonal high flows. The additional water, which will be stored in CRL, can be used strategically during low water years or released when needed during high water years.

Recommendation #3 – Post implementation monitoring. A study should be designed to show the success and failure of the new proposed flow regime. Potential study topics can include flow and other hydrologic studies, yearly / seasonal water temperature profiles, habitat indicator / utilization studies, biodiversity assessment of fish, biodiversity of macroinvertebrates, sediment embeddedness / pebble counts, and spawning / redd surveys.

Recommendation #4 – Additional water storage should also be negotiated with Army Corps of Engineers to protect the river from changing climate patterns to ensure enough water for releases during the summer and fall.

TU recognizes that any policy or plan based on the best scientific knowledge available will contain some uncertainty. We would like to stress the need to establish ecological monitoring to facilitate adaptive management strategies. TU advocates for the best science to maximize protection of trout, habitats, and ecosystems and will continue to be a strong supporter of CTDEEP's work and dedication to improving Connecticut's trout streams. We have staff and members that are willing to assist CTDEEP on a variety of tasks from monitoring and habitat improvements. TU is already working closely with CTDEEP staff in the watershed, and we look forward to additional opportunities for us to partner together to achieve our mutual goals.

Thank you for your consideration. Sincerely, ***Richard R Mette Richard Mette Connecticut TU Council  
Chair Jon Vander Werff TU Project Manager Tracy Brown TU Restoration Manager***

1 TU's North American Salmonid Policy provides general guidance for our actions as an organization. The policy is based on fundamental scientific principles that focus on the importance of biological diversity and ecosystem processes in a watershed context, the connections between salmonids and watershed ecology, and the changes in populations and habitats over time and how understanding these changes can lead to effective trout management. These general principles highlight the need for thriving, diverse stream ecosystems that support and promote self-sustaining wild and native trout populations. Trout Unlimited 1997. Trout Unlimited's North America Salmonid Policy: science-based guidance for 21st century coldwater conservation. Trout Unlimited, Arlington, VA 22209 (USA).

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American Fisheries Society, 132,1194-1206. Fausch, K.D., and M.K. Young. 1995. Evolutionary significant units and movement of resident stream fishes: A cautionary tale. American Fisheries Society Symposium 17:360-370. Gowan, C., M.K. Young, K.D. Fausch, and S.C. Riley. 1994. Restricted movement in resident stream salmonids: A paradigm lost? Canadian Journal of Fisheries and Aquatic Sciences 51:2626-2637. Kaeding, L.R. 1995. Summer use of cool water tributaries of a geothermally heated stream by rainbow and brown trout, *Oncorhynchus mykiss* and *Salmo trutta*. American Midland Naturalist. 135: 283-292. Wehrly, K.E., Wang, L., & Mitro, M. (2007). Field-Bases Estimates of Thermal Tolerance Limits for Trout: Incorporating Exposure Time and Temperature Fluctuations. Transactions of the American Fisheries Society, 136,365-374. Jon Vander Werff

31. Dear Mike, While I am a member of the Farmington Valley Chapter of Trout Unlimited, I have fished the Farmington River for close to 30 years. My comments regarding the CT D.E.E.P Flow Management Plan relate to observations that may provide some context for the final plan.

First, DEEP and its predecessor(s) have built the West Branch of the Farmington River into a magnificent fishery over the past 25 years. Unfortunately, periods of low water flows as well as extended droughts have adversely impacted the fishery. The same could be said for those few times when massive precipitation has required the Corps to release much more water from the Colebrook Reservoir than normal, sometimes scouring the river bottoms.

While it seems that drought conditions have occurred more often in recent years, and because climate change may be a factor, I am thrilled that DEEP will control and establish sustainable flow levels that are helpful for (and mitigate harm to) the fishery. It also seems that some flexibility may be prudent given the seasonal nature of low water conditions.

Normally the April through June period is not an issue as rainfall and cooler water releases from Goodwin Dam and Colebrook sustain a robust fishery. The period of July through October is always the time when daytime air temperatures are higher, sunshine is more prevalent and Stanley Black and Decker might like to produce and sell more electricity to the grid by calling for greater flows. This is the most critical period for trout as river water temperatures rise and, depending on rainfall, flow levels often decline. While the focus is on flow rates, water temperature is a critical issue for anglers, trout and the macro-invertebrates they feed on in the summer and fall. Greater flows during this time can help mitigate the temperature threat as higher flows carry away more of the heat created by sunshine on rocky bottoms. More flow provides more oxygen also.

There is always the issue of how much water to store in Colebrook, how much to release and when. The Corps might like this reservoir empty for flood control reasons while recreational users prefer the exact opposite. It is obviously difficult to determine how to hold enough water back in the spring and early summer months to provide the flows in the fall for spawning while ensuring that hurricane or major storm precipitation will not require massive releases to avoid spillway or emergency dumping from the Colebrook dam with the resultant river scouring downstream. Conversely, releasing too much water too

early in the summer reduces the amount of cold water remaining in the reservoirs, so releases require a deft touch.

As a result, my specific concerns would be:

Unless there has been/will be substantial rainfall, I am uncomfortable with the June targeted release

I'm definitely uncomfortable with the July and August targets which seem a bit high

Conversely, September and October targets appear lower than I would recommend

One additional consideration could be the availability of water at Colebrook between the elevations of 708 and 714.5 feet. As we look at historical data, have better tools for weather forecasting, have an interested party coordinating flows with the Corps and consider drier periods due to climate change, perhaps usage of this water can supplement what would normally be available.

Respectfully submitted, ***William F. Case***





Photo by Bill Eppridge in Sports  
Illustrated, April 21, 1986. Vol. 64, No. 16