

2025 Vermont Family Forest Monitoring Summary Report

Isham, Beaver Meadow and Cold Brooks

Prepared by Becky Tharp | Just Water Consulting
For Addison County River Watch Collaborative

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Summary of 2025 Findings

- New Haven River flow was low in the summer of 2025 – particularly in late July through September. The river was at or below the low median monthly flow (LLM) condition (65 cfs at the Brooksville USGS gage) on the August and September sampling dates in 2025 and was very near LMM on the July sample date.
- The instream phosphorus criterion (not to exceed 27 µg/L at or below LMM) was not exceeded on any date at any of the sampled locations in 2025. Most samples measured TP concentrations below the lab detection limit of 10 µg/L. The highest measured value was 22 µg/L measured in Cold Brook in September.
- The *Escherichia coli* criterion for primary contact recreation in Class B(2) waters is not to exceed a geometric mean of 126 organisms/ 100 mL obtained over a representative period of 60 days, and no more than 10% of samples above 235 organisms/ 100 mL. Isham and Beaver Meadow Brooks each had one sample over the standard on the July sample date when flows were just above LMM (67.1 cfs). No other locations exceeded the *E. coli* criterion at any time.
- The turbidity standard for Class B streams is not to exceed 25 NTU in dry weather base-flow conditions. All turbidity samples were below the laboratory detection limit of 1 NTU at all locations on all dates.

Study Overview

Addison County River Watch (ACRWC) began monitoring in the upper New Haven River watershed in 2021 with sites on Isham Brook (NHIO.1) and Beaver Meadow Brook (NHBM0.1). Analytes measured in 2021 included *E. coli*, chloride, nitrate, total phosphorus (TP), turbidity and temperature. In 2022, ACRWC monitored the same two sites and added a third on Cold Brook (NHCBO.1), a tributary to Baldwin Creek in the town of Bristol, which also drains to the New Haven River. And in 2023, the same three sites were monitored and a fourth was added (LOCNB0.2) on Norton

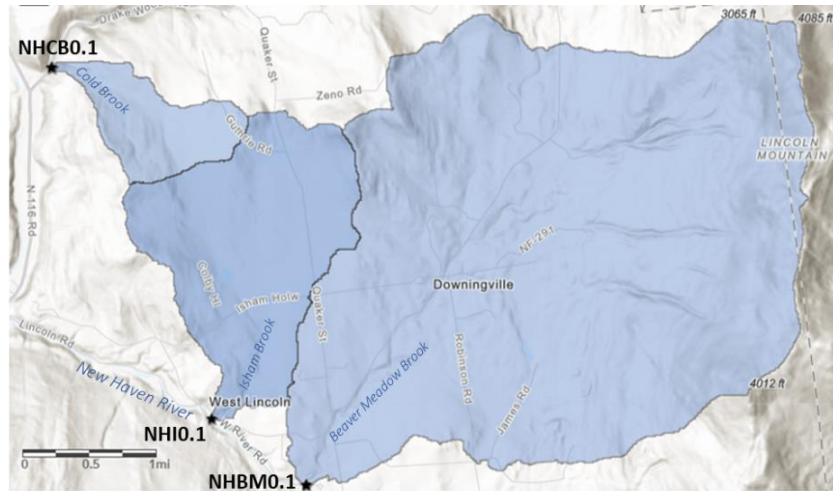


Figure 1. 2024 monitoring points and their associated watershed areas.

Site ID	Waterbody	Watershed Area (acres)
NHIO.1	Isham Brook	1,500
NHBM0.1	Beaver Meadow Brook	6,800
NHCBO.1	Cold Brook	435

Brook which drains to Little Otter Creek in the town of Bristol. All sites were grab sampled for TP, *E. coli*, turbidity and temperature in 2023. Site LOCNB0.2 was also sampled for chloride and nitrate that year. Findings from 2023 identified LOCNB0.2 as having the highest concentrations of all measured analytes compared to other sites and water quality standard exceedance for TP, *E. coli*, and turbidity. In 2024 and 2025, the same four sites were monitored (LOCNB0.2, NHCBO.1, NHIO.1, NHBM0.1) with the addition of another location on Norton Brook added in 2025 (LOCNB0.7). Data from sites LOCNB0.2 and LOCNB0.7 is the subject of a separate report. This report summarizes findings from Isham, Beaver Meadow, and Cold Brooks. NHCBO.1, NHIO.1, and NHBM0.1.

In 2021-2024, concentrations of phosphorus, turbidity, and bacteria were overall low at the three sites on Isham, Beaver Meadow, and Cold Brooks with exceptions linked with higher flow conditions.

In 2025, four samples were collected from June 3-September 2 and analyzed for total phosphorus, *E. coli*, and turbidity.

Methods

In 2025, Isham, Beaver Meadow, and Cold Brooks were sampled at one location each on four dates: June 3, July 1, August 5, and September 2. One duplicate *E. coli* sample was collected at NHBM0.1 on August 5 and on duplicate TP sample was collected at NHIO.1 on September 2. Both duplicate samples were within acceptable relative percent difference thresholds. All samples were analyzed at Endyne Laboratories in Williston, Vermont.

Water quality samples were collected by ACRWC volunteers in accordance with quality assurance procedures outlined in the EPA-approved Generic Quality Assurance Project Plan prepared by VTDEC.

USGS gage on the New Haven River at Brooksville (Station ID 04282525) was referenced to determine general flow conditions on each sampling date.

Results

Precipitation and River Flow

2025 was characterized by historic dry conditions in the latter half of the summer following a very wet spring. Overall, flows in the New Haven River were lower during the 2025 sampling period than the preceding years. Both the August and September sampling events occurred when flows were below LMM and the July sampling corresponded with New Haven flows very near the LMM (Figure 2). In comparison, no samples in 2024 were collected at or below the LMM.

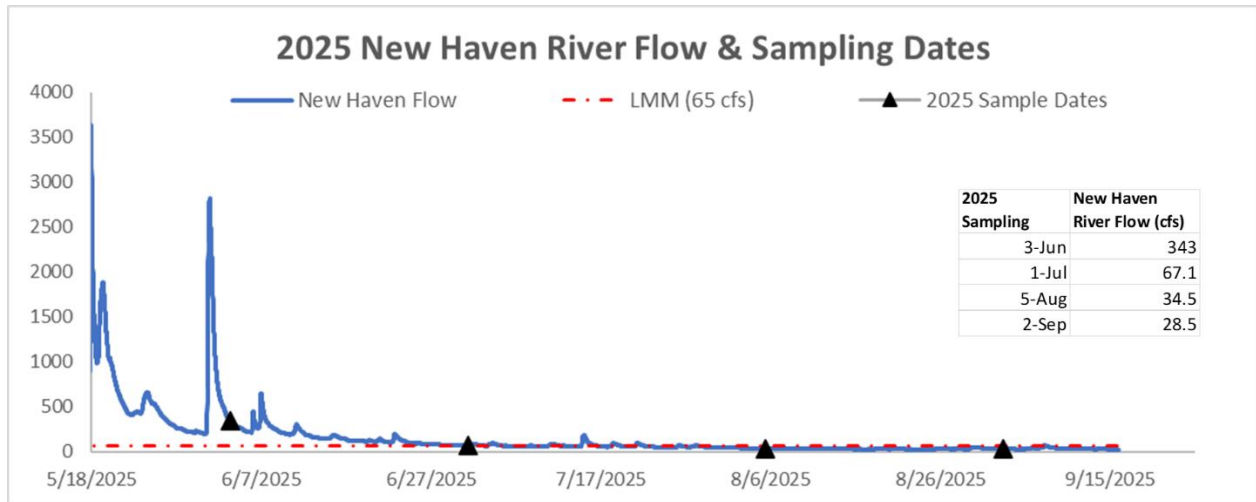


Figure 1. Flows in the New Haven River with 2025 sampling dates and the corresponding river flow noted.

Flow status in the river during sampling dictates the pollutant level as it relates to a legal standard associated with concentrations during flows of a particular type. The phosphorus standard is relevant at flows below LMM.

Phosphorus

The instream phosphorus criterion for warm-water medium gradient (WWMG) wadable stream ecotypes in Class B waters at or below low median monthly (LMM) flow conditions from June to October is not to exceed 27 µg-P/L. Flow was below LMM on the August and September sampling date and very near LMM on the July sampling date. All samples collected on Isham, Beaver Meadow, and Cold Brook were below 27 µg-P/L on all sample days. One sample on Cold Brook measured 22 µg/L on September 2 when flow conditions were very low. On the same date, both Beaver Meadow Brook and Isham Brook samples measured TP below the laboratory detection limit of 10 µg/L.

Escherichia coli

The primary contact recreation bacterial water quality criterion states that *E. coli* is not to exceed a geometric mean of 126 organisms (MPN)/100 mL obtained over a representative period of 60 days, and no more than 10% of samples should be above 235 organisms/100 mL. Sampling in 2025 does not qualify as a

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representative period of 60 days because only four total samples were collected at any site over a 90-day period but the standard provides a threshold to which the measured samples can be compared.

The *E. coli* water quality criterion for primary contact recreation was exceeded at two locations on July 1 - 886 MPN/ 100 mL in Isham Brook and 128 MPN/ 100 mL in Beaver Meadow Brook. Overall, Beaver Meadow Brook had the highest overall *E. coli* counts and Cold Brook had the lowest values. Cold Brook had the lowest *E. coli* counts of the three sites (consistent with previous years).

Turbidity

The turbidity standard for Class B streams is not to exceed 25 NTU in dry weather base-flow conditions.

The turbidity standard was not exceeded at any sampling location on any date in 2025. No sample measured turbidity above the laboratory detection limit of 1 NTU. This is consistent with previous years when turbidity has also been low even in higher flow conditions.

Conclusions

Water quality results in 2025 indicate very low (below detection limits) of most analytes on most sampling dates and at all locations. The July 1 exceedances of the *E. coli* standard are unexpected given the relatively low riverine flow condition at that time and in the preceding weeks.

Results from 2025 monitoring in Isham, Beaver Meadow, and Cold Brooks are similar to previous years (2021-2024) when nutrients and turbidity were below laboratory detection limits on most sample days at all locations and there were occasional exceedances of the bacterial water quality standard, usually coincident with rain events.

The addition of duplicate samples in 2025 has provided a quality assurance check of field protocols. This practice should be continued in future sampling years and consideration should be given to ensuring that one duplicate is collected at each monitoring site – particularly if sample collection is completed by different people at each site.

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Raw Data from 2025

Site ID	Date	Time	E. coli MPN	TP (mg/L)	Turbidity NTU	Notes
NHIO.1	6/3/2025	7:30	13.2 <	0.01	10 <	1.0
NHIO.1	7/1/2025	7:41	886.4	0.014	14 <	1.0
NHIO.1	8/5/2025	7:46	8.6 <	0.01	10 <	1.0
NHIO.1	9/2/2025	7:47 <	1 <	0.01	10 <	1.0
NHIO.1	9/2/2025	7:47 <	1			DUP
NHCB0.1	6/3/2025	7:15	12 <	0.01	10 <	1.0
NHCB0.1	7/1/2025	7:13	77.6	0.01	10 <	1.0
NHCB0.1	8/5/2025	7:15	1 <	0.01	10 <	1.0
NHCB0.1	9/2/2025	7:28 <	1	0.022	22 <	1.0
NHBM0.1	6/3/2025	7:43	35 <	0.01	10 <	1.0
NHBM0.1	7/1/2025	7:32	128.1 <	0.01	10 <	1.0
NHBM0.1	8/5/2025	7:35	6.3 <	0.01	10 <	1.0
NHBM0.1	8/5/2025	7:35	7.4			DUP
NHBM0.1	9/2/2025	7:55	4.1 <	0.01	10 <	1.0