Brook Walk Fall 2023 Report

October 6, 2023

The report will begin with the statistics for rainfall in the Northeast for August. Prior information was recorded in the July report. To note, on September 18, 2023 rainfall was 2.88 inches in 24 hours.

Precipitation
The Northeast had its 12th wettest August on record, picking up 5.25 inches of precipitation, 130 percent of normal. State precipitation totals for August ranged from 56 percent of normal in Delaware to 171 percent of normal in Maine, with nine of the 12 states being wetter than normal. This August was among the 20 wettest Augusts for four states: Maine, fourth wettest; New York, eighth wettest; Vermont, ninth wettest; and New Hampshire, 11th warmest. The Northeast had its third wettest summer since record keeping began with 16.26 inches of precipitation, 127 percent of normal. Nine of the 12 states were wetter than normal, with precipitation ranging from 89 percent of normal in Maryland to 160 percent of normal in New Hampshire. Summer 2023 was record wet in New Hampshire and Vermont and among the 20 wettest on record for six other states: Maine and Massachusetts, second wettest; New York, fourth wettest; Connecticut, ninth wettest; Rhode Island, 10th wettest; and Pennsylvania, 13th wettest. Albany, New York, had its wettest summer since records began in 1874 with 18.89 inches of precipitation, beating the old record for 18.51 from 2009. **National Centers for Environmental Information August 2023 National Climate Report**

Maine continues to be drought free in the entire state. **Maine U.S. Drought Monitor**

This year due to the incredible amount of rain T'ing and I met with Lauren Pickford from the LEA to start the brook walk with Kedar Brook. Lauren has shared a website usgs.gov/streamstats so we can start to look at trends of water movement in our area including culvert issues on Kedar Brook and the surrounding brooks.

Kedar Brook
Kedar Brook has one culvert. One runs under Valley Rd below the Murch property. There is the dam and then the bridge. For the brook that continues its run to the culvert there isn't much we can do about the road washout due to that being DOT responsibility. I can reach out to them and ask what a plan might be. Below the culvert T'ing and I will see how the high walls are doing. The Struck's had a bank washout where the property is lowest. The granite blocks have washed into the brook over the summer and the dirt that held the granite in place has been eroded away. They are in the process of repairing the retaining wall. I have asked the Waterford PTO next year

roping off the higher stone wall and stand next to the lower bank instead. Vegetation suggested by Lauren are several species of plants, she will email suggestions.

We examined Ms. Murch's bridge and talked about how the narrow opening causes the overflow. Lauren will connect with Ms. Murch about ideas on how to remedy the situation. The brook above her driveway is the perfect spawning ground for the brook trout and we did see many fish.

Johnson Brook
Johnson Brook has two small culverts that run under Johnson road. One culvert was blocked with debris but not enough to impede flow on the lake side. The brook is running well due to more recent rainfall on September 13. We also noticed the tannin level was up. There is a clear delineation of how high the water has been overflowing the brook since the May rains, we estimate 15 feet from the brook bank on the horse farm side. A question came to mind if measuring possible phosphate from the horse farm is doable? There are undercut banks, most of the alders are still anchored to the banks and other vegetation.

Sucker Brook
Sucker brook is running high and the tannin is very dark this year. There was a question about foam in the brooks in July, I found an article to share that I have placed in the report. Sucker brook has washed over the banks several times this summer, as a result a great deal of debris is present. When T'ing and I talked with Lauren she told us to not clear it out as this creates a natural barrier to hold back sediment and creates pools for fish.

Naturally occurring stream foam can be off-white, light tan, or brownish and can have a fishy or earthy odor. It's formed by dissolved organic matter, usually dissolved organic carbon (DOC). DOC results from the breakdown of organic debris, such as sticks, leaves, and tannins and watershed soils that hold organic materials. One way to describe organic matter is to compare it to a tea bag. The earth and its soils are rich in organic materials from the breakdown of plants and animals and as water moves through the soils of a watershed it collects the organic matter and then darkens just like a cup of hot tea. Once in a stream, the color largely dissipates but can tint the foam it produces.

Natural foam on the Ausable River.

In a stream, DOC acts as a surfactant reducing the surface tension of water – a common example of a surfactant is olive oil. DOC interacting with the moving water causes tiny air bubbles to form, creating an area of lower surface tension so water subsequently flows away from that spot and foam can stabilize there. Natural foam build-up is more prevalent in streams and rivers after rainfall because there's more water moving through the ground and more organic matter being dissolved. With higher water, more turbulent conditions form bubbles, and the DOC attaches to these forming foam at the surface.

While most foam is naturally occurring, it can also be human-made. Synthetic or human-made foam is usually a by-product of chemical runoff or industrial discharge. Sources include household cleaning products that contain synthetic surfactants, house paint, pesticides used on lawns or fields, or motor oils running off impervious surfaces. These chemicals – small repeating amounts over time or large pulses – can disrupt the aquatic ecosystem and undermine its balance. Human-made foam tends to smell fragrant (from detergent discharge) or unpleasant (the product of septic failures). Although you should never touch it, human-made foam is sticky and usually a pure white color but may turn darker as debris particles filter through. It will often be found near the point of discharge.

Organic rich foam trapped by a tree and natural debris on the East Branch of the Ausable River. To minimize human-made foam, reduce the use of synthetic chemicals on outdoor surfaces and, where you do use them, follow label instructions carefully. Also, make sure your septic system is properly maintained. Most residents of the Ausable watershed rely on private septic systems. Wastewater leaving your house from the shower, toilet, sink, clothes washer, and dishwasher all enter your septic system, carrying chemicals, solids, grease, dirt, and pathogens. A properly designed and maintained septic system treats and disposes of this wastewater, preventing contaminants from entering our natural waterways. - *Leanna Thalmann, Water Quality Associate*

Lenassi Brook
As with the other brooks this year the channels have changed dramatically with the amount of water this spring into summer. The brook has since subsided into the main channel with the deep pools the further away from the lake. This is normal for the time of year. I noted many deer tracks, turkey and what I believe to be racoon.

Stony Brook
Stony Brook at the mouth usually tends to be dark with tannin by this time of year. The water has a clarity I have not seen before. Due to lack of rain in the last couple weeks, unlike the previous downpours the brook follows the regular pattern of going underground and pooling under trees. One has to be careful stepping around this area further up the brook as there are many holes just under the moss which is also typical of this brook during the autumn months. The moss is quite thick this year and a vibrant green. I noticed a fungus growing, at least I think it is, very small and white, not shaped like a mushroom. I will send pictures to LEA for identification.

Respectfully submitted
Kim Struck
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