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Guest Commentary: Corps keeps public water clean naturally

By JoAnne Castagna Guest Commentary Feb 19, 2016



When we see news stories about lead contaminated water flowing out of faucets in Flint, Michigan and see the troubles the city is having as a result, many of us become concerned about our own City's drinking water supply that we use every day to brush our teeth, take a shower and fill our dog's water bowl.

The U.S. Army Corps of Engineers has an inter-agency program in place that helps keep New York City's drinking water clean and safe.

Recently one of the program's projects was successfully completed in the town of Walton. The project is protecting drinking water and also sustaining this rural community.

The program is called the New York City Watershed Environmental Assistance Program and it assists in the creation of projects that protect the water quality of New York state's watersheds that provide drinking water to millions of New York City residents and businesses.

A watershed is an area of land that catches rain and snow that drains or seeps into a marsh, stream, river, lake or groundwater. This water eventually gets stored in reservoirs, a place where water is collected and kept for use when wanted, such as to supply a city.

You may be asking yourself — Isn't the water treated before it reaches the faucets? Yes, but minimally.

"New York City prides itself on its minimal filtration of its drinking water. In 1996, all of the municipalities in the New York City watershed region came to an agreement. They wanted to avoid the creation of a huge filtration plant. Instead of a plant they agreed to have small projects throughout the region to provide the public with clean water with minimal filtration. This is how our program came about," said Rifat Salim, project manager, U.S. Army Corps of Engineers.

The New York City watershed region encompasses approximately 2,000 square miles and includes three watershed systems: The Catskill, Delaware, and Croton Systems. They are all located north of New York City in the counties of Greene, Schoharie, Ulster, Sullivan, Westchester, Putnam, Dutchess and Delaware.

A while back, the town of Walton was devastated by a major flood that damaged many homes and businesses, resulting in approximately \$30 million in losses for this community.

Trees along streams got uprooted and fell into the streams, were carried down the waterways and clogged several bridges. The fast-moving water had nowhere to flow but out onto the streets, flooding businesses and homes.

When stream banks start failing, all of the materials that used to be on the bank become potential contaminants to the water that eventually becomes New York City's drinking water. This flood didn't cause water contamination, but they could.

Salim said, "These slope failures can do a lot of damage to the water. When the slopes or embankments get eroded, a lot of sediment and soil enters the stream. These sediments cause turbidity in the water. Turbidity is when the water is not clear. It then flows into the reservoir and eventually adversely effects New York City drinking water."

One of the streams that was severely eroded during this flood was the Third Brook. Third Brook flows into the West Branch Delaware River which in turn flows into the Cannonsville Reservoir. This reservoir provides 97 billion gallons of water to New York City's drinking water supply.

To keep this water safe, steps were taken to stabilize Third Brook. The agencies that worked together included the Army Corps' New York District, the New York State Department of Environmental Conservation, Delaware County Soil and Watershed Conservation District, the New York City Department of Environmental Protection, Village of Walton and the Town of Walton.

According to Graydon Dutcher, project manager and administrator of the Delaware County Soil and Water Conservation District they stabilized the toe of the failing stream banks with stacked rock walls or rock rip rap and provided protection to the streambed with the placement of in-stream structures such as boulder riffles.

Dutcher said, "We had to use large rock to stabilize the toe of the banks and the stream bed itself because the stream has no floodplains." All of the floods, large and small are contained within the limited channel. This produces very rapid stream flow. Where ever it was possible, we buried the rocks and planted around them with native vegetation. This combination creates a more diverse and flood resilient stream corridor."

Dutcher continued, "We also hydro-seeded all of the bare slopes and planted willow stakes and native trees along the floodplain which provides for habitat and increases the streams long term stability."

Salim added, “This vegetation helps stabilize the slopes. The roots stabilize the soil and they can also absorb contaminants before they reach the stream, providing us cleaner water.”

Clean water is beneficial to fish and aquatic life. Sediments that get into the water may be composed of phosphorus and pathogens, or parasites. Algae in the water may feed off these nutrients and deplete the water’s oxygen, adversely affecting water quality.

An added benefit to stabilizing the slopes is that it helps to protect from flooding and returns the stream corridor to a more esthetically pleasing and natural appearing embankment, some of which are in the backyards of homes.

The project is already showing success. “The landowners have expressed gratitude for completing the project,” said Dutcher. He added, “This project has already seen a few high water events just after installation and the streams response has been very favorable.”

Salim said, “Communities benefit from having a nice embankment and added safety to their property and New York City residents benefit by having clean drinking water. It’s a win win situation.”

JoAnne Castagna is a public affairs specialist and writer for the U.S. Army Corps of Engineers, New York District.

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