



Susan Lenz (center) and interns work in Spring Creek in Barrington Hills.

## Living Downstream: Local Watersheds Inspire Collaboration

WATERSHEDS ARE BY-PRODUCTS of geography. Separating the waters flowing through our region before allowing them to reunite in the Fox River, the watersheds of Flint and Spring Creeks offer a host of ecological services including beautiful, naturally functioning ecosystems which are resilient to extreme weather events, while simultaneously helping cycle nutrients, store carbon, and provide healthy water.

### A Special Wetland

At the Sanfilippo Estate in Barrington Hills, a hanging fen ecosystem (5 of 31 acres of such natural areas found nationwide) provides a stable year-round supply of water to Spring Creek. Filtered by layers of soil and subsoil before it discharges above the lowest part of the slope, water from a hanging fen should positively impact the stream it feeds.

Collaborators Barrington Area Conservation

Trust's (BACT) Director of Community Engagement & Education Susan Lenz and local interns, and Dr. Andy Casper, Director of Freshwater Research for the Shedd Aquarium, wanted to see if this was the case while assisting BACT gather baseline data for a conservation easement to protect this rare natural feature. The team used the Index of Biotic Integrity to assess fish populations.

Bluntnose and blackstripe topminnows, Johnny darters, creek chubs, sunfish, brown bullheads, and largemouth bass are a few of the species recorded over several decades that were observed during this initial study. "All of these fish have different roles in the food web and use different types of habitat, so this consistency through time tells us that the quality of the river is holding steady over the years, in spite so much growth and change in its watershed," reports Casper. "We also found evidence of a native mussel species which tends to be associated with better conditions—another piece of positive news."

While this was the first time staff from BACT and Shedd Aquarium have monitored together, Casper was quick to note that McHenry County Conservation District and Illinois Department of Natural Resources have been gathering watershed data on both Spring and Flint Creek since the '80s. "Based on their data, it seems that there can be a lot of variability from one Fox River tributary to the next, often associated with land use and development practices," adds Casper. "The entire region has made big strides since the Clean Water Act, reducing harmful practices, and leading to regional improvements in water quality."

### A Watershed Plan

In 2011, a watershed-based plan was developed for Spring Creek with funding from Illinois EPA. The focus of this plan was to protect and improve water quality by reducing nonpoint source pollution, protecting natural areas and open space, improving aquatic and terrestrial habitat, reducing structural flooding, increasing communication among stakeholders, and offering watershed education.

The plan classified 2,200 acres of the Spring Creek Watershed as "sensitive," and 8,800 acres as "highly sensitive" groundwater recharge areas which can flow into local aquifers as quickly as a few hours to a few weeks compared to eastern Flint Creek's clayey soil, which can take decades to supply local aquifers. A five-year benchmark is being prepared this year, with an updated plan expected to be completed for Spring Creek in four years.

### Spring Creek Quick Facts

- Spring Creek watershed drains nearly 27 square miles (17,239 acres) of land in McHenry, Lake, Kane, and Cook Counties.
- Seventy-six percent of the watershed is classified as partially open or open space and most of this land is in Barrington Hills.
- Historically prairies, savannas, and wetlands, Spring Creek watershed currently consists of single family homes (39 percent) followed by forests and grasslands (31.1 percent) then agriculture (9.2 percent).



Data collecting in Spring Creek includes fish populations.

This past June, a new watershed-based plan was approved for Flint Creek listing projects completed in the past decade to improve the quality of the creek and detailing issues, best management practices, and educational goals moving forward. Goals of this plan focused on many of the same concerns as the other watersheds—protecting surface and ground-water resources to enhance the overall quality of lakes and streams, protecting natural areas and open space to provide passive recreation, reducing flood damage, improving habitat in and around the creek, and increasing communication and coordination with stakeholders.

### Part of a Bigger Picture

Since 2015, BACT has been working with high school interns to monitor the main stem of Flint Creek to share data with the National Great Rivers Research & Education's RiverWatch program. There has been little change in the "poor" quality of Flint Creek's water since monitoring began, but Susan Lenz remains optimistic that more residents will engage in stewardship in their backyards through Conservation@Home and conservation easements.

Lake County Forest Preserves (LCFP) Director of Natural Resources Jim Anderson shares Lenz's optimism, by attending family work days

## Flint Creek Quick Facts

- Flint Creek watershed drains approximately 36.5 square miles (23,374 acres) of land in Lake, Cook, and McHenry Counties and is a sub-unit of the larger Upper Fox River Basin which gathers water from large portions of Jefferson, Kenosha, Racine, Walworth, and Waukesha counties in Wisconsin and McHenry, Lake, Kane, and Cook Counties in Illinois.
- Thirty-four percent of this watershed is classified as partially open or open space (including agricultural, forest and grasslands, and wetlands).
- Ten high-quality wetlands, portions of four Illinois Natural Areas Inventory (INAI) sites, one village preserve, four forest preserves that include a nature preserve, four private preserves owned by CFC, and two private preserves owned by the BACT are in this watershed.



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Getting ready for an afternoon of research are Lisa Woolford of BACT (on right), Dr. Andy Casper, Director of Freshwater Research for the Shedd Aquarium (second from right), student interns, and other Shedd Aquarium personnel gathered at Spring Creek.

## How You Can Help

- Reduce runoff: “Plant attractive, lower stature, native borders along stream banks and lakeshores,” suggests Sinnott. Consider using permeable pavers or creating a rain garden.
- Add a tree: “Oak ecosystems decreased 85 percent from 1830 until 2010,” states Anderson. “A tree can hold water in its trunk and pump it back into the air through evapotranspiration.”
- Keep yard and animal waste areas away from water and storm sewers; decomposition depletes oxygen.
- Use less road salt. “Salt contamination can impact our groundwater and it doesn’t deteriorate once it’s there,” Sinnott said.
- Use fertilizers that are phosphorous-free, if necessary.
- Barrington Area Conservation Trust, Citizens for Conservation, Spring Creek Stewards, and local forest preserves can offer information about plants that can provide filtration and reduce runoff.

offered by the forest preserves and building relationships through the Barrington Greenway Initiative. Using Geographic Information System (GIS) mapping to create a green infrastructure plan, Anderson is helping colleagues discern restoration priorities. As a result, LCFP is working to establish more native species to increase infiltration and decrease sedimentation at Cuba Marsh. “If we don’t do something to hold the water where it hits the ground, we can’t prevent flooding downstream,” explains Anderson. “Flooding not only impacts recreational resources, but biological species. It degrades our communities.”

### In Your Backyard

Runoff from yards, roads, and fields contribute nonpoint source pollution. Invasive species contribute to the conspiracy. With shallow, waterhoarding roots that don’t curb erosion and leaves that have a toxic effect on amphibians, buckthorn promotes flooding and sedimentation, while threatening the ecological integrity of the area. Volunteer work days held at natural areas throughout the Flint and Spring Creek watersheds offer opportunities to address the menace of buckthorn, as well as other invasive species.

Flint Creek/Spring Creek Watershed Partnership Coordinator Faye Sinnott sees phosphorous as a significant problem, observing “this [excess nutrient] means lakes are prone to excessive algae growth, which can affect dissolved oxygen (DO)

levels.” While most algae are harmless, if it looks like blue-green paint, it could be an alga known as “cyanobacteria.” This alga can have toxic effects on people and pets and should be reported to the local health department immediately. Currently, the Village of Barrington is working on improvements to remove phosphorous from treated wastewater by the end of the year.

High levels of total suspended solids (TSS) due to soil erosion or carp activity decrease the amount of light that reaches the bottom of lakes, killing plants and leading to dead zones as the decomposition uses up the dissolved oxygen. Ecologically healthy native plant buffers in addition to bioswales and rain gardens hold soil in place while capturing runoff, also reducing nutrient runoff contamination

### From Here to the Gulf of Mexico

“The Fox River Valley is one of the headwater tributaries of the Illinois River, so protections and improvements here tend to trickle downstream,” notes Casper, “While it can be hard to envision how changes and protections in Barrington can affect Louisiana and Mississippi, there is plenty of evidence that Midwest farming practices can lead to ‘distant’ outcomes like Gulf hypoxia.”

Low oxygen “hypoxic” conditions created a “dead zone” 8,776 square miles in the Gulf of Mexico last year. Attributed to agriculture, stormwater, wastewater, and fossil fuels, nitrogen, and

phosphorous pollution reduce the availability of safe water. Staff from LCFP is beginning to document sediment loads in the Des Plaines River, but Jim Anderson would like to see this type of monitoring in all watersheds as development increases.

Each watershed needs local stewardship—from village hall and county board advocacy to helping hands in local natural areas and backyards. Living downstream from Wisconsin, yet upstream from much of the Midwest, we’re in a place where our choices can and will continue to impact the health and well being of our most precious resource—water. 

PHOTO: THOMAS BALSAMO



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