



# Huron River Report

Published quarterly by the Huron River Watershed Council

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feature story

## “Here Come Old Flat-Top”

### Easy to find and easy to identify

The Huron River system is home to many aquatic insects and, thanks to the volunteers who come out to River Roundups and Stonefly Searches, HRWC has a pretty good idea of what is living where in the watershed. One of the most abundant insects is the flathead mayfly of the family Heptageniidae, which is composed of numerous, wide-spread “clinging” mayflies. Flathead mayflies have been found in 1,100 out of 1,843 samples collected in River Roundups since the program started in 1992. Only the most polluted urban streams in our watershed, like Malletts, Millers, and Traver creeks, do not host the flathead mayfly.

The main distinguishing physical characteristic of the Heptageniidae is three tails, gills on the abdomen (like almost all mayflies), and a flattened head, body, and legs, thought to reduce water resistance. However, a flattened body is easily caught by the current when the body tilts, so the

real advantage of this shape is being able to crawl into slim crevices in stones and woody debris.

#### Habitat and feeding

Five genera of the Heptageniidae live in Michigan: *Epeorus*, *Rithrogena*, *Heptagenia*, *Stenocron*, and *Stenonema*. Of the five, *Stenocron* and *Stenonema* are found in highest abundance in the Huron River system. In stream environments, they inhabit leaf drifts, detritus, and silt areas, as well as areas underneath stones in both fast and slow moving water. As these microhabitats comprise most of the potential habitats in a stream, *Stenonema* and *Stenocron* are very common. In addition, these two genera can be found along wave-swept shores of lake ecosystems. *Heptagenia*, while less common than *Stenonema* and *Stenocron*, is also found in these habitats.



The Heptageniidae flathead mayfly is an abundant insect family in the Huron River system. credit: D. Huth, Wikimedia Commons, CC BY 2.0

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## Breathing Life Back into Norton Creek

### Partners work to restore an impaired tributary

Norton Creek is about to get a public facelift — or, as ecologists call it, a “functional uplift.” After developing a management plan for the watershed in 2017, HRWC is now working with local partners from the City of Wixom and the Oakland County Water Resources Commissioner’s office to restore a portion of the creek and add

Green Stormwater Infrastructure (GSI) to capture and treat runoff entering the creek.

#### The problem with Norton Creek

Norton Creek, a tributary of the Huron River, flows through Wixom. The State of Michigan considers it impaired due to a lack of dissolved oxygen. As

part of Norton Creek’s management plan development process, HRWC and volunteers conducted extensive investigation and data collection, learning that most of the creek’s waters are lacking oxygen most of the time. Therefore, life in the creek

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● **INSIDE: UPCOMING EVENTS AND WORKSHOPS** Flux + Flow at Fleming Creek | Funding feasibility studies for dam removals | Digging into Brighton and Ore lakes’ phosphorus problem | Volunteer Spotlight





# Laura's Stream of Consciousness



credit: H. Buffman

We have a non-traditional board of directors for a non-profit, due in part to our founding under the State's Natural Rivers Act. Most 501(c)(3) organizations have around 12-18 elected directors. While HRWC is a 501(c)(3), our board consists of appointed directors from our member governments. The number of directors appointed is based on the government's population within the watershed. One director is typical, but some areas have up to five due to their population density. With approximately 40 member governments, this arrangement can make for a very large board of directors.

Currently we have about 34 directors representing 30 governments. Not every member government has a director because not all the member governments appoint or identify an individual interested in serving on the board. I don't encourage an appointment if there is a lack of interest. Conversely, we have other municipalities with many individuals interested in serving on our board.

The board's role is to establish policies and programs to complete our mission, serve as a liaison between member governments and HRWC, appoint fiscal agents and oversee financial statements, conduct an audit, and hire/evaluate the executive director. The board serves this role well. Additionally, our board members are great ambassadors and volunteers. Board members participate in HRWC programs and committees, as well as volunteering at stewardship events. Board members communicate with local public officials and staff regarding the work of HRWC, seeking input from and representing the needs of their governments. In addition to representing their local governments, all of our directors are HRWC members themselves — they spread the word to friends, colleagues,

and family about HRWC's work and impact.

As a proud Executive Director, I want to share a few extraordinary actions board members have taken recently. In the last two years, Dave Wilson (Van Buren Township), Mary Bajcz (Milford Township), Gerry Kangas (Scio Township), Gene Farber (West Bloomfield Township), Diane O'Connell (Ann Arbor Township), Sally Lusk (City of Ypsilanti), and Paul Cousins (City of Dexter) picked up on HRWC efforts to enact local ordinances preventing pollution from pavement sealers. These board members approached their governments armed with HRWC presentations and data, successfully advocating for these ordinances.

Fred Hanert (Green Oak Township) meets with new planning commissioners and newly elected township trustees to introduce himself as a representative from the Township to HRWC, describe HRWC's mission and goals, and listen to individual concerns.

In the downriver community of South Rockwood, Matt LaFleur advocates to the local planning commissioners and trustees for improved recreational access and riparian buffers along the river. Improvements planned for Labo Park are, in part, due to Matt's advocacy.

With 67 municipalities, HRWC staff can't get to all government meetings regularly to provide updates on our work. Peter Schappach (Commerce Township) and Barry Lonik (Dexter Township) annually present to their township officials a summary of HRWC's monitoring, programs, and policies in and affecting the townships. This always generates further inquiries and initiatives with those townships.

Marlene Chockley (Northfield Township) and Sue Bejin (Salem Township) worked with their townships to host HRWC's Green Infrastructure workshops. Their efforts insured a good turnout, local buy-in, and implementation. These workshops resulted in land protection strategies, master planning, and revised zoning.

In addition to action, I want to ensure that the HRWC board is made up of a broad representation of the residents and constituents of the watershed — socio-economic, racial, religious, geographic, and gender orientation. Along with staff, I have been identifying under-represented voices on our board and seeking their involvement. We are making good progress on these efforts. A diverse and inclusive board allows HRWC to reach more residents, respond to and improve watershed concerns for all residents, and ensure clean and accessible water for all.

A list of our member governments and their board representatives can be found on page 6. Current vacant board positions are in: the cities of Brighton, Belleville, Rockwood, Walled Lake, and Wixom; the townships of Genoa, Huron, Putnam, Van Buren, Webster, and White Lake; Wayne County; and the Village of Wolverine Lake.

— Laura Rubin  
HRWC Executive Director  
@LauraRubin4



# Digging Into Lakes

## HRWC investigates harmful algal blooms in Brighton and Ore lakes

Brighton and Ore lakes, within the South Ore Creek watershed in Livingston County, experienced potentially harmful algal blooms in July and August, 2017. Blooms like this have occurred sporadically for many years. In response, HRWC and local partners investigated the problem to understand its extent and possible solutions.

### Local stakeholders assemble

HRWC developed and convened the South Ore Creek Action Team (SOCAT) to evaluate information and recommend actions to address the blooms. Phosphorus is considered the limiting nutrient that controls algae growth in these and other regional lakes. HRWC stream monitoring data showed low levels of phosphorus loading from runoff. SOCAT determined that lake sediment sampling could fill a data gap by determining levels of phosphorus bound to the sediment in the lakebed from past years of deposition. Sediment-bound phosphorus may get released when the lake loses oxygen and could be a major cause of algal blooms.

### Sediment sampling yields telling results

A team of HRWC staff and local residents collected several samples of sediment from each lake and submitted them to a lab for analysis. During the sample visits, the investigators observed an active algal bloom in both Brighton and Ore lakes.

Both lakes contain a considerable concentration of total phosphorus in their bottom sediments. While there is not a standard acceptable level of phosphorus for lake sediments, experts consider 50 parts per million (ppm) or above in native soil to be "high." The lowest result from sediment sampling in the lakes was 110 ppm (over twice the high level), at the Brighton Lake inlet. Total phosphorus concentrations in sediments across Ore Lake ranged from 460 ppm (9X high levels) to 740 ppm (15X), while Brighton Lake sediments ranged from 110 ppm (2X)

*Sediment sampling on Ore Lake using a ponar.*  
credit: HRWC

to 1,100 ppm (22X).

Overall, Brighton Lake sediments are somewhat higher in total phosphorus content, but both lakes contain far more phosphorus than the native lake plants can take up and use for growth. Given that the bottom waters of both lakes were shown to be absent of oxygen on the day of sampling, large amounts of the phosphorus from sediments are likely being released into lake water. With other conditions such as warm, bright days, significant-to-severe algal blooms are possible in both lakes. Other surface water quality testing conducted by lake associations in the past showed a broad range of phosphorus concentrations in both lakes. Brighton Lake surface water concentrations have been considerably higher than Ore Lake concentrations, making Brighton Lake much more susceptible to algal blooms. Investigation by the Michigan DEQ showed that both lakes produced toxic microcystin. Harmful algal and bacterial blooms during summer growing seasons will be possible for the foreseeable future in Brighton Lake and may occasionally occur in Ore Lake as well.

### Difficult solutions

Currently, the predominant source of phosphorus driving algal blooms in Brighton Lake appears to be lake sediments. Addressing the problem will require one or more of three things: sediment removal, sediment capping or oxygenation to keep phosphorus bound to sediment soil.



Based on HRWC surface water sampling results, it also appears that Brighton Lake is exporting a significant amount of phosphorus downstream. As lightweight sediments build up in the shallow lake and regular mixing from wind and boat traffic occurs, these sediments may be washing over the Brighton Lake dam and moving downstream. Brighton Lake is therefore a long-term source of phosphorus for Ore Lake. However, sediments in Ore Lake are also highly concentrated in phosphorus, and lake stratification can lead to harmful algal and bacterial blooms in that lake as well. Treating Brighton Lake will help Ore Lake, but sediments in Ore Lake will also need to be addressed if blooms are to be reduced. Now that we know the main source of the problem, SOCAT is considering options to reduce the likelihood of future blooms.

—Ric Lawson and Stevi Kosloskey



Mayflies swarm and mate as seen in this photo taken in the middle of the night. credit: National Park Service, Public Domain

*Epeorus* and *Rithrogena* are rarer than the other three genera, being exclusive to quick flowing shallow riffles of cobbles and gravel. They are far more common in western U.S. streams than in Midwest rivers. *Rithrogena* is only found in gravel riffles with stones of less than three inches in diameter. In a good example of how body shape can affect habitat choices, or perhaps how habitat can influence evolution of the body shape, *Rithrogena* possesses enlarged gills on its abdomen. These gills are used as suction cups to increase the mayfly’s hold on its substrate, allowing *Rithrogena* to live in streams with very fast-moving water.

The reason *Epeorus* and *Rithrogena* only inhabit this small microhabitat is that both are strong metabolic conformers, meaning that their metabolic rate is determined by the

velocity of the water in their habitat. To maintain their body functions, these genera need to expose their gills to fast-moving water that brings a constant supply of fresh dissolved oxygen.

On the other hand, *Heptagenia*, *Stenocron*, and *Stenonema* live in wide ranges of habitat, including slow-moving detrital areas. To adapt to the lower dissolved oxygen levels, these mayflies must regulate their metabolism themselves with active

gills that can beat the water like paddles, bringing fresh dissolved oxygen close to their bodies.

Heptageniidae mayflies are considered “clingers” because they live attached tightly to rocks. They are awkward swimmers compared to many other mayfly families, but scurry quickly on a rock in every direction when that rock is disturbed. Their eating habits rely on these rocks. Many Heptageniidae mayflies are scrapers, grazing on the living diatoms and other algae growing on their rock. Others are collectors and gatherers, obtaining nutrition from detritus on these rocks, or grabbing food as it passes by in the water column. One study showed that Heptageniidae graze almost exclusively at night, remaining hidden in the crevices of the rocky substrate during the day, safe from predators.

### Life cycles

Mayflies, like stoneflies, undergo incomplete metamorphosis, meaning they have three main stages to their life cycles: egg, nymph, and adult. They do not have the pupa stage seen in insects like butterflies,

caddisflies, or mosquitos that undergo complete metamorphosis.

Mayflies live the majority of their lives in the aquatic nymph stage.

When it is time to become an adult, the insects swim up to the surface, break through their exoskeleton in a very short time period (30 seconds or so), and fly to nearby stable substrate like a rock, tree, or bridge. This phase, called the subimago or dun, lasts for about 24 hours, during which the subimago mayfly sits still and completes its sexual maturation. After enough time has passed, the mayfly molts again, turning itself into a mature, flying, terrestrial adult (called an imago). Often, mayflies of the same species at the same location all emerge at the same time, creating dramatic “hatches” well-loved by fish and anglers alike. Of course, the mayflies are not truly hatching, but transitioning from the immature to mature stage.

Adults do not live long. In fact, they do not have a functioning mouth at this stage — a testament to their brief but urgent purpose: to mate and produce eggs for the next generation of mayflies. After emerging as adults, the mayflies mate in swarms, drop their eggs into the water, and die after a few hours. Some species may live a couple of days, but all mayflies die quickly after becoming adults.

Most of the Heptageniidae family have a life cycle that takes about one year to complete (from egg to adult). However, this number varies between genera and between species, and even within species, so it is hard to generalize too much. For example, *Stenocron interpunctatum* has a life cycle that ranges from one generation per year to three generations every two years. *Epeorus* and *Rithrogena* have a life cycle of only seven to eight months.

Most species of Heptageniidae emerge in a stretch from April to September, with the majority emerging from May to July. *Rithrogena* is unusual in that some species emerge as early as February and March.

Mayflies evoke fascination because of their mysterious underwater nymph stage and their dramatic and short-lived adulthood. The Huron River is a great place to see both stages, with its clean water and the wide diversity of habitat in which they dwell.

—Paul Steen



The mayfly subimago remains mostly motionless as it finishes the final steps in its maturation. credit: J. Conrad, Public Domain



## Breathing Life Back into Norton Creek *continued from cover*

is severely limited. HRWC also found that the creek contributes high amounts of phosphorus to the river, and that it suffers from high bacteria levels (see the article in the Fall 2016 *Huron River Report* for more detail).

An investigation of the physical structure of stream channels throughout the watershed revealed that the stream was extensively widened and straightened to make way for agriculture and development over the years. This alteration, combined with the flat landscape through which the creek flows, results in mostly stagnant, ponded waters. HRWC assessed the restoration potential of all the stream channels and also conducted an opportunities assessment to identify cost-effective locations for GSI projects. All of this resulted in a set of recommended actions in the Norton Creek Watershed Management Plan, which was funded by and is currently being reviewed by the Michigan Department of Environmental Quality.

### Initiating restoration

Fortunately, high priority locations for both stream restoration and GSI overlap at Gibson Park in downtown Wixom. This park is centrally located, sees a lot of pedestrian traffic, and is a City of Wixom priority for improvements. In the summer of 2018, HRWC will work with partners to restore the stretch of Norton Creek that flows through the park and will retrofit the park with GSI. The stream restoration will create a narrower, more diverse low-flow channel that facilitates aeration, raising dissolved oxygen levels in the stream. GSI projects may include bioswales, rain gardens, and/or rain barrels at the Gibson House. They will serve to capture and treat runoff from Pontiac Trail and the park itself, reducing the level of pollutants that make it to the creek while slowing water movement to more closely mimic natural stream flow.

Each Spring, Wixom hosts the Founders Day Festival, which brings area residents to Gibson Park for performances, a classic car show, a pie contest, and family fun. HRWC will be attending the festival to talk to people about Norton Creek, the strategies that can help improve

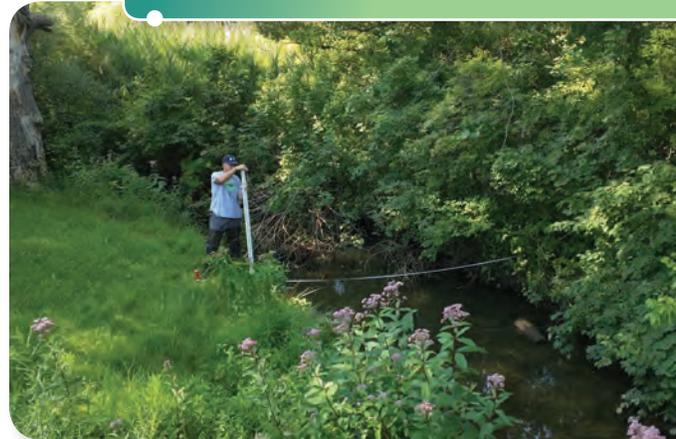
water quality, and the project that will be happening at the park. The team will also be looking for volunteers to help with the restoration.

### The path forward

With a watershed management plan in place and an implementation project underway, HRWC is looking forward to working with others to build on this momentum and implement restoration, green infrastructure, and other strategies that result in measurable and lasting improvements to Norton Creek.

—Ric Lawson and  
Rebecca Esselman

HRWC volunteer Larry Scheer setting a survey rod at a site in Norton Creek. credit: HRWC



Now  
mobile  
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## New Website, New Features

Check out HRWC's new and improved website!

### New design

Huron River Info Stream with maps, monitoring data, and creekshed status updates

Searchable resource library of more than 500 publications

Inspiring photography by local artists and professionals

We welcome your feedback! Contact Anita at [adaley@hrwc.org](mailto:adaley@hrwc.org).



[www.hrwc.org](http://www.hrwc.org)

# The Huron River Watershed

## MISSION

The Huron River Watershed Council protects and restores the river for healthy and vibrant communities.

## VISION

We envision a future of clean and plentiful water for people and nature where citizens and government are effective and courageous champions for the Huron River and its watershed.

## CORE VALUES

We work with a collaborative and inclusive spirit to give all partners the opportunity to become stewards.

We generate science-based, trustworthy information for decision makers to ensure reliable supplies of clean water and resilient natural systems.

We passionately advocate for the health of the river and the lands around it.

## HRWC BOARD OF DIRECTORS

### Executive Committee

Mary Bajcz  
Chris Benedict (Vice Chair)  
Janis Bobrin  
Paul Cousins  
Matthew LaFleur (Treasurer)  
Michelle LaRose  
Dick Norton (Chair)  
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Barry White  
Curt Wolf  
Lisa Wozniak  
Steven Wright



Visit [www.hrwc.org](http://www.hrwc.org) for detailed maps, monitoring data and creekshed status updates.





Front row: Rebecca F., Rebecca E., Jennifer, Elizabeth, and Margaret.  
 Middle row: Pam, Laura, Kris, Paul, Anita, and Stevi.  
 Back Row: Jason and Ric.  
 credit: Anne Savage Photography

**HRWC STAFF**

- Anita Daley** x 603  
Marketing Specialist  
adaley@hrwc.org
- Rebecca Esselman** x 611  
Watershed Planner  
resselman@hrwc.org
- Rebecca Foster** x 610  
Development Associate  
rfoster@hrwc.org
- Jason Frenzel** x 600  
Stewardship Coordinator  
jfrenzel@hrwc.org
- Jennifer Kangas** x 604  
Operations Director  
jkangas@hrwc.org
- Stevi Kosloskey** x 613  
Watershed Planning Assistant  
skosloskey@hrwc.org
- Pam Labadie** x 602  
Marketing Director  
plabadie@hrwc.org
- Ric Lawson** x 609  
Watershed Planner  
rlawson@hrwc.org
- Kris Olsson** x 607  
Watershed Ecologist  
kolsson@hrwc.org
- Elizabeth Riggs** x 608  
Deputy Director  
eriggs@hrwc.org
- Laura Rubin** x 606  
Executive Director  
lrubin@hrwc.org
- Margaret M. Smith** x 605  
Director of Development  
msmith@hrwc.org
- Paul Steen** x 601  
Watershed Ecologist  
psteen@hrwc.org



1100 North Main Street, Suite 210  
 Ann Arbor, Michigan 48104  
 (734) 769-5123  
[www.hrwc.org](http://www.hrwc.org)



## Chemistry and Flow Monitoring Orientation

Saturday, March 24, 1 – 2:30pm, NEW Center, Ann Arbor

*Help measure the quality of local rivers and streams this spring and summer. Collect water samples, measure stream flow and sample runoff from rain storms. Stream sites are in Washtenaw, Livingston, and Wayne counties. Commitment is two or more hours per month, April through September, depending on availability and interest. We have a strong need for volunteers to work downriver. Additional hands-on training will occur in the field during the first week of sampling.*

Details: [www.hrwc.org/water-quality-monitoring](http://www.hrwc.org/water-quality-monitoring)

Registration: [www.hrwc.org/volunteer/chemflow](http://www.hrwc.org/volunteer/chemflow)

## River Roundup

Saturday, April 21, 9am or 10:30am, lasts 4 hours, starting at the NEW Center, Ann Arbor

*Volunteer with us this EARTH DAY! Join a small team with your friends and family for our Huron River study. Collect a sample of the bugs and other creatures (benthic macroinvertebrates) that live in the Huron to help us monitor the health of our streams.*

Registration: [www.hrwc.org/volunteer/roundup](http://www.hrwc.org/volunteer/roundup)

## HRWC Annual Meeting

Thursday, April 26, 5:30 – 7:30pm, location TBD

*Join us for program updates and celebrate our annual Stewardship Award honorees. Meet staff, board and volunteers as we share HRWC accomplishments and future plans. Light refreshments will be served.*

## Insect ID Day

Sunday, April 29, Noon or 2pm, lasts 2 hours, NEW Center, Ann Arbor

*Discover what kinds of bugs volunteers found at the recent Roundup. Separate them into look-alike groups, and then an expert will identify them with you. You record the data and compare the results to past years.*

Registration: [www.hrwc.org/volunteer/id-day](http://www.hrwc.org/volunteer/id-day)

## Huron River Day (new springtime date!)

Sunday, May 20, 1 – 5pm, Gallup Park, 3000 Fuller Road, Ann Arbor

*Discount canoe and kayak rentals, children's activities, live animal programs, river exhibits, music, food, fishing, and much more. Ride your bike to the event and receive a coupon for a free boat rental. Sponsored by DTE Energy Foundation.*

Details: [www.a2gov.org/hrd](http://www.a2gov.org/hrd)

Stay up-to-date on all events at [www.hrwc.org/calendar](http://www.hrwc.org/calendar)



credit: E. Wolf



## \$36,000 and counting! That's how much we've raised through Books by Chance with your support.

Proceeds from the internet sale of old and unwanted books, CDs, and DVDs helps HRWC. Please donate! We like the slightly esoteric, academic, scholarly, and especially university presses. To put your "treasures" to work for HRWC bring your donation to the HRWC office, 9am – 5pm weekdays. We will handle the rest.

**QUESTIONS:** Rebecca Foster (734) 769-5123 x 610 or [rfoster@hrwc.org](mailto:rfoster@hrwc.org)



# Together We Protect Our Home River

## How your donor support helps

Motivations for giving are as diverse as the people who give. Clean water for drinking, a clean river for recreation, and community economic development are just some of the reasons people give to HRWC. There are many ways an individual or a business can act on their motivations, but let's talk about how your donations are put to work here at HRWC.

**Membership** donations address emerging issues that lack a funding source. HRWC's Pavement Sealant Campaign in 2016/17 is a great example. Membership dollars funded staff research, monitoring, and advocacy activities that resulted in ordinances in 11 watershed municipalities banning toxic pavement sealants that harm the river.

Contributions to HRWC's **Annual Fund** cover the recent loss of federal and state environmental monitoring programs, targeting water quality monitoring and support systems for programs. The Annual Fund provides critical support needed to operate programs and support staff working to protect our clean water.

HRWC earned a 4-Star **Charity Navigator** rating in 2017, meaning we exceed industry standards and outperform most charities. Whatever your motivations for giving are — be it clean water, recreation or economic development — you can be confident that we are using your contributions responsibly and honoring your intentions as a donor.

Every gift from every donor helps continue our momentum and contributes to HRWC's watershed



credit: M. Rowe

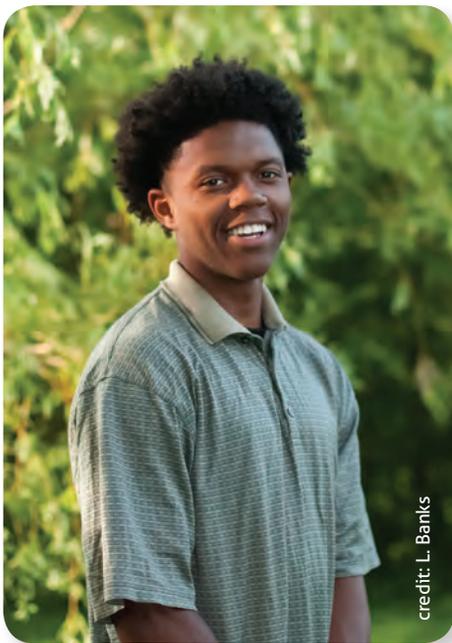
community, as well as HRWC's vision and impact. Thanks to you and your donations, HRWC will continue to make incredible progress protecting and restoring the river for healthy and vibrant communities.

—Margaret Smith

## Volunteer Spotlight • Eric Robinson



credit: G. Hieber



credit: L. Banks

HRWC Volunteer Eric Robinson became increasingly interested in the outdoors, especially fishing, after moving from Detroit to Belleville in middle school. A pond in his backyard stocked with fish was his starting point (along with a fascination with a fishing game on PlayStation 2!). This interest blossomed into an appreciation for local lakes and streams, and eventually, the Huron River. In high school, Eric started the school's ecology club, bringing classmates to volunteer with HRWC. Spurred by Eric's involvement, his former teacher, Jennifer Garland, continues to encourage students to volunteer for HRWC. She also participates in HRWC's youth education program.

Now at Eastern Michigan University, Eric continues volunteering with HRWC, looking for opportunities to connect his passion and interest in the outdoors

with his career goals. Eric is interested in the hydrology of lakes and streams. In the summer of 2017, Eric dove into HRWC's aquatic field internship program, where he helped lead other students. As Eric was a sophomore at EMU at the time, his efforts did not qualify toward the mandatory EMU internship required of all juniors and seniors. But that did not diminish Eric's dedication to the tasks at hand. He provided "more data than we've ever collected," says Paul Steen, HRWC Watershed Ecologist.

When asked what first piqued his interest in the environment, Eric says, "planting and pruning trees with my dad when I was a kid." Thanks for all your hard work, Eric!

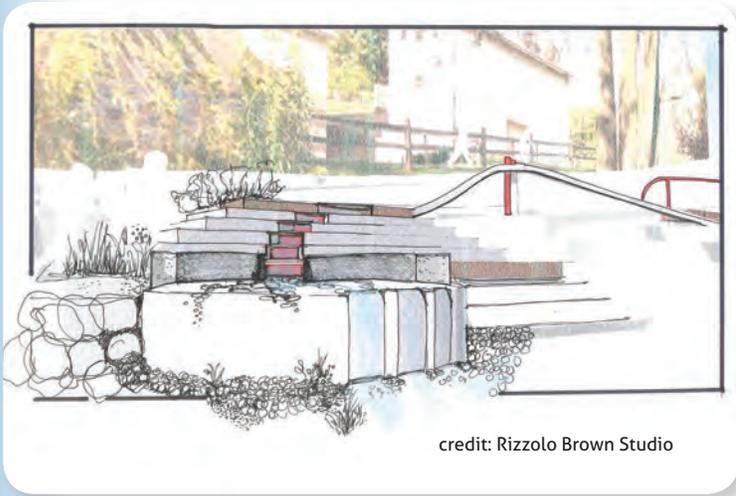
HRWC is delighted that the next generation is full of amazing people like Eric.

—Jason Frenzel



# RiverUp!

*RiverUp! is a campaign to restore and revitalize the Huron River. It is the Huron's signature place-making initiative that seeks to transform the river corridor into a premier destination in Michigan and the Great Lakes. HRWC leads this public-private partnership and executes projects that improve river health, recreation access, and water-based investments in local economies. [www.hrwc.org/riverup](http://www.hrwc.org/riverup)*



credit: Rizzolo Brown Studio

## Flux + Flow at Fleming

From Merriam-Webster:

**flux:** a continuous moving on or passing by (as of a stream)

**flow:** to issue or move in a stream

Recognizing the inspirational power of water, HRWC commissioned a study to identify opportunities to enhance the river setting through projects that captivate our fascination with the flow of water. One of those projects, Flux + Flow, will be coming to life on the banks of Fleming Creek this spring at Parker Mill County Park in Washtenaw County. The project will create a creekside setting for contemplation, pleasure, and discovery where visitors can observe and interact with the creek waters in a dynamic manner.

The design draws inspiration from historic Parker Mill and features a sculptural stainless steel sluce that mimics the mill race. Visitors can pump water into a basin that spills into one of the two sluce channels, allowing water to flow and splash onto two millstones at the edge of the creek. The textured surface of the sluce and millstones creates a kaleidoscope of patterns in the flowing water and enhances opportunities for interaction. Natural boulders and stepping stones will allow visitors to follow the water as it makes its way down the sluce to the water's edge, and provide seating for restful contemplation.

Flux + Flow is dedicated to the work of Janis Bobrin, who served as Washtenaw County's Drain Commissioner for over 20 years. Her efforts to integrate water quality protection and environmental resource management into the role of Drain Commissioner contributed to the changing of the name of the office to Water Resources Commissioner to reflect a more holistic approach to its responsibilities. Janis also has served on the HRWC Board and the Washtenaw County Parks and Recreation Commission. Flux + Flow captures the spirit that inspires environmental stewardship in all who play in its waters.



credit: A. Kline

## Flook Dam Portage Improvements

The portage around the Flook Dam (known as Portage Lake dam to some) has long been identified as a location on the Huron River National Water Trail needing improvement. HRWC quickly prepared a plan to remove the existing dilapidated steps and rollers, install new, wider timber steps and gravel surfacing, and construct a small stone jetty on the downstream side to create a quiet water zone near the base of the dam. The project approval process proved to be more challenging.

Flook Dam is located on University of Michigan Sailing Club property and is operated by the Washtenaw County Water Resources Commissioner. Furthermore, this section of the river falls within the state-designated Natural River District. What's more, the proposed work would require a permit from the Michigan DEQ. Discussions with each of these agencies began in the summer of 2014. All of the required permits and approvals were obtained three years later.

After construction finally began in early December 2017, the construction crew persevered through cold and sometimes snowy weather to complete the project in just three weeks. The new, improved Flook Dam portage will be ready for paddlers heading downstream from the Chain of Lakes in Spring 2018!

—Andrea Kline



# Dam Good Effort

## Breaking through the money question for dam removals

### A legacy of dam building

In the time between European settlement and the middle of last century, more than 100 dams were constructed on the Huron River and its tributaries. The dams, originally built for various purposes like power generation and water supply, now primarily serve as recreational reservoirs with only four structures still producing hydropower. Local governments, the State of Michigan, and residents own most of the dams.

All built infrastructure requires periodic and regular inspections and investments for repair to ensure continued safe operation — dams and their reservoirs included. The majority of dams in this watershed exceed the recommended 40-year lifespan of the American Society of Civil Engineers. While some dams have been properly maintained and repaired, many more either do not require inspection, so their conditions are not well-known, or the maintenance has been deferred due to lack of resources or attention. Ensuring safe operation for communities and river recreation users is just one dam concern for HRWC.

### A renewed effort to remove dams

HRWC, as a steward of this freshwater system, strives for protection and restoration of the river while improving quality of life for watershed residents. Deleterious effects of dams on their host rivers are well-documented in scientific literature and impact chemical, physical, and biological conditions. Where river restoration through dam removal can be achieved, HRWC is there to provide technical and community organizing support.

2018 marks the 10-year anniversary of the successful Mill Pond Dam removal from Mill Creek in the City of Dexter. Since then, HRWC has hosted a workshop for small dam owners and operators; created — and continues to facilitate — the Huron River Dams Network; conducted an inventory of all dams in the watershed; developed a

database and model for prioritizing restoration opportunities; and facilitated regional meetings around Michigan to develop recommendations to state agencies. Time and again, dam owners demonstrate interest in potential removal of their dams, yet they lack the funds needed to pay for the pre-removal feasibility studies. Consequently, inaction has been the status quo.

HRWC, through its RiverUp! campaign, decided to be proactive in filling this funding gap. Last year, HRWC had conversations with three communities that own dams and had expressed interest in knowing more about their dam infrastructure. HRWC proposed sharing costs with local governments to pay for the technical studies required for future dam and reservoir alterations. By May 2017, an engineering team, led by PrincetonHydro, LLC, was selected and visited the three sites to develop scopes of work and fee estimates.

### What's next?

One community, Ypsilanti, decided to move forward on the studies for the city-owned Peninsular Paper Dam. The studies will focus on characterizing the sediment quality and quantity, reviewing the infrastructure and land ownership around the dam, and developing an initial design and cost estimate for dam removal and restoration. Field work, facilitated community conversations, and final results are slated for Spring/Summer 2018.

If you are interested in learning more about the river restoration and dam removal in Ypsilanti, contact Laura Rubin. HRWC is continuing to raise funds to pay for the shared costs of this study and to facilitate community conversations and education.

—Elizabeth Riggs and Laura Rubin

Peninsular Paper Dam, Ypsilanti  
credit: D. Coombe



### WHEN LESS IS MORE

The science and practice of dam removal and river restoration falls into two camps. The conventional approach seeks to thoroughly design the new stream based on natural channel design metrics. PrincetonHydro, LLC and its Regional Director, Laura Wildman, P. E., have practiced a “less is more” approach on scores of dam removal projects, which offers the dual promise of improved sustainability and lower cost.

In her “Art of River Restoration” keynote presentation at the 2017 Michigan Aquatic Restoration Conference, Wildman explained that it is not possible to perfectly design and control a restored stream. Instead, designers should use the least amount of material necessary to protect property and let the stream do the rest of the work, while monitoring progress and adjusting where necessary. The goal: express the river’s vision rather than the designer’s.



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