Huron River Report

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feature story

Hellgrammites

The insect of your nightmares

When volunteers look for aquatic insects during the River Roundup, few species generate more excitement than the hellgrammite. This long and wide aquatic insect boasts impressively large mandibles that give a blood-drawing pinch to those brave or dumb enough to pick them up with their bare hands! But fear not, swimmers and paddlers, for it is highly unlikely to accidently run across a hellgramite; these shy predators hide under rocks and in packs of leaves and decaying vegetation.

"Hellgrammite" is the common name given to this megalopteran larvae, and the adult stage of the insect is known as a dobsonfly or fishfly. In Michigan, there are five species from four genera, but the biggest and most common in the Huron River watershed is *Corydalus cornutus* from the family Corydalidae. Hellgrammite is certainly an eye catching word, and it begs the question of how something could get a name like that, but the etymology of that name has been lost in time. It is possible the second half of the world is based from "gammarus" meaning lobster in Latin. In any case, it is not hard to imagine why fishermen or scientists started calling this insect such, because if there was ever a bug from Hell, this would be it.

It can commonly grow between two and three inches long, and larger specimens are found occasionally during the River Roundup. The mandibles are about the same length as the insect's head and fringed with four sharp teeth. The thorax holds three pairs of legs, and the abdomen

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The Hellgrammite: if ever an insect came from Hell, this would be it.
credit: H. Safford

PFAS in the Huron River • *An emerging threat*

PFAS, a family of toxic, persistent chemicals, have been found in drinking water across Michigan. In August, PFAS were found at high levels in the Huron River. They have also been found in a few wells in the watershed. So far, no drinking water source in the watershed has PFAS levels that exceed Environmental Protection Agency (EPA) guidelines, but there is concern the EPA guidelines don't provide sufficient protection.

HRWC is working with communities, county health departments, and state agencies to understand PFAS chemicals and determine how to clean them up. There are currently no federal rules regarding PFAS, so regulatory options will have to come from state or local authorities.

HRWC has been tracking the crisis since it emerged in Michigan—compiling relevant information for the public at hrwc.org and continually pressing state agencies for updates. In October and December, HRWC facilitated two public information meetings that gave watershed residents a chance to hear from experts, ask questions about the potential health impacts, and understand what can be done to address the issue. County health departments, watershed communities, and state agencies

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Laura's Stream of Consciousness

Making Michigan a Leader in Clean Water and Environmental Protection

With a new Michigan administration, HRWC has identified policy priorities for 2019 and for the next four years. As Governor Whitmer assembled her team and agency leadership, the environmental community was busy synthesizing and strategizing policy efforts to protect the environment and for HRWC, specifically water. We seized a few opportunities.

HRWC participated in the development of an Environmental Policy Priorities document to present to the new governor, state administration, and state agencies. The policy document lays out clear and consistent environmental policy priorities from the Michigan environmental community for the next four years. The effort was led by the Michigan Environmental Council (MEC) and the Michigan League of Conservation Voters (MLCV).

Governor Whitmer's transition team sought HRWC's guidance and direction on energy, water, and environmental protection. We provided strategies and policies on climate adaptation, water monitoring, infrastructure, environmental justice, emerging contaminants such as PFAS, and 1,4 dioxane clean-ups.

Finally, I took part in a Michigan Drinking Water Workshop. The goal was to convene experts and impacted communities to develop a policy agenda for the state on the variety of challenges and opportunities surrounding drinking water. The concept was modeled on the President's Council of Advisors on Science and Technology (PCAST) 2016 drinking water workshop. The outcome will be a concise, common action agenda that is a roadmap for the new governor, Michigan, and local communities to ensure access to a 21st century drinking water system that provides clean, safe, affordable, and sustainable water.

Throughout these discussions and recommendations, I identified a few clear top priorities directly related to HRWC's mission to protect and restore the river for healthy and vibrant communities.

A few of our top priorities:

- Utilize and fund MiCorps (the Michigan Clean Water Corps), a network of volunteer water quality monitoring programs for lakes and streams that collects and shares water quality data for use in water resource management and protection programs.
- Prohibit the use of coal tar sealcoats containing PAHs (Polycyclic aromatic hydrocarbons).
- Bring Michigan's wetlands protection program (under Section 404 of the Clean Water Act) in line with federal minimum standards.
- Establish a state drinking water standard for PFAS using a health-based standard (maximum contaminant level) with consideration of low-dose toxicity and ensuring adequate protection for populations most vulnerable to PFAS effects.
- Provide funding for cleaning up contaminated sites, monitoring water quality and recycling by replacing the Clean Michigan Initiative bond funding through the increase of state fees, including tipping fees on landfill and other waste materials, or by reissuing the 1998 bond.
- Prevent pollution from failing septic systems by adopting a statewide septic code requiring regular septic system inspections, coupled with the creation of new funding that helps local government and low-income families fix failing septic systems.

H. Buffman

- Utilize and fully fund integrative asset management and watershed planning at the state and local level so all Michigan communities can modernize their water infrastructure in an efficient, sustainable, resilient and cost-effective manner. Include planning and actions that anticipate the impacts of extreme weather and climate change.
- Provide the authority and financial and technical resources to local units of government and water utilities to help them design and implement water affordability plans with sliding-scale (flexible) rates that consider a customer's income and ability to pay, with the goal of ending water shutoffs.
- Help local governments address combined sewer overflows and stormwater management by increasing the adoption of nature-based infrastructure, land-use planning, and low-impact development; adopt enabling legislation for local stormwater utilities and other innovative local funding mechanisms.

While Michigan's government has been marred by the Flint crisis and more recently, PFAS, it can take this opportunity to be a leader on clean water and environmental protection by partnering with the environmental community, legislators, and affected communities to pass legislation that protects the environment, builds strong communities and economies, and is based on sound science. HRWC looks forward to working with our NGO partners, state legislators, state staff, and the Governor's office to realize this vision.

— Laura Rubin
HRWC Executive Director
@LauraRubin4

Climate Change Vulnerability

What is it and what are we doing about it

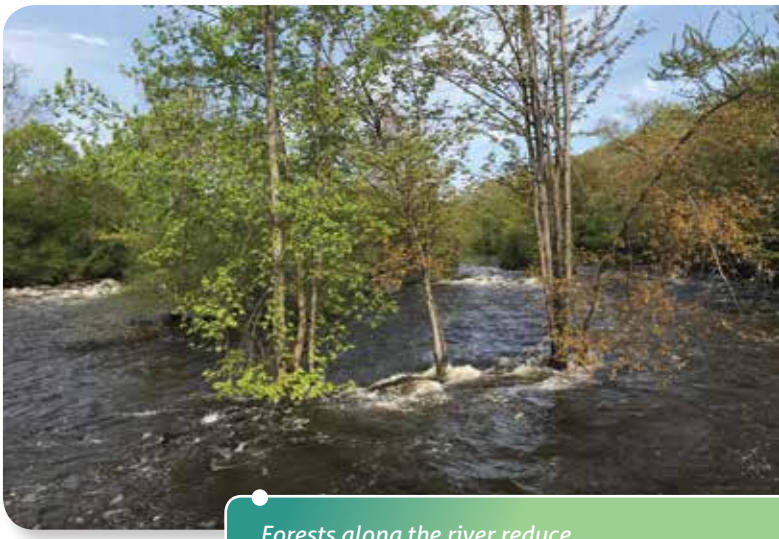
Climate change is no longer an uncertainty of the future. It is an uncertainty of the present. Each year weather patterns look less and less familiar. Extreme events of all types (rainstorms, heat waves, droughts, wildfires, etc.) are occurring at record breaking frequencies, intensities, timing, size, and damage caused. As a result, people, wildlife, and landscapes are becoming more vulnerable to impacts from climate change.

All kinds of people and ecosystems are feeling the effects of and are vulnerable to all kinds of climate change impacts. This includes farmers losing crops to drought or new pests, urban families evacuated from flooded homes, towns losing roads and water services due to extreme storms, or an asthmatic child struggling through hot, humid air during heat waves or forest fires. Each person and system has a different vulnerability based on exposure, sensitivity, and ability to adapt.

HRWC works with communities and people to reduce vulnerabilities to climate change. In the Huron River watershed, rainfall is the climate factor that is changing the most quickly. One way that HRWC reduces vulnerabilities to the impacts of larger and more intense rain events is by working with stormwater managers throughout the watershed to design stormwater systems that can handle more water through both traditional pipes and natural ecosystems. HRWC also reduces vulnerabilities associated with dams by providing dam operators with better real-time flow data and connecting operators with each other so they are better prepared to respond to extreme events and protect people and infrastructure.

Another anticipated impact in the watershed is more high heat days. When this is coupled with the drier weather of July and August, the river ecosystem itself is vulnerable. Many species cannot withstand high water temperatures and low water levels. To decrease these vulnerabilities, HRWC works to maintain as much riparian forest habitat as possible, providing critical shade and cool groundwater to the river when it needs it most.

HRWC is also involved in the development of a set of vulnerability assessment resources that allows cities to assess climate vulnerabilities, determine which people are most likely to be negatively affected, and develop strategies to reduce vulnerabilities. This regional effort has HRWC supporting cities throughout the Great Lakes as they conduct these assessments and incorporate climate change into local and city-level decision making.



Forests along the river reduce the impacts of flooding and keep stream temperatures cool when air temperatures are high. credit: HRWC

Examples of what individuals can do to reduce their vulnerabilities and those of their community include:

- Review the drainage outside your home and divert rain away from the foundation and into natural areas such as a swale or rain garden.
- Sign up for your city or county emergency notification systems to get important updates about extreme weather events.
- Elevate furnaces, water heaters, and other valuables located in basements or flood-prone first levels.
- Carry flood insurance if you are in or near the floodplain.
- Visit the Red Cross website and assemble an emergency preparedness kit and disaster plan.
- If an extreme event should occur, check on family members or neighbors that are more vulnerable such as the elderly, those without air conditioning, or those with health issues.
- Advocate for funding to support actions that increase your community's ability to withstand impacts and recover quickly from extreme events.

As the global society continues to mobilize around slowing and ultimately stopping climate change, it also needs to prepare for the inevitable changes resulting from past and current greenhouse gas emissions. HRWC will continue to work to reduce the vulnerabilities of people and natural systems in the Huron and regionally. Individual actions help as well.

—Rebecca Esselman

Hellgrammites *continued from cover page*

has a series of long filaments that give the creature a centipede-like appearance. These filaments are not legs and have no obvious function, though have been reported to deter predators.

Hellgrammites are considered great for bait, in particular for smallmouth bass. They live a long time on a hook, keep up a natural vigorous motion while hooked, and as aquatic creatures with gills, survive when thrown into the water. However, in wild settings they are rarely found in the stomachs of fish, probably because they spend most of their time well-hidden beneath rocks.

Hellgrammites live in the water as larvae from somewhere between two to five years, which gives plenty of time for them to grow to such a large size. When they are ready, they pupate in a moist location near the stream and emerge as adult dobsonflies about two weeks later. Just like mayflies, life as an adult is very short (three days for males, eight to ten for females) and consists entirely of mating. Like their larval counterparts, the adults are large and rather scary looking. Females still have the ability to bite and can even draw blood, and the males have massive pincers that look like they can do the same. The males are rather harmless at this stage though, and the pincers are used for mating purposes and not for attacking!

Hellgrammites are one of the "sensitive" insects that HRWC likes to see in River Roundup samples, as they are indicators of unpolluted waters. Unfortunately, HRWC sampling has shown that they have significantly decreased over time. In the early 2000s, volunteers were finding multiple specimens per sample in parts of Davis Creek and in the Huron River from US-23 in Livingston County through Dexter and into Ann Arbor. Since that time, volunteers more regularly come back with none or maybe one specimen from these locations. This is quite concerning as this section of the Huron River has long been the healthiest and most biodiverse of anywhere in the watershed. The reason for the decline is not clear, but HRWC will continue efforts to find out, as well as always promoting river friendly practices so that water quality can stay as high as possible.

Interested in finding a hellgrammite? The next River Roundup is April 27, and you can register by visiting our website: www.hrwc.org/volunteer/roundup/

—Paul Steen

Hellgrammite Fun Fact

Did you know that Superman fought a villain named Hellgrammite in a 1968 DC comic? The evil doer had a powerful exoskeleton, some really nasty mandibles, and continued the trend of Superman fighting some of the most poorly conceived villains imaginable.

The male dobsonfly has wicked pincers, but these are only used for grabbing onto a mate!
credit: Flickr CC-BY-2. 0, Geoff Gallice

We Support Nature • *A cure for what ails you*

J. Lloyd

The notion that nature is good for people is very intuitive, but scientific evidence for this notion keeps growing. The benefits of nature for human health and well-being are numerous. Spending 90 minutes a day outside in a wooded area decreases activity in the part of the brain typically associated with depression. Contact with nature reduces blood pressure, anxiety, aggression, and ADHD symptoms, improves pain control and increases happiness.

In Scotland, doctors are now authorized to prescribe nature for their patients. Doctors nationwide in the U.S. have already begun giving their patients "park prescriptions," instructions to improve their health by spending more time outdoors. Prescription suggestions include such activities as "appreciate the speed of the wind," "make a bug hotel," "dip your feet in a river," or "pick two different trees and study them." Local governments in the Pacific Northwest, and elsewhere are seeking guidance in designing green infrastructure that can protect both water quality and human health. They are looking to direct their investments to address both.

As I look out my office windows I see people running, biking, and walking with dogs or friends along the river. Every day these individuals choose the intrinsic value of the river and the trails that surround it over their own neighborhood streets.

HRWC volunteers and donors do the same. Their investment in HRWC has many benefits: the improved chemistry and flow of our water, beautiful places for outdoor recreation, safe habitat for wildlife, and people's health and emotional well-being. We are grateful to HRWC supporters who contribute to river protection and restoration efforts, and acknowledge that their contributions immeasurably improve the quality of our lives.

I wrote myself a prescription to reduce my stress, and I hope to see you outside soon.

—Margaret Smith

PFAS in the Huron *continued from cover page*

participated.

PFAS (which stands for per- and poly- flouroalykl substances) have been used widely in manufacturing since the 1940s. They are in everything from Teflon to dental floss to fire-fighting foam to water-resistant coating on clothing. They were designed to stand up to the harshest elements. Dubbed "forever chemicals," they live up to their name. They take a very long time to break down in the environment, and they accumulate in tissues and organs over time.

PFAS are linked to numerous health risks including cancer, decreased fertility, low birth weights, organ and immune dysfunction, increased cholesterol levels, and behavioral disorders in children. As PFAS threats have increased, new research emerges with increasing frequency, and additional health risks have been discovered.

For two of the most common PFAS chemicals, the EPA issued a health advisory level in 2016: Perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), individually or in combination, should not exceed 70 parts per trillion (ppt). That is only an advisory level, not an enforceable level, and other institutions including the Centers for Disease Control and Prevention (CDC) and the Michigan PFAS Action Response Team (MPART) recommend setting much lower levels to avoid health risks.

Even before there were any health advisories for PFOS and PFOA, the City of Ann Arbor was testing for them in their intake and finished drinking water. The amount in treated drinking water in Ann Arbor has never exceeded the EPA health advisory level of 70 ppt since testing began. The most recent tests put it at 22 ppt, which is the highest level since 43 ppt was found in the very first round of tests in March 2014.

Back in 2014, there was little context for what was a harmful amount of PFAS. After PFAS were found at high levels in other parts of Michigan, the state took action in 2018 to find other contaminated sites. The Ann Arbor data triggered additional testing of the Huron River by the Michigan Department of Environmental Quality (MDEQ) and the Michigan Department of Agricultural and Rural Development (MDARD).

In late summer 2018, things started moving more rapidly. PFAS were found at extraordinarily high levels in the Upper Huron. Fish were tested from multiple sites, and their meat contained PFAS at levels above the threshold deemed safe for human consumption. A "Do Not Eat Fish" Advisory was issued and extended to include all of the Huron River. Because fish are highly mobile, HRWC recommends not eating fish from any connected stream or lake as well.

MDEQ identified a major source of PFAS in the Huron River as Tribar Manufacturing in Wixom. Tribar once used PFAS in chrome plating of automotive parts, but stopped using the chemicals in 2015. The PFAS they were discharging were making their way through the Wixom wastewater treatment plant and into Norton Creek, which drains to the Huron.

That discharge of wastewater to a drinking water source violated rules set by MDEQ, prompting MDEQ and the City of Wixom to issue an order for Tribar to take action and reduce PFAS in its effluent.

In early October, Tribar installed Granular Activated Carbon filters (GACs) to remove PFOS and PFOA from their wastewater. The good news is the filters seem to be working. PFOS levels have dropped from 28,000 ppt to nearly zero. The levels from the Wixom wastewater treatment plant have declined as well, though not as fast, probably due to residue in treatment systems and sewer pipes.

Unfortunately, even as PFAS levels from Tribar fell, PFAS levels measured near the Ann Arbor drinking water intake spiked in October. No one knows why. It could also mean that particularly wet periods flushed PFAS from parts of the river that tend to remain drier or from Norton Creek itself. It could mean there are additional undetected sources of PFAS to the Huron River. So little is known about how PFAS behave in a river that more monitoring data is needed to understand when, where, and how PFAS concentrations present the greatest risk.

In August 2018, a "Do Not Eat Fish" Advisory was issued by the Michigan Department of Health and Human Services for most of the Huron River. credit: D. Brown

As Ann Arbor and Tribar have both shown, there are some effective treatment solutions for some of the most widespread PFAS chemicals. It is also known that eliminating sources of PFAS or keeping them out of the environment entirely is far more efficient and cost-effective than removing them from drinking water sources and from the river.

PFAS contamination in the Huron River has exposed critical gaps in drinking water protection. Curiously, there are no rules against using PFAS-laden surface water for drinking water. There are only rules against using water from wells or against polluting drinking water sources. That means there is no law forcing Ann Arbor to treat its drinking water for PFAS. The city is, thankfully, taking the initiative to lead on an emerging crisis and protect people that drink the water.

HRWC will continue to bring local, state, federal, and private partners together to inform watershed residents about the risks of PFAS. HRWC will continue to advocate for stronger protections that provide clarity for businesses, community leaders, and residents.

—Daniel A. Brown

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.

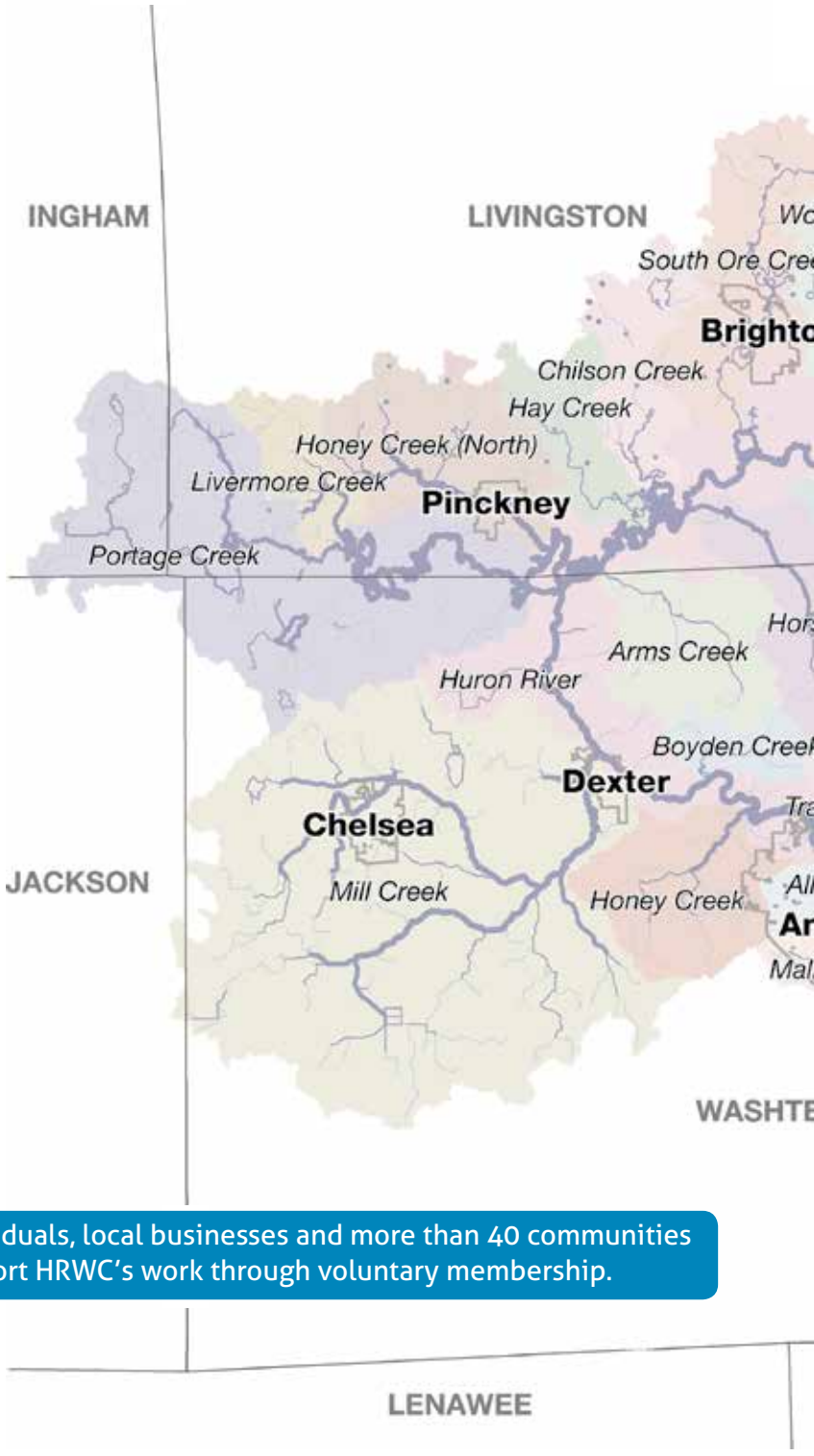
CORE VALUES
We work with a collaborative and inclusive spirit to give all partners the opportunity to become stewards.

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

The Huron River Watershed



Individuals, local businesses and more than 40 communities support HRWC's work through voluntary membership.

Visit www.hrwc.org for detailed maps, monitoring data and creekshed status updates.

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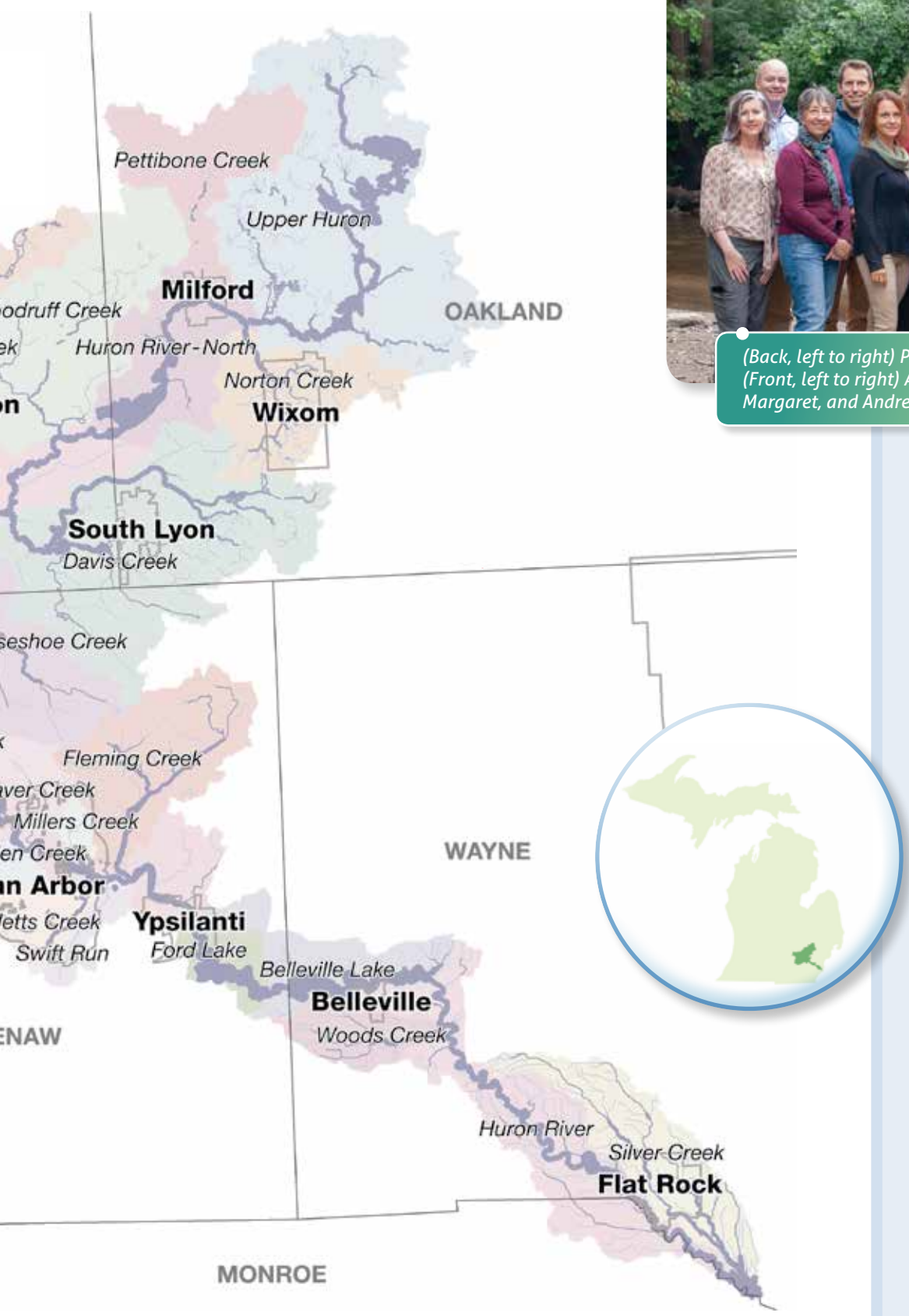

(Back, left to right) Paul, Daniel, Jennifer, Jason, Ric, and Pam (Front, left to right) Anita, Rebecca F., Rebecca E., Kris, Laura, Margaret, and Andrea credit: L. Banks

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calendar of events

HRWC Events and Workshops

MARCH • APRIL • MAY • 2019

River Givers Gathering
Sunday, March 3, 1 – 3pm, Ypsilanti Freighthouse
A celebration of you, the volunteers and donors who work to protect the Huron River and all that we accomplish together. Join us for live music, food, science, door prizes and fun for all ages. Free for all River Givers who have volunteered or donated to HRWC in the last 12 months and friends and family.
Contact: rfoster@hrwc.org

Chemistry and Flow Monitoring Orientation
Saturday, March 23, 1 – 2:30pm, NEW Center, Ann Arbor
OR Saturday, March 30, 1 – 2:30pm, Riverview Veterans Memorial Library, Riverview
Help measure the quality of local rivers and streams this spring and summer! Collect water samples, measure stream flow, and record water chemistry measurements. 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 and registration: www.hrwc.org/chemflow

River Roundup
Saturday, April 27, 9am or 10:30am, NEW Center and throughout the watershed, lasts 4 hours
Volunteer with us on 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.
Details and registration: www.hrwc.org/roundup.

Insect ID Day
Sunday, May 11, Noon or 2pm, NEW Center, lasts 2 hours
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.
Details and registration: www.hrwc.org/id-day.

Board Meeting
Thursday, April 25, 5:30pm, NEW Center, Ann Arbor
Contact: lrubin@hrwc.org

Water School
May 13 and 14, 9am – 4:30pm, NEW Center, Ann Arbor
HRWC and Michigan State University Extension team up to bring MSU Extension's Water School (www.canr.msu.edu/water-school/) to the watershed. The Water School teaches local elected and appointed officials (and staff!) about water resources and how local governments can protect drinking water and water quality.
Contact: kolsson@hrwc.org

Huron River Day
Sunday, May 19, Noon – 4pm, 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

Eastern Box Turtles are Michigan's only fully terrestrial turtle. A species of concern, they can be found in the watershed and prefer wooded habitats with sandy soils. Mountain bikers and trail runners should keep an eye out for this brightly-colored omnivore. credit: J. Wolf

More events at www.hrwc.org/events/events-calendar

Explore the Huron Safely and Courteously

104 miles of Huron River National Water Trail awaits you

The Huron River National Water Trail winds through natural areas, traverses historic cities, and ends at Pointe Mouillee on Lake Erie. Paddlers of all skill levels can find a place to refresh themselves along its length, but remember to prepare before you go and be smart as you enjoy your trip.

Huron River WATER TRAIL
For more tips and info:
huronriverwatertrail.org

Get to know the river before you go

Plan your trip in advance, tell others about your plan, and stick to the plan. For longer trips, plan for restroom breaks and stay within your group's fitness limits. A safe estimate of travel speed on the Huron is walking speed—about 2-4 miles per hour. Scout the river as best you can before you go and consider paddling with someone more experienced. Be especially careful around dams and obstacles that can trap you against the current.

Know the conditions

Conditions on the Huron River can change rapidly. Pay attention to all safety warnings and check the weather before you go. River and weather conditions are available on the Huron River Water Trail website, and it's best to call liveries on the stretch of river you'll be paddling. During fair weather weekends, stay visible and be prepared for high boat traffic on impounded lakes.

Bring the proper gear

Always wear a lifejacket. The Huron River is shallow in sections but people have been carried away by less than a foot of moving water or caught up in trees and vegetation. Just as when hiking into the wilderness, pack plenty of water, food, a flashlight, and a whistle. A sponge, bilge pump, or bailor can help you keep excessive water out of your boat. A paddle tether can keep you from drifting uncontrollably if you accidentally drop your paddle. Always carry a map. A waterproof Paddler's Companion will give you detailed section maps of the entire water trail. You can purchase them on the Huron River Water Trail website or at your local livery.

Be smart and courteous

Keep your craft under control. Give paddlers traveling upstream the right of way, and always ask other groups of paddlers before passing them on the river. Remember that anglers need plenty of space and that sound carries over water. Respect landowners along the river. Don't trespass and use only designated restrooms.

—Daniel A. Brown

Volunteer Spotlight • *Sharon and Dave Brooks*

credit: G. Hieber

Sharon and Dave Brooks represent the very best of our volunteers at HRWC. Since 1998, they have carried hundreds of nets and waders, guided hundreds of new volunteers, driven thousands of miles to conduct monitoring, and separated tens-of-thousands of five-gallon buckets—no small task!

Twenty-five years ago, when the macroinvertebrate monitoring was just starting, and up to just very recently, Dave and Sharon were pillars of that program. They were key players in its improvement and heavily contributed to its success and longevity. Helping with the setup, leadership, and cleanup of the River Roundup is a big job. Their day was just as long as the staff being paid to do it!

Dave and Sharon did all of this work without fail, event after event, year after year. River Roundups are the event that introduces many people in the community to HRWC for the first time. It is hard to express in words how that type of volunteerism affects an organization. They are consistent, kind-hearted, and generous.

Dave, as a young retiree in the late 1990s, was also able to take a key role in many of HRWC's shorter term technical projects such as measuring flow and geomorphology on Millers and Mill Creek, figuring out our creek-walking process, and just recently, serving as an actor for a monitoring video! Dave especially loved the hands-on work of figuring out new processes and new tools and equipment.

It is our pleasure to induct Dave and Sharon Brooks into HRWC's Hall of Fame, following other beloved members: Herb Munzel, David Wilson, Eunice Burns, and Janice Bobrin.

—Paul Steen

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

Huron River Designated as a State Water Trail

The Huron River National Water Trail was designated as one of the first State Water Trails by the Michigan Department of Natural Resources (MDNR) in partnership with the Office of the Great Lakes at the end of 2018. The program is intended to recognize communities and partners that connect people to outdoor recreation. To be designated as a State Water Trail, HRWC demonstrated that the trail was well-maintained, had local support, and was accessible to paddlers of all skill levels. The water trail was previously designated the 18th National Water Trail, and it now carries both state and national recognition.

The Huron River Water Trail flows 104 miles (167 km) through pristine natural environments, historic areas, and past some of the best places to grab a bite or a brew in Michigan. Kayakers, canoeists, and anglers of all skill levels can drift leisurely or paddle with purpose all the way from Proud Lake in Milford to Lake Erie.

The MDNR has cultivated the State Water Trails designation program with the help of the Michigan State Parks Advisory Committee, the Michigan State Waterways Commission, the Michigan Trails Advisory Council and the Nonmotorized Advisory Workgroup. The program aims to advance increasingly popular paddlesports and other non-motorized, water-based recreation by recognizing model water trails.

Paddlers on the Huron River Water Trail at Gallup Park. credit: L. Banks

Peninsular Paper Dam Removal Feasibility Study Completed

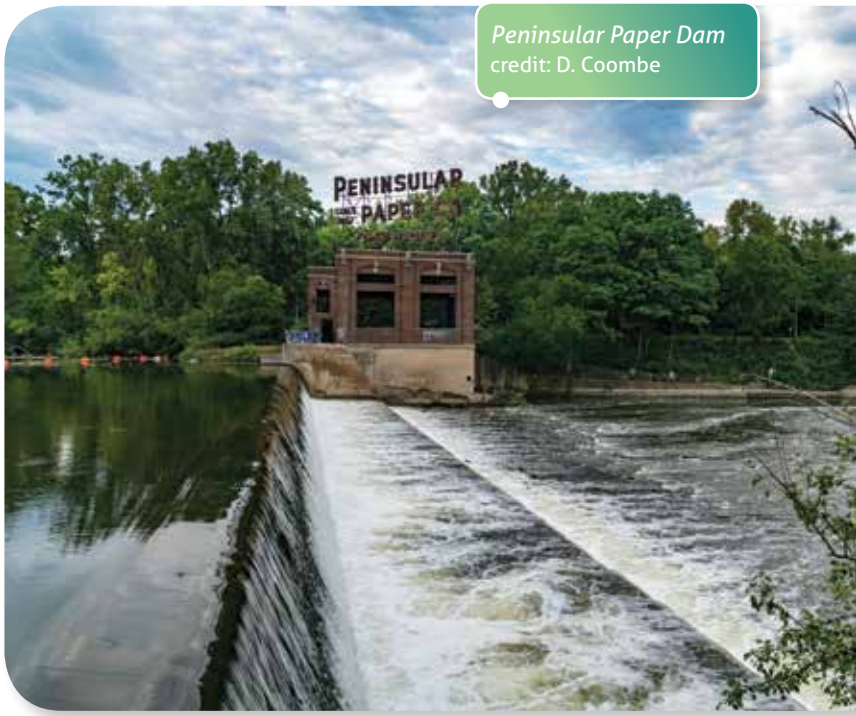
A study looking into the feasibility of removing the Peninsular Paper Dam in Ypsilanti was recently completed and presented to the Ypsilanti City Council and the Sustainability Commission. The study favors removal of the dam and did not identify any critical obstacles to taking it out. River health and safety would likely be greatly improved.

The dam currently does not meet state safety standards, so the city is required to repair or remove it. To better understand their options, the city enlisted HRWC, with support from the Friends of Pen Park, to commission Princeton Hydro LLC to conduct the feasibility study.

Repairing the dam was estimated to cost more than $800,000. Removing the dam and reinforcing nearby structures was estimated at $2.7 Million. There are funding opportunities available to support removal, which would substantially lower the one-time cost and relieve the city of any liability. There are no funding opportunities for repairing the dam, and the city would be liable for future repairs. In February, the city held a community forum to discuss the report and options with residents.

The feasibility study identified three main challenges: shifting land ownership boundaries, managing contaminated sediment, and reinforcing aging bridges up river of the dam in the current impoundment. These challenges will require additional attention but do not preclude removal of the dam.

—Daniel A. Brown



Peninsular Paper Dam credit: D. Coombe

Ford and Belleville TMDL Update

MDEQ to redevelop lakes pollution policy

A recent decision by a Washtenaw County Circuit Court judge in favor of several municipal waste water treatment plants (WWTP) requires the Michigan Department of Environmental Quality (MDEQ) to redevelop a policy established to limit nutrients discharged to the Huron River. The policy, known as the Total Maximum Daily Load (TMDL), aims to reduce the total phosphorus entering the Huron River upstream of and ultimately settling in Ford and Belleville Lakes. Found natively in soil, animal waste, and fertilizers, phosphorus is the key nutrient controlling algae growth in most of southern Michigan's inland waters. WWTPs are required to remove phosphorus, among other things, from waste water before releasing it back to the river.

First of its Kind

The TMDL for Ford and Belleville Lakes responded to the frequent algae blooms and fish kills that occurred into the 1990s. By 1995, data was collected to establish phosphorus *concentration* limits for Ford Lake (50 µg/l) and Belleville Lake (30 µg/l). The MDEQ translated these concentration limits into load allocations (i.e. pounds of phosphorus) for each phosphorus source upstream (i.e. WWTPs and for municipal runoff) in Michigan's first nutrient TMDL in 1996. The WWTPs, affected municipalities, HRWC, and MDEQ formed the Middle Huron Partnership in 1999 to collectively plan for the 50% reduction in phosphorus load needed to meet the TMDL. The partnership continues to this day working on implementation strategies such as creek restoration projects and annual water quality monitoring.

Why a Change is Needed

The TMDL limits were difficult to meet consistently and required expensive infrastructure upgrades at the WWTPs. Municipalities also invested millions of dollars in stormwater and non-point source treatment projects to reduce erosion and limit phosphorus concentrations in runoff. Meanwhile, in 2003, the University of Michigan's Dr. John Lehman began studying the lakes' ecosystem to evaluate phosphorus sources and movement and to determine if a lake management strategy could improve conditions. He concluded that, when lake oxygen levels fall to zero, in-lake processes lead to phosphorus releases from existing lake sediment, which leads to massive algae (or cyanobacteria) growth. Current upstream phosphorus sources (including WWTP discharges) continue to add additional phosphorus load to the lake sediments.

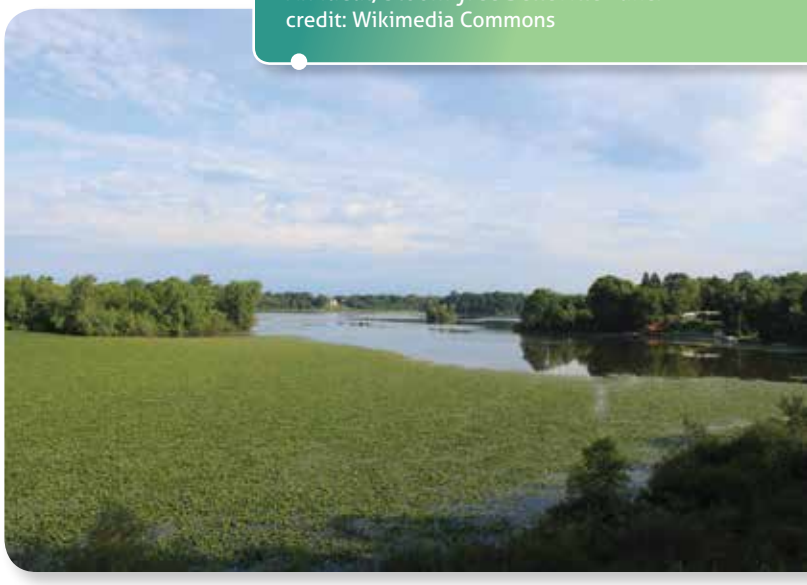
The WWTP authorities contested MDEQ's phosphorus limitations through the courts. After extensive negotiation, the WWTPs agreed to honor MDEQ's phosphorus limitations to receive a permit to discharge while their legal challenge continued. In exchange, MDEQ agreed to redevelop the TMDL. The WWTPs argue that MDEQ did not honor their commitment. A 2018 Circuit Court decision forced the MDEQ to reevaluate relevant data and rewrite the TMDL and, importantly, to study lake processing in the revised version.

Recent Data Shows Improvement

Since 2002, HRWC has conducted annual monitoring of TMDL areas on behalf of the Middle Huron Partnership. The data collected at 11 long-term sites uncovers impairments and improvements in water quality in the Huron River's middle section. HRWC data through 2018 indicates significant reductions in phosphorus concentrations since 2014 at a handful of tributaries. The monitoring site furthest downstream at Ypsilanti's Riverside Park shows steady concentrations of phosphorus slightly above the TMDL target, though these levels are significantly lower than when the partnership began. At the same time, a more rural upstream site reveals much lower phosphorus concentrations, well below the TMDL target. The difference between these sites points to urban stormwater runoff as a continued phosphorus source in the river. HRWC is currently analyzing data for overall phosphorus loading conclusions.

Tremendous progress has been made to reduce phosphorus loading to Ford and Belleville Lakes. The TMDL development process led to many successful initiatives. The new TMDL reevaluation process offers an opportunity to recognize successes, incorporate findings, and focus on effective strategies to control watershed source loads and manage in-lake phosphorus processes. HRWC and local partners are eager to explore all opportunities to promote healthy and bloom-free lakes in the Huron River watershed.

—Ric Lawson and Andrea Paine



An ideal, bloom-free Belleville Lake.
credit: Wikimedia Commons

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