

Email not displaying correctly? View it in your browser.

# Butler County Stream Team August News - 2016

Next Sampling Day - Aug 13



**If you cannot sample, contact Teresa at 513-785-4142 or her cell at 513-706-8991, or contact Lynn at 513-615-2538.**

## In this Issue

- [Sampling Volunteers](#)
- [Lab Volunteers: Parking](#)
- [Visit Miami's Ecological Research Center](#)
- [Milkweed Seed Collection](#)
- [Is the Great Miami Safe for Recreation?](#)
- [Rivers during a drought](#)
- [Sampling Reminders](#)
- [Butler SWCD's Open House & Elections](#)
- [Great Miami River Cleanup](#)
- [Webcasts](#)
- [Mudbugs](#)

## Sampling Volunteers

Reminder to NOT sample puddles or a stream that is not actively flowing.... Instead turn in the bottle with the label stating it was "too low to sample."

## Lab Volunteers: Parking

If you are volunteering at lab, you will need a parking pass. Either [email Tera](#), or once you get to lab we will give you one and you will need to run back out to put it in your windshield.

## Visit Miami's Ecological Research Center

**Sept 17, 11 am**

5806 Somerville Road, Oxford, OH 45056

The Ecology Research Center (ERC) is the focal point for ecological field research at Miami University. Jeremy Fruth, the ERC manager, will provide us with a tour of this 69-hectare field station. It contains a diversity of field sites and facilities that support both aquatic and terrestrial research.

## Stream Team Sampling Dates

August 13

Sept 10

Oct 8

Nov 12

Remember to let us know if you cannot collect your sample

## Butler SWCD's Open House, Awards, and Elections

As a part of the Butler County community, Butler SWCD would like to invite you to our open house on Tuesday, August 30 from 3 - 7 pm. At 7 we will have a short presentation on invasive insects followed by awards for local individuals that have gone above and beyond for conservation. Even if you cannot make the open house, you can still [vote absentee in our Supervisor Elections](#).

## A Day in the Country at the Izaak Walton League

**Aug 20, 10 - 8 pm**

450 Beissinger Rd, Hamilton  
Archery exhibits, naturalist hikes, fishing (bring a pole), spaghetti dinner, live music and more. [More details](#)

## Great Miami River Cleanup

**Oct 22, multiple locations**

Save the date for this fun event. See what the weirdest item you can find it. More details will be posted soon at <http://greatmiamirivercleanup.org/>

## Children's Waterfest Volunteers and Presenters Needed

October 14 at Miami's Hamilton Campus

**Potluck:** Tour will be followed by a potluck picnic at their shelter.

**Please RSVP:** Contact Lynn [by email](#) or 513-887-3720

## Milkweed Seed Collection

Pollinator species are experiencing population declines across the United States. In particular, the monarch butterfly has drastically declined here in Ohio and in the wintering grounds of Mexico. In response to this decline the Ohio Division of Wildlife and other partners have created the Ohio Pollinator Habitat Initiative (OPHI) to educate the public and help create beneficial habitat to pollinators such as the monarch butterfly. OPHI formed after the 2014 petition to list the monarch as federally endangered or threatened.

Butler SWCD has joined the OPHI and will be a milkweed pod collection site. Please join us in our effort to replenish this essential plant in Ohio by collecting milkweed pods in our county. The Annual Milkweed Collection will take place **September 1, 2016 through October 30th**, at our Office located at 1802 Princeton Road, Hamilton, Ohio. Call 513-887-3720 with any questions.

## Great Miami River: Is the water safe for recreation?

**By Mike Ekberg, Manager for Water Resources Monitoring and Analysis**

Do you like to canoe, kayak, or row on the Great Miami River? Have you ever flipped your boat and ended up soaked with a mouthful of river water? Did you worry about getting sick?

River users frequently ask me, "Is the water safe?" The answer is yes, in most cases. Bacteria levels can be a problem

Just like in most lakes and rivers, bacteria can be a problem. Bacteria levels from fecal contamination in the Great Miami River are a bad news/good news situation. The bad news is the levels tend to spike after it rains. The good news is the bacteria tend to die off quickly. Keep in mind that even after a good rain, the risk of exposure to bacteria is likely to be low unless you swim in or drink the river water. For most people, paddling or rowing is a relatively low-risk activity.

Bacteria can get into the river from a variety of sources including poorly functioning septic systems, pet waste,

Presenters and volunteers receive lunch and a t-shirt

[Contact Lynn](#) if you are interested in:

- **Presenting** to 4th grade students. Lynn has education kits that are simple to use. You would present the same presentation five times. Each presentation lasts 25- 30 minutes.
- **Volunteering** to lead a class around the event. This basically involves reading a schedule and finding your way around campus.

## 2016 Webcast Series

These webcast at shown at the Butler County Engineers Office on Rt 4 in Hamilton. 1921 Fairgrove Ave. from 1 - 2:30 pm

- September 14, **Incentivizing BMP Installation in Communities with Stormwater Utilities**
- October 12, **Retrofitting Revisited: Forward Into the Past**
- November 16, **Non-Traditional MS4s**

## What Are Mudbugs and Why Do We Care About Them?

Mudbug, creek lobster, and crawdaddy are all names used to describe the macroinvertebrate that is most often referred to locally as crayfish. Commonly found under rocks and logs in streams, 20 species of crayfish live in Ohio. Crayfish are indicators of good water quality and are monitored each year in the watersheds where we conduct biological sampling. Sedimentation resulting from agriculture, development, and other sources impairs the habitat where crayfish live. According to an article on the Appalachian Voices website, the U.S. Fish and Wildlife Services is proposing to add two species of Appalachian crayfish to the federal endangered species list because their populations are in danger of extinction mainly due to "land disturbing activities such as

streets, sidewalks, storm sewers, and farm fields. In the Great Miami River and its tributaries, Ohio EPA sets water-quality standards and measures recreation water quality based on a group of bacteria known as Escherichia coli (E. coli).

Ohio EPA evaluated bacteria levels in the Great Miami River in 2009 and 2010. The results showed average bacteria concentrations exceeded state standards at more than half of the sampling sites. MCD evaluated E. coli levels in the Great Miami River in 2012 and also found frequent occurrences of the bacteria.

### **Elevated E. coli levels and rainfall are related**

As little as 0.30 inches of rain can raise E. coli levels in the Great Miami River, according to MCD's study. But bacteria levels can return to safe levels in as little as 48 to 72 hours after a rainfall. Water samples collected 72 or more hours after rain often showed very low levels of E. coli and met state standards.

### **Dry weather minimizes risk**

The best way to minimize your exposure to bacteria in the Great Miami River is to enjoy it during days of dry weather. If, however, you have open wounds, skin infections, or have a compromised immune system, consult your physician before taking part in any river recreation, and use caution.

### **Forecasting safety**

Using the relationship among rainfall, river flow, turbidity and E. coli, it's possible to predict safe or unsafe river recreation conditions. Technology now allows for water-quality forecasting. Check out [Ohio Nowcast](#), a web forecasting service for beaches on Lake Erie. Preliminary planning is under way for MCD to develop a forecasting app for the Great Miami River. Two years of sampling will be needed before the app can be up and running.

More MCD blog posts can be found here:

<https://mcdwater.wordpress.com/>

---

## **What happens to river systems as they dry?**

A drought is characterized by a sequential decline in rainfall, surface runoff, soil moisture, groundwater interaction, and ultimately discharge, for naturally flowing rivers. As the drought progresses, floodplain and wetland areas dry, and rivers become confined to their low-flow channels. These dynamic processes play a key role in the long-term maintenance of freshwater biodiversity. Although there is a widespread reduction

mountain top removal." These two species are not found in Ohio, but it is important for us to learn from this and to reduce the impacts of sedimentation to our local streams. More information about the listing of these crayfish species can be found by [clicking here](#).

in aquatic habitat, there is a corresponding increase in the area of semi-aquatic and terrestrial habitat. For instance, as the water recedes, new plants germinate in the exposed mud and waterbirds such as ibis and spoonbills feed in the shallow pools and mudflats.

As river flow ceases, fish and other aquatic organisms seek refuge in the remaining pools, where the interaction of predation and competition can markedly alter community composition. Many terrestrial animals also rely heavily on these remaining waterholes for their drinking water. Any macroinvertebrates or fish that become stranded in dried up habitats, provide an abundant food source for terrestrial predators and scavengers, such as birds and ants.

As waterholes decrease in size, the death and decomposition of aquatic plants and animals releases nutrients such as nitrogen and phosphorus into the remaining water. Evaporation slowly concentrates these nutrients even further. High nutrient levels can result in dense growths of algae, particularly during summer. These are grazed by macroinvertebrates, which in turn are eaten by fish. The algae may create large diurnal changes in oxygen concentration, and if severe algal blooms occur, the low overnight oxygen levels might ultimately threaten aquatic biota, such as fish.

The intrusion of groundwater can also increase as the water level in the river channel drops. Groundwater intrusion can cause stratification in pools, leading to further deterioration of water quality and a higher chance of algal blooms.

### **Resistance mechanisms for drought**

Organisms resist drought using a range of physiological, behavioural and life stage responses. For instance:

- Fish move downstream or retreat to isolated pools as headwaters dry.
- Plants reduce evapotranspiration losses from leaves and set seed.
- Some frog species, and insects such as water beetles, survive by burrowing deep into moist sediments. These animals can remain safely buried for many months or even years.
- Turtles migrate overland to find new waterholes, while other species can hibernate for at least 3 months without water.
- Zooplankton, some benthic invertebrates, algae and bacteria produce desiccated, drought resistant spores.

- Waterbirds fly many hundreds of kilometres to find more permanent water, such as coastal estuaries.

In spite of these resistance mechanisms, some populations may suffer large losses during a drought and take many years to recover. However, the life cycles of other species are highly dependent on an extended drying phase, and their long-term survival is dependent on a cycle of floods and droughts. Also, some introduced pests have poorly developed resistance mechanisms for drought, and this can provide a competitive advantage to drought tolerant native species.

### **What happens when the drought breaks?**

The rate of recovery can vary considerably, being influenced by succession patterns and whether or not any species that have been lost can be restored. Recolonisation by fauna from drought refuges is important in this recovery. A problem arises if refuges such as permanent waterholes have been eliminated by river regulation, water extraction or farm development. Any loss of previously abundant species can result in major changes to community structure and a lag in recovery.

When the drought breaks, the initial flush of water downstream is likely to bring large quantities of sediment and organic matter that has steadily accumulated in the catchment during the drought. The organic matter and dissolved nutrients provide an abundant food supply and this can result in a mass hatching of invertebrates. This in turn provides food for higher organisms such as insects and fish. Highly mobile species, such as waterbirds, quickly move in from surrounding regions to take advantage of these new food supplies.

The community that existed before the drought may not fully re-appear until there has been a complete progression from early colonizers through to species with longer life cycles. Some species, such as native fish may take many years to fully recover but, over decadal scales, there is little evidence that fish populations are affected by drought in healthy river systems.

### **Better management of rivers during drought**

The way we manage the land and water within a catchment, both during and following a drought, is of critical importance to the health of our rivers. In particular, in-stream and floodplain refuges, and the

organisms they support, need to be protected. Some management actions that can be taken to protect aquatic communities are discussed below.

Large dams greatly alter the natural flow regime of rivers. If dams are emptied during drought, it can take months or years until they refill and spill again. In such cases, the section of river immediately downstream of the dam may experience a greatly extended drought period. Periodic flow releases, including base flows and pulses, can help the downstream aquatic communities survive and recover from these droughts. These releases might also reduce the risk of stratification in downstream pools, which in turn decreases the chance of an algal bloom. It might also reduce the risk of deoxygenation or poor water quality in stagnant pools, which can pose a risk to the native fish populations. Although some may consider these flow releases as a waste of precious water during the drought, it is a small and very sound investment in sustaining healthy rivers.

During drought conditions, native fish tend to congregate in the remaining deep waterholes along a river channel and are easy targets for fishing. If a large number of the remaining fish are caught, their rate of recovery after the drought will be greatly inhibited. This is also true in large water storages, where the remaining fish might have to congregate in only 5 or 10% of the maximum storage volume. During these times, it would be wise to introduce restrictions on fishing, to ensure that sufficient adult fish survive the drought for future breeding.

When river flow ceases and the channel bed starts to dry up, the remaining waterholes become refuges for birds, fish, amphibians and invertebrates. It is critical that these waterholes are not pumped dry when providing water for livestock. Alternative sources of water should be considered where possible. During droughts, livestock tend to congregate along riverbanks and around the remaining waterholes. Overgrazing, trampling and high levels of dung can add severely to the stress that these habitats are already experiencing. Stock should be excluded from riparian lands and alternative watering points should be provided away from the river.

Managers of drinking water supplies also need to be aware that drought-breaking storm events are likely to bring significant 'dirty water' into rivers. Storm run-off will pick up high concentrations of fine sediment, nutrients and pathogens from the dry soil surface, especially during the 'first flush' of heavy rains.

## The authors

Anthony Scott, University of Canberra; Professor Sam Lake, Monash University, Melbourne; Peter Cottingham, Melbourne; and Professor Gary Jones, University of Canberra.

---

## Sampling Reminders

- Please mark the time and date on your labels of when you collected the sample. None of the sample times should be the same unless you are a time traveler
- Sign your sample into the cooler with the drop off time.
- Don't put the samples in the bag with the clean bottles
- Keep the cooler lid closed as much as possible
- Provide labels that say dry, or too low to sample, if that is the case.
- The combination of the cooler lock is 2278 which is BCST if you look at your phone keypad.
- Remember the cooler lock is weird, and that the numbers don't line up along the middle.
- **Duplicate samples** - when you sign them into the cooler, put the number "2" next to the sample ID.
- **Duplicate samples** - use the month that is on the label. Remember to talk to Teresa if you will be out of town that month and she can switch dates for you.

Butler County Stream Team Monthly Newsletter

[Unsubscribe](#) from this list.

Our mailing address is: 102 Boyd Hall, Institute of Environmental Sciences, Miami University, Oxford, OH 45056

Phone: 513-785-6666

E-mail: [whitelr@butlercountyohio.org](mailto:whitelr@butlercountyohio.org)

Website: [www.butlercountystreamteam.org](http://www.butlercountystreamteam.org)

Copyright (C) 2015 Butler County Stream Team All rights reserved.

[Forward](#) this email to a friend

[Update your profile](#)

MailChimp