



Channels

INFORMATION FOR & ABOUT MISSOURI STREAM TEAMS

Spring Edition – 6923 Teams Strong

Laundry Detergents – Without the Plastic

By Coralynne Westcott, Missouri Stream Teams #3491, #4343, #4707 in the Grand Glaize Creek Watershed



Caption: Featured above is Peanut the Turtle, famous for having a 6-pack plastic soda ring trapped around her middle, that she grew around, causing her shell to take the shape of a peanut.

There's no other readership that understands the importance of limiting our use of plastics than the very people cleaning up our state's streams.

Allow me to offer you some alternatives to buying another big jug of laundry detergent.

For years, we've chopped up a Fels Naptha bar and combined it with a cup of Arm & Hammer's Sudsing Soda and a cup of Borax. My husband has sensitive skin and this soap gets our clothes clean without any skin irritation.

The environmental concerns are that Borax is a product that is mined. Consequently, there's the usual impact from mining such as high clay tailings. They are trying to sell the tailings to brick makers. There's evidence to suggest the clay tailings enhance the quality of a brick.

Sapindus is a genus of small trees and shrubs that live in temperate regions of the world. The berries are called soap nuts. They hold saponins. Sapo is the latin word for *soap*. The soap nuts are dried, hollow shells of themselves. They've been de-seeded. You're supposed to put 4-6 in a satchel and drop into your machine's tub. Those soap nuts are good for 5-6 loads (in soft water). Saponins leave your clothes feeling so clean and, get this, it's so mild (hypoallergenic), you don't have to remove the satchel for the rinse cycle. Talk about easy-peasy!

The environmental impact has to be the carbon footprint left by carting the soap nuts here from India. Western Soapberry (*Sapindus saponaria*) grows in the southern states and Florida up to the Carolinas. To my knowledge, no one is farming and producing soap nuts for North American markets yet.

These two soap alternatives cost less than a dime per load. Compare to liquid Tide at .38 per load or powdered Tide at .30 to .60 per load depending on what kind you use.

I should say that we have surface water from the Missouri River. That often suggests soft water. I don't know how these two soap options work in hard water from wells.

I don't have experience to share with the following suggestions. I have found two stores that specialize in providing soap ingredients only. The buyers must bring in their containers. Visit SOAP (Save Our Ailing Planet) Refill Stations at 1912 East Sunshine St. in Springfield and

7441 Broadway St. in Kansas City. Visit online at GetMoSoap.com. If you're in St. Louis, the Refill Effect is at 204 North Clay Avenue, Kirkwood. Visit online at therefilleffect.com.

It's time we all start the journey to cut down the use of plastics in our households. We must always find ourselves as part of the solution, not the problem.

Cori Westcott

Welcomes & Farewells

Welcome Pam

A Foreword by Rebecca O'Hearn, Volunteer Programs Supervisor

We are excited to welcome our newest team member Pam Taylor! Pam will be serving as our Volunteer Education and Citizen Science Assistant, focusing on water quality monitoring. Pam grew up in a family that appreciated the outdoors and camped and fished often. This love of the outdoors inspired Pam to pursue a Bachelor of Science degree in Environmental Science from Bradley University. Pam's experience in a freshwater ecology lab grew a great appreciation for the often overlooked, beautiful, and diverse aquatic ecosystems of the Midwest. This led Pam to pursue a career in natural resources, serving first as a volunteer at Shaw Nature Reserve before joining the Missouri Botanical Garden as a restoration assistant through the Outdoor Leadership Corp. While at Missouri Botanical Garden, Pam worked with Missouri Stream Team partners and volunteers on invasive plant removal and litter pickups and gained valuable perspectives while working with urban teens. Pam is excited to be working with Stream Team serving our Midwest streams!

Meet Pam Taylor, Volunteer Education & Citizen Science Assistant



Caption: Pam Taylor teaching an interactive station on macroinvertebrates in the spring of 2025 at Marsh Madness.

I grew up in a family that appreciated the outdoors and camped and fished often. Originally from Illinois, I attended Bradley University in Peoria Illinois along the Illinois river. While there I was enrolled in a freshwater ecology lab where I explored many topics but grew a great appreciation for the often-overlooked, beautiful and diverse ecosystems of the Midwest.

After graduating in 2022 with a Bachelor of Environmental Science, I tried everything I could to work outside. From volunteering and then eventually getting a seasonal position at Missouri Botanical Garden, I was determined to work outside, even if I had to work part-time retail in the meantime. Through these opportunities I learned more about speaking to the public and sharing something I loved with those who may not have been exposed to it

the way I have. I also developed a great respect for the work volunteers accomplish through my time as one, and then as a part of the leadership team for volunteer groups as a restoration assistant.

I moved again to central Missouri to accept this position working with the Stream Team. I worked in many different ecosystems, but I'm excited to be back working with streams.

Phone: (573) 522-4115, Ext. 3598

Email: Pam.Taylor@mdc.mo.gov

A handwritten signature in black ink, appearing to read "Pam Taylor". The signature is fluid and cursive, with the first name "Pam" being more prominent and the last name "Taylor" following in a similar style.

Farewell April

By April Sevy, Volunteer Education & Citizen Science Coordinator



Caption: April Sevy and her family are pictured above, enjoying the outdoors and our beautiful waters.

For the last 12 years, I've seen the power of volunteers – the power of creating community, protecting water, educating friends, family, and strangers, and fostering the good in the world. While my position was to train these volunteers, the education was reciprocal. Not only did I learn lots of fun facts, but I also learned about how to serve this selfless, passionate group of people. I learned that each and every volunteer brings their own

experiences and values to the program. Each one of these volunteers then helped me develop new perspectives on stream stewardship, citizen science, and life.

I became a Stream Team staffer in January of 2013, straight out of college. During this time, you got to watch me grow as a professional and grow my family. In working with you, I realized my passion for educating volunteers – mostly adult volunteers. This led me to pursue a graduate degree in Adult Education and Training, which I am completing in Spring 2025. Just like most of you, I believe learning is a lifelong endeavor. The next step in my life journey is to expand my skills and views (beyond the water). I am leaving the Missouri Department of Conservation and the Stream Team program as a staffer to continue this journey.

Thank you for all that you've taught me and the support you've given me. I'll see you downriver!

Farewell Anna

By Anna Swearengen, Volunteer Engagement Assistant

For those who might not know me, my name is Anna Swearengen and I have been working with Missouri Stream Team volunteers in the Southwest and Ozark regions since April of 2024. I am writing this to inform everyone that on April 1st I will be starting a new position as the Environmental Planner for the Harry S. Truman Coordinating Council. I hope I will continue to work with many of you in my professional endeavors as well as my own work as a Stream Team volunteer. It has been such a pleasure to work for you all over this past year, and I will sincerely miss this program and all the people involved!

Thanks again,

Anna

Fact Sheet

Learn more about healthy fish in Missouri, and what a fish advisory means, in our latest Fact Sheet, provided by our wonderful partners at the Department of Health and Senior Services.



Stream Team Academy Fact Sheet Series

- #1 Tree Planting Guide
- #2 Spotlight on Big Muddy
- #3 Lewis & Clark
- #4 Missouri Is Number One?
- #5 Responsible ATV Use
- #6 Headwater Streams
- #7 Whatology?
- #8 Exotic Does Not Mean Beauty
- #9 Wetlands
- #10 Stream Sedimentation
- #11 Emerald Ash Borer
- #12 Protecting Prairies & Streams
- #13 Aquatic Insects (Part 1)
- #14 Aquatic Insects (Part 2)
- #15 Aquatic Insects (Part 3)
- #16 Aquatic Insects (Part 4)
- #17 Aquatic Insects (Part 5)
- #18 Aquatic Insects (Part 6)
- #19 Aquatic Insects (Part 7)
- #20 Aquatic Insects (Part 8)
- #21 Freshwater Mussels
- #22 The Crayfishes
- #23 Where Does the Rain Go?
- #24 Rain Gardens
- #25 Native Plants
- #26 Invasive Species: Hydrilla
- #27 Invasive Species: Didymo
- #28 Invasive Species: Honeysuckle
- #29 The Properties of Water
- #30 Blue-Green Algae
- #31 Microplastics
- #32 Heads Up on Low Head Dams
- #33 MS4: Combating Urban Stormwater Pollution
- #34 Missouri Riparian Forests
- #35 Icy Roads = Salty Streams
- #36 Stay Afloat: Healthy Practices in Natural Waterbodies
- #37 Cold Weather Safety Tips
- #38 Fish Advisory

Collect this entire educational series for future reference! Contact us at 800-781-1989 for copies of previous Fact Sheets and a binder for storing them.

Stream Team Academy Fact Sheet #38

FISH TO FORK SAFELY Fish Advisory

An Educational Series For Stream Teams To Learn and Collect

By Nicole Niehues, Department of Health and Senior Services

One of the greatest benefits to having clean streams, rivers, and lakes is healthy fish to catch and eat. Annually, the Missouri Department of Health and Senior Services (DHSS) works with the Missouri Department of Conservation and other agencies to evaluate the amount of contaminants in Missouri sport-caught fish. DHSS then determines whether or not there are any health risks associated with eating fish from Missouri water bodies and if a fish advisory needs to be implemented. Missouri is one of many states that have fish consumption advisories.



Consuming Fish

All fish contain some small amount of chemical contaminants. In most instances and for most people, the health benefits of eating fish outweigh the potential health risks from contaminants.

Before we talk about advisories, please know that fish are a very nutritional food source with many health benefits. Fish is a good source of high-quality protein and essential nutrients that contribute to a healthy diet. Fish is low in cholesterol, and some types of fish have omega-3 fatty acids that are essential for the development of the nervous system and may be beneficial in reducing heart disease. Essentially all fish in Missouri are lean and low in saturated fat at levels comparable to a boneless, skinless chicken breast.

Advisory Considerations

There are a number of things DHSS considers when implementing an advisory.

Sensitive Populations: Because growth and development occur rapidly in young children, some chemicals may affect them differently than adults. Due to the potential risk certain contaminant has on fetuses and young children, special consideration is given to pregnant women, women of childbearing age, nursing mothers, and children younger than 13. DHSS may issue an advisory solely for sensitive populations or recommend lower consumption compared to the general population.

Fish Length: Fish are measured from the snout to the tip of the tail, as shown in the drawing. Larger fish are more likely to accumulate certain contaminants, like mercury, in their tissues. Consuming smaller fish will also reduce health risks, e.g. "Release the Lunkers".



Meal Size: Fish advisories define a meal as 8 ounces, about the size of two decks of cards of uncooked fish for a 150-pound person. For a 40-pound child, a meal is 3 ounces.

Advisory for Contaminants

Missouri currently has advisories for four contaminants and there are a number of ways to trim and cook your fish to reduce your exposure.

Mercury

High levels of mercury are found in predator fish around the world. All water bodies in Missouri have an advisory for sensitive populations to reduce consumption of large predator species.

Cooking Notes

Mercury is a metal and does not tend to concentrate in fatty tissue. This means filleting, trimming fat, or special cooking methods will not reduce mercury levels. To safely eat fish high in mercury, stream team members should follow the statewide mercury advisory.

(continued on back)

Stream Team Academy Fact Sheet #38

Polychlorinated biphenyls (PCBs) and Chlordane

These persistent and site-specific chemicals have been banned for decades but remain in waterbodies and accumulate in fatty tissue. Waterbodies with advisories for PCBs and chlordane tend to be in Missouri and Mississippi Rivers, urban areas, and/or near current and former industrial sites. Species impacted tend to be long lived, fattier fish. Please refer to the current Fish Advisory for specific locations.

Cooking Notes

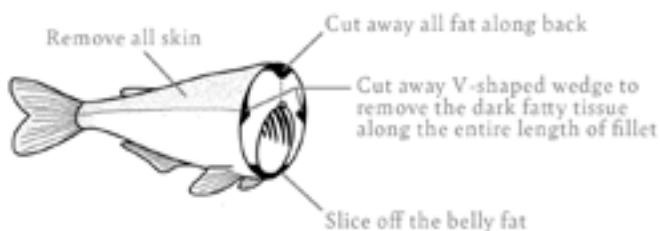
- Fillet your fish. Filleting is strongly recommended because removing bones, fatty tissues, and all internal organs will greatly reduce the levels of most contaminants in fish.
- Trim away fatty portions of the fish such as the dorsal, lateral and belly area. (See diagram below.) Remove the skin from fish.
- Do not eat fish eggs from these advisory areas. They are very high in fat and may contain contaminants that are associated with fatty tissue.
- Bake, grill, or broil fish on a rack and let the fat drip away. Do not use the juices. Avoid pan-frying in butter or animal fat or making soups or chowders. These methods retain fat-laden juices. If you deep-fry fish, do not reuse the oil. Some contaminants will become concentrated in reused oil.

Lead

Missouri is the largest lead producer in the United States and in the past was the top producer in the world. Lead accumulates in fish bones. Suckers, carp, and other fish may have high bone-lead levels if they are caught in counties where lead mining historically occurred, like Jasper, Madison, Jefferson, St. Francois, Washington, and Iron County.

Cooking Notes

In historic lead mining regions, DHSS recommends removing as much of the larger bones as possible before preparing fish.



View Fish Advisories

DHSS has an [interactive map](#) where users can browse information about specific advisories by water body.



<https://experience.arcgis.com/experience/45acc060ac4f4c5fbb1535e9d510f826>



Stream Team members can find a detailed fish advisory, summary booklet, coloring book for kids, and additional information about crayfish and cooking fish on our website here:

<https://health.mo.gov/living/environment/fishadvisory/>

DHSS encourages stream team members to include fish caught in Missouri as part of a healthy diet.

The Missouri Department of Health and Senior Services, Department of Natural Resources, and Department of Conservation sincerely appreciate Missouri Stream Team's efforts to keep our state's waters healthy, safe, and beautiful.

Monitoring Minute

By Garrett Frandson, Stream Team Volunteer Water Quality Monitoring Program Coordinator



Caption: The picture above is a small pool at the bottom of a depression in a gravelly stream. This suggests water lurking beneath the surface of the rest of the stream channel, hidden away in the hyporheic zone.

Beneath the surface of a stream bed, water continues to flow, chemical processes carry on, and macroinvertebrates still scuttle among the substrate. This distinct environment, where surface water and groundwater meet, is called the hyporheic zone, an important but often overlooked component of stream ecosystems. Like we encourage when sampling for macroinvertebrates, let's dig in!

Stream beds are generally loose mixtures of rocks ranging in size from sand to boulders. They might feel tightly packed beneath your feet, but usually the bits of substrate don't fit perfectly together: there's space left over between individual particles. With fine material that packs tightly, like sand, there's less room, but more coarse material, like gravel and cobble, leave more room since they don't pack together as well. The space between the substrate fills up with water flowing back and forth in a constant exchange between the stream above and groundwater below, similar to how streams are in frequent exchange with wetlands next to them. Obstacles like fallen trees, boulders, or even larger features shaping the stream channel itself, can help force water *downward* instead of *downstream*. With the water goes carbon, nutrients, dissolved gases, pollutants, microorganisms, and even some macroinvertebrates, plunging into the depths of groundwater to carry out some parts of their life cycles. In more extreme cases, the hyporheic zone may be dozens of meters deep—good luck trying to do the Benthic Boogie so far down!

You'd be right to think things are a bit cramped in the hyporheic zone. While there is room enough for water and what it carries, all of the packed substrate still poses a significant barrier to smooth motion. Water may only creep along, slowing down processes that depend on flow. While surface waters are often more rich in oxygen but lower in nutrients, the opposite is true of groundwater, which can result in conditions in the hyporheic zone going from one end of the range to the other. Some macroinvertebrates, over time, find that being "macro" might not be all that great. Over generations, some stoneflies, for example, have adapted to this environment by becoming smaller, shrinking their cerci ("tails"), and even losing their wings as adults—similar to how cave-dwelling animals evolve away from where eyes are just a liability.

If the hyporheic zone is this tough environment, why would so many organisms call it home? Despite the hardships it can pose, sometimes conditions are even more rough toward the surface! If you're a stonefly on the stream bed, you're at risk of being eaten by a fish, of drying out if your stream is affected by drought, of getting hit by high concentrations of pollutants, of boiling in the afternoon sun or freezing in the depths of winter. If you move

down below the stream bed, however, suddenly these problems seem far away: fish can't follow you into this confined space, there's still water deep down if not at the surface, pollutants have a harder time making it down with you, and, like the steady temperatures of caves, you're insulated from extreme variation in temperature. Sounds kind of cozy, actually!

...That is, until some volunteer water quality monitor comes along and starts dancing on you! They know that while plenty of life may be visible atop the stream bed, even more may be found just below, if only they can reach it! The next time you're monitoring a stream for macroinvertebrates, be sure to put some energy into your legs and tap into an aquatic world hidden right below your feet!

Riffle Review

A quarterly glimpse of Stream Team activities – in the last quarter, Missouri Stream Team volunteers reported:

- **207 total activities**
- **1,287 total participants**
- **3,634 total hours**
- **29.36 tons of trash collected**
- **29 water quality monitoring trips**
- **172 trees planted**

The 100 Club

A highlight of Teams that have contributed more than 100 hours in the last quarter –

Team Number	Team Name	Hours
3156	Blue Grass River Runners	254
5628	River Trails Group	134
4617	Two Rivers	122

Team Snapshots



Missouri Conservation Corps, Stream Team #6800, had their very first clean-up as a Stream Team on March 9, 2025, with 60 volunteers picking up 0.61 tons of trash along the MKT in Columbia, Missouri radiating outward from Grasslands Park.

Participants were then treated to a hot dog meal with snacks and chips, where there was great fellowship. Missouri Stream Team staff in the Central Region are grateful to have such a wonderful new partner in the Columbia area.



Kent, with Stream Team #4922, The Tireless Cutters, is working tirelessly behind the scenes of many cleanups across the St. Louis and Southeast Regions. Only the sound of the engine's hum vibrates out. Then, one per minute, the chomp of Jaws of Destruction rings out. At the center of this racket, you will discover Kent and his trusty, jagged-toothed tire cutter, reducing tires to pie-shaped pieces that can go straight to the landfill.

Recently, The Tireless Cutters and The Mighty 211 joined forces in a remarkable display of community collaboration. Together, they cut 415 tires during a huge partnership cleanup event in North St. Louis County. This powerful collaboration is a testament to the impact that can be made when communities unite to tackle environmental challenges.



James River Basin Partnership, Stream Team #1365, continues to be a champion for Missouri Stream Team. This non-profit has been active for 27 years and last year alone they contributed 140+ stream-related projects.

Missouri educators often build their lessons and planning around what's called "Scope & Sequence," referring to the content of what you teach and when you choose to teach it. JRBP is great at tying together all that they do, whether it is monitoring, special events, clean-ups, or water outreach.

A special shout out to a great partner from the Southwest & Ozark staff; thank you for helping Stream Teamers have beautiful nature experiences. Your scope is far ranging and benefiting, your sequence aligned to the needs of the season.

Seasonal Announcements

Follow this [link](#) to our calendar to find out about upcoming events!

Please join us for a special event this summer, in the month of June: National Rivers Month!
Read the attached flyer for more information:

June is

NATIONAL RIVERS MONTH

**JOIN MISSOURI STREAM TEAM WITH CELEBRATING
MISSOURI'S RIVERS AND STREAMS ALL MONTH LONG**

There's no better time to learn more about
Missouri Rivers and Streams than during
National Rivers Month

Follow Missouri Stream Team on
[Facebook](#) where we'll be posting
challenges and facts all June long! Post
your own pictures using the hashtags
#NationalRiversMonth
#MissouriStreamTeam
or comment under [Missouri Stream
Team's](#) posts so we can see all the
ways you celebrate Missouri rivers
and streams



Learn About

- River Ecosystems
- How your daily life impacts rivers and streams
- Ways you can help Missouri waterways

Participate in

- Litter clean-ups
- Invasive species removal
- Educational events

Contact us:
stream.team@mdc.mo.gov
#NationalRiversMonth
#MissouriStreamTeam

Check out our website
mostreamteam.org to find
events near you!



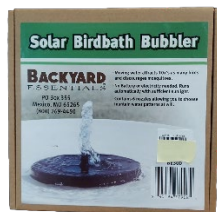
Activity Prize Drawing

Quarter Activity Prize Drawing

Semi-Annual Canoe Prize:



Quarter Prizes:



Backyard Essentials, Solar Birdbath Bubbler



Squirrel Buster, Standard, Bird Feeder



Strike Force, FHDR Gen 2 Night Optics, Game Camera

Youth Prize:



Spikeball, The Weekender

Fill out an [Activity Report](#) for your past or upcoming events, and you could win a prize next quarter!

If you ordered supplies in advance, please don't forget to report your accomplishments **after** your event. Missouri Stream Team relies on your reporting to continue to get funding!

Coalition Corner

Show-Me Less Plastic Missouri: A Call to Action for Missouri Stream Teams to be Part of the Plastic Pollution Solution

By Mary Culler, Executive Director of Stream Teams United



Caption: Missouri Stream Team volunteers are pictured above, picking single use plastic out of the Missouri River floodplain.

If you are a Missouri Stream Team, the chances are pretty good that you have picked up plastic from Missouri waterways – more than once!

The facts and numbers about plastic pollution are daunting:

- An estimate of 51 trillion pieces of microplastics (pieces <5 mm in size) currently in our oceans;
- A projection that by the year 2050, the weight of plastic in the ocean will be greater than the weight of fish in the ocean;
- Currently, approximately 8-15 million tons of plastic enter the ocean each year (a ton is about the size of an adult male polar bear). Imagine 10 million male polar bears entering the ocean each year!
- Annual plastic production has increased 230 times since the 1950's from 2 million metric tons of plastic in the 1950's to 460 million metric tons in 2020 and is on track to triple by 2060.

Wow! How did we get here? Over half of the plastic ever made has been produced in the last 20 years. I think back to the days of my college education and master's degree research in the early 2000's, and at that time the problem of plastic pollution was not being widely discussed as an imminent threat to our water resources. An article, [Plastic Pollution: An Ocean Emergency](#), was published in 2010, and its article citations include many studies and articles published in 2009. Many articles before 2010 focus on plastic effects on sea turtles and entanglement to marine life. The issue of plastic pollution has grown so much in these past 20 years.

When we think about conservation efforts in Missouri, each generation has faced different challenges. Decimated wildlife populations of the 1930's led to the formation of the Conservation Federation of Missouri in 1935 and the Missouri Department of Conservation in 1937. Many wildlife species have rebounded in these past 90 years due to the work of previous generations. The bald eagle was declared endangered in 1967, but today it is a common experience to see these winged creatures fly above Missouri's rivers and streams.

Tackling plastic pollution is one of the greatest environmental challenges of our generation, and the next generation. It is a Missouri issue, a national issue, and a global issue. But how do we tackle the mountain of plastic pollution? We invite you to learn more at our [Show-Me Less Plastic Pollution website](#), and consider your Stream Team becoming a Beyond

Plastics Local Group or Affiliate. The national organization, Beyond Plastics, provides resources, tools, and training to everyday community members interested in helping reduce plastic use. If you are interested in being a part of the team of Missourians working to reduce plastic use in Missouri, [connect with our team here](#). You can be a part of our team in raising awareness, collaborating, advocating, and taking action to reduce plastic use in our Great Rivers State.