EECO

Environmental Education Council of Ohio

Fall 2020

The Science of Beer

By Lydia Hunter, ODE

If you are like most people during the current pandemic, you may be exploring new at-home activities. For some people, this means investigating how to brew in-home malt beverages. So, what is the science behind brewing beer? Let me begin with a disclaimer. I am neither a brewer, nor a beer historian and certainly have no medical qualifications, so please take this information as a jumping off point and know that I have just gathered it in my intellectual wanderings.

Beer may be the world's oldest recorded recipe. The ancient Egyptians documented the process on papyrus scrolls as long ago as 5,000 B.C. That beer was not barley based, like today's major beers, but probably made from dates, pomegranates and native herbs. There is chemical evidence of beer produced from barley in western Iran around 3500-3100 B.C. Since there is evidence that barley was first cultivated in the region around 8,000 B.C., it is very possible they were brewing even earlier.

Interestingly, beer is also reported to have a variety of health benefits, consumed in small quantities of course. Like red wine, beer contains polyphenols (micronutrients packed with antioxidants). The health benefits range from aiding kidney and digestive health, protecting the brain from oxidation (potentially helping to ward off dementia), heart health, brightening your teeth by removing biofilm and preventing inflammation and some cancers. It also provides silicon to aid in building bone. Add in the social aspects of enjoying an occasional malt beverage and no wonder many cultures gravitated to brewing.

It turns out brewing beer touches on a lot of science topics. Brewers need to know about plants, heat, fermentation, pH, microorganisms and many other science concepts. Also, nitrogen and oxygen levels are important to the beer making process. Which ingredients, in what proportions and under differing conditions determines the end product. Interesting Engineering has posted an article, The Science Behind Brewing Beer outlining some of the basic science. *https://interestingengineering.com/science-brewing-beer*

The Internet is full of information about the brewing process. For example, check out this short video from PBS *www.pbs.org/video/its-okay-be-smart-how-beer-made/* on The Science of Beer which focuses on a farmhouse brewery producing beer that is "place-based" in the sense that the same recipe somewhere else would result in a different outcome. Unlike using single-strain yeast, as a large commercial brewery might, bacteria and yeast from local fruits and other ingredients combine to yield unique local beers. We often talk about eating locally; microbreweries and homebrewing also let us also drink locally.

Want to learn more? There are even courses available such as this free five-week course covering beer making, health effects (positive and negative) and the business end of beer production. Next session starts Oct. 4, 2020. *www.edx.org/course/the-science-of-beer* Cheers to exploring more about how brewing is embedded in our history and our interactions with the world around us.

EECO

Environmental Education Council of Ohio

Moderator: **Jennifer McCary** of Bowiling Green State University

DEI: Diversity, Equity and Inclusion

• EECO -LISTENING SESSION •

SEPTEMBER

29TH

Join us from Noon to 1pm for a discussion about creating safe and inclusive spaces for EE and Outdoor Education Events in Ohio.

Panelist: **Ebony Hood** of NEORSD

Panelist: **Nicole Jackson** of OSU

Lapp It Up Kombucha

by Denise Natoli Brooks, EECO Board Member

Upon introduction to kombucha, it was not love at first taste. However, over time Juanita Lapp craved more of this funky beverage and knew she had to learn how to make her own kombucha to satisfy cravings.

Kombucha is a fermented tea made by placing a Symbiotic Culture of Bacteria and Yeast (SCOBY) and sugar in brewed tea for a period of time. The culture takes fuel from sugar and nutrients in the tea to create a sweet, tart, and somewhat fizzy drink. The SCOBY is what makes kombucha a live, healthy, and fizzy drink. SCOBY is a light mass of cellulose—known as biofilm or "living skin"—that physically hosts bacteria, yeast, and additional culture. The SCOBY grows as it ferments, creating a rich probiotic source. It's also considered vegan leather. And yes—the SCOBY is edible!

Junita got her first SCOBY from a friend's mother and started her journey towards a healthier lifestyle and vitality. While sharing her kombucha with friends and family, her inspiration and creativity continued to develop and she began to explore with unique flavoring, ingredients and brewing conditions.

Inspired by healthy food, living vitality, and fermentation, Junita Lapp's vision for owning her own business came to life in 2014. Selling her freshly made kombucha at local farmers markets soon resulted in requests from retailers and grocers. By 2015, Junita moved into a shared commercial kitchen in Zanesville. And because of wonderful and loyal customers, they are still growing.

Kombucha's probiotic and antioxidant health benefits include digestive aid, better nutrient absorption and inflammation reduction. As a fermented beverage it contains less than 0.5% alcohol but must be refrigerated to stop the fermentation process. Junita ferments her kombucha for 14-21 days and uses a minimal amount of pure cane sugar in each batch. She also keeps her product unfiltered, raw and undiluted.

She says, "Lapp It up! Kombucha Tea products are always made with quality ingredients: from Fair Trade to local and/or organic ingredients! Each batch is brewed to perfection and taste tested to ensure a balanced flavor profile of sweet and tart. We make it in small batch quantities to ensure freshness and quality, just like you would make at home."

Follow LappIt Up! Kombucha on social media, or contact Junita Lapp at *lappitupkombucha@yahoo.com*, *www.lappitupkombucha.com.*, or (740) 651-2121. Look for an announcement in future EECO newsletters and e-blasts for a Kombucha Workshop hosted by Junita Lapp.

Learn How to make your own Kombucha at *www.youtube.com/watch?v=D3Axb37lMWI*

EECO Annual Conference
Moving Forward with EE

April 15-19, 2021

Hueston Woods State Park, Oxford, Oh

Conference strands include:

- Natural History
- STEM (Science, Technology, Engineering, Art, and Math) and Careers
- Strategic Growth
- Population, Climate, and Outdoor Education
- Inclusive World of EE

CEU Contact Hour Certificates and College Credit Available!

More information and registration will be posted at *https://eeco.wildapricot.org/*

An Educator's Discovery and Joy of Local and Global Environmental Education in Project Dragonfly:

The Natural Love Children have for the Environment

By Sharon Montano, Riverview Elementary, Hamilton, Ohio

What do rainforests, recycling, and the Great Miami River have to do with English as a Second Language class in an urban school district? They all give English Learners opportunities to experience nature and participate in the community. My career and my life changed when I signed up to go to Costa Rica with Earth Expeditions through Project Dragonfly at Miami University. The program offered me the tools to involve my English Learners in scientific inquiry, connecting the local to global ecological communities. This fantastic experience inspired me to change the course of my teaching career to pursue a Masters Degree in biological sciences in the Global Field Program, after twenty years of teaching English as a Second Language. Following the trip to Costa Rica, I became fervent about teaching my students to care for the environment. As a result, I created a whole new environmental curriculum during the course of my studies.

Environmental education is important for our world. Keeping our water clean, reducing and recycling rubbish, and helping endangered species should be on top of our priorities, but sometimes they are not. Educating our youth about these topics is of the utmost importance for the global environment. It is well known that creating environmental stewards involves getting children into nature and helping them learn about it. How can people participate in conservation later in life if they know nothing about it? Integrating environmental education into my curriculum and connecting urban school children to nature has been the best thing I have ever done in education. Teaching 5th and 6th graders about biomes, endangered animals, sea turtles, and recycling has enriched many lives, including my own. There is nothing better than seeing children enthusiastic and invested in what they are learning. The English Learners have thrived being involved in hands-on learning labs, inquiry and teacher made assignments created in the classes of Global

Field Program. What a great way to learn language, academic vocabulary, science, and also participate in the community. As a result of this new invigorating program, the students have improved on state English Proficiency tests.

Children need to be in touch with their community, their world, and to take part in it. Teaching about the global environment can help both our local and global communities. Project Dragonfly has given me the necessary pieces to build my environmental curriculum for school. Project Dragonfly emphasizes getting involved in our local communities with Inquiry Action Projects while educating us about local and global conservation problems. An Inquiry Action Project is designed to use inquiry to challenge us to create environmental action in local communities. This inquiry investigation focuses on a comparative question that follows through to community conservation action. Almost all of the projects created for my students involve both local and global conservation. For example, we study sea turtles and how we can help them at the Great Miami River. A project I created on Google TourBuilder titled, "From the Great Miami to the Gulf of Mexico" involves students virtually visiting different rivers learning about conservation and nature all the way to the Gulf of Mexico. The students also get hands-on engagement by doing an Earth Day Scavenger Hunt at the river looking for items that could harm sea turtles.

I consider myself lucky to have found this program that has inspired community participatory action. Involving my students in our local river park doing river cleanups teaches children about how our trash affects the world and the animals in it. This participation helps our young environmental stewards understand how their efforts make a difference. One student smiled joyously as she picked up a plastic bag from the riverbank and said, "I just saved a sea turtle." Another student said that she felt happy to clean the river and save the animals. She commented, "I helped clean because it helps save the world." These environmental participants are both happy and proud of their efforts to clean up the river.

Children do care about the future of our world and enjoy being involved in conservation efforts. One student said, "The environment is special to me because animals and sea creatures are going extinct. Cleaning up trash means something to me because I want the Earth to be clean." Another student mentioned the responsibility we have to the Earth, plants, and animals. Environmental education is very rewarding and beneficial for students. Many urban school children do not get the chance to experience nature, but my environmental curriculum gives them many opportunities to do hands-on recycling at school, clean the Great Miami River, and do many other outdoor observations and adventures. The whole year revolves around environmental education topics at school. It involves much discovery, positive energy, and love for our natural environment, and creates a vision that the world can be saved and nurtured by our dedicated youth.

Support EECO

....by making a donation

All donations are tax-deductible and will help increase awareness of environmental issues in Ohio. Find out more at ***https://eeco.wildapricot.org/support***

Other ways to support EECO:

- ***Amazon Smile***. Select the "Environmental Education Council of Ohio" as your charity.
- ***Goodshop.*** You can also shop hundreds of popular retailers at Goodshop, purchases will benefit EECO.

... by purchasing FUNdraising tees!

Wear your support for EECO on your chest! We have a new storefont set up at

https://eecoonline.qbstores.com

Where you can order shirts, caps, bags and more. We can hold an EECO fashion show at the next EECO Annual Conference.

Spying on Wildlife

By Adam Zorn, Huston-Brumbaugh Nature Center

Game Cam – A wildlife camera secured to a tree at the Huston-Brumbaugh Nature Center.

Peering into the secretive lives of wildlife is easier now than ever before. Webcams broadcast the trials and tribulations of eagles, osprey, owls, and hawks raising their young for all to see. Lifelike animal robots and drones infiltrate the lives of wildlife to gain insight and new perspectives about their lives in exotic locations around the world. Even off-the-shelf wildlife cameras (a.k.a. game cameras, trail cameras, camera traps, etc.) provide unprecedented access to detect and monitor wildlife anywhere from backyards to the Himalayan Mountains.

Like many other pieces of technology, the variety of features, functionality, and price points of wildlife cameras can be overwhelming when considering a purchase. Some basic considerations for comparing one camera to another are picture quality, battery life, flash type, detection circuit, recovery time, and if a device can record video (if it is a feature you desire). There are many other features that may also make one camera more appealing than another. If you need a primer for the terminology and features of modern wildlife cameras, spend some time reading buying guides from reputable retailers like B&H, Cabelas, Bass Pro Shops, or TrailCamPro. After doing so, shop around for the best deal on the device of your choice just as you would with any other purchase.

A White-tailed Deer grooms itself in front of the camera while another deer lays in the background.

Wildlife cameras can be placed nearly anywhere you choose, but some locations are better than others. In general, cameras should be placed 3 feet above the ground, aimed parallel with the ground or across a slope, oriented in a northerly direction (NW, N, NE, etc.), and should be located the recommended distance from the intended detection area (consult your camera's manual) for consistently capturing satisfactory images. Forgetting to do so may result in disappointing results such as "blank" images, backlit images, or blurry images. Additionally, you may want to carefully clear the intended detection area of obstructions like tall vegetation and sticks that may block or obscure the view of animals in your images as well as vegetation that may move enough to cause false triggers resulting in hundreds or thousands of images recorded of only branches or leaves moving in the wind. Finding the right balance of natural setting and manicured backdrop may take some practice in a forest setting.

Wildlife cameras are typically secured to trees and are aimed at a wildlife trail, food plot, or another area with known wildlife activity. Monitoring these areas is a good choice for novice wildlife camera users as they hone their skills and become comfortable with setting and operating a camera with a high likelihood of capturing good images. Monitoring the banks of ponds, lakes, streams, and rivers can produce interesting images of terrestrial and semi-aquatic wildlife visiting or living in those waterbodies. Experienced wildlife camera users have explored many other settings such as the entrances to tree cavities, large hollow trees, tree stumps, animal dens, basking logs, and many other novel areas of wildlife activity. Some ingenious camera users have even experimented using reading glass lenses over the camera's lens to experiment with macrophotography with their wildlife cameras!

Finally, let your curiosity guide you to explore and experiment with the placement of your wildlife camera. All the photos you capture can be saved or deleted at your discretion, so if you recorded a bunch of unusable images, just delete them and try again. Be sure to protect your investment in a wildlife camera with a security lock and/or security box. And if you are planning to use the camera on property you do not own, be sure to get permission before setting up your camera.

For a thorough list of resources for beginning and advanced wildlife camera users, visit *https://www.wildlabs.net/resources/thought-pieces/camera-trapping-incredibly-useful-resources-list*

Winter Snow:
Creative Ways to Teach STEM in the Winter!
EECO Winter VIRTUAL CONFERENCE 2021

January 30th, 2021

This years' "Winter Snow CONFERENCE," will be January 30th, 2021. The conference will be held online, and presenters are encouraged to create lessons that are hands-on and transferable for classroom teachers. Registration will be available later this Fall at *https://eeco.wildapricot.org/*

Seeking Presenters: Presentation topics can be diverse and if possible relate to winter, but should relate to one of the following: STEM, Arts, Environmental Literacy, 21st Century Skills or Careers and the Environment. If interested, please email Amanda Kriner at *akriner@richlandcountyoh.us*. If your lesson has outdoor components, keep modifications in mind for students who do not have access to the outdoors at home.

Webinar: Staying the Same, Yet Totally Different

Ohio State University recently hosted a webinar titled Staying the Same, Yet Totally Different, which describes the transformation that is required of EE. The webinar included interactive activities emblematic of EE but in a virtual format. All these virtual examples show that EE may have to wear a new mask, but it will always carry the same messages underneath. Recording available at *https://www.youtube.com/watch?v=Ir614ZZYOLc&feature=youtu.be*

THE OHIO ACADEMY OF SCIENCE 1891 | Believe in Ohio

Statewide STEM Scholarship Program

All Ohio high school students, who are juniors or seniors during the 2020-2021 school year, and who meet the qualifications below, are invited to apply for a $1,000 Believe in Ohio STEM (Science, Technology, Engineering & Math) Scholarship.

The purpose of this scholarship program is to recognize students throughout Ohio for their contributions to STEM Innovation and Entrepreneurship. To ensure that students from all parts of Ohio receive recognition, at least one $1,000 scholarship will be awarded in each of Ohio's ninety-nine State House of Representative districts, and thirty-three Ohio State Senate districts.

Application Information:

Applicants must be a junior or senior in good standing at any Ohio high school (Class of 2021 or 2022).

The applicant should have distinguished themselves in a significant, rigorous STEM or entrepreneurship competition, research project, or published manuscript that demonstrates the applicant's potential to become a future innovator.

More guidelines and the application process are available at:

https://form.jotform.com/OhioScience/STEM-scholarship

ALL OF THE STUDENT'S APPLICATION MATERIALS MUST BE SUBMITTED BY MONDAY, JANUARY 11, 2021.

Harnessing the Power of Plants

By Ryan Bourgart, Ohio EPA

Allelopathy is a common biochemical process that involves one organism producing chemicals that influence the growth of another. These allelopathic chemicals can have beneficial or detrimental effects. To defend themselves, plants produce these chemicals, some of which we harvest for preserving and enhancing our way of living.

Image: Arabi coffe plant, Ben3John, Wikimedia

The most widely known allelopathic chemical is arguably caffeine. America runs on it according to Dunkin Donuts, but the chemical does more than jumpstart the morning for millions of people. It also amps up plants by priming their defenses and being toxic to herbivores (Sugiyama et al., 2016). Additionally, the caffeine in the nectar of coffee and citrus flowers may help honey bees remember the flowers' scent better, protecting the longevity of the species (Wright et al., 2013).

Ginseng is a plant that produces a chemical called ginsenoside, which has antimicrobial and antifungal properties. Ginsenoside is also bitter and discourages insects and other animals from eating the plant. In our diets, the plant can be added to drinks and soups. Ginseng and ginsenosides have been used in traditional Chinese medicine and in modern pharmacology. These chemicals can stimulate the immune system, and have antioxidant and anti-inflammatory properties among other medicinal applications (Xiang et al., 2008).

Even though the research supports the use of these plants, please consult and confirm with your doctor before eating or otherwise using them. If they require a certain way of cooking or processing them, be sure to prepare them properly.

Historically, ginger was used to improve health. In Asian medicine, it was used for thousands of years to treat stomachache, diarrhea, and nausea. Today, it is a dietary supplement that can be used for treating nausea and some types of arthritis. Consult and confirm with your doctor before using ginger, as it can have mild side effects (National Center for Complementary and Integrative Health, 2016). The plant releases chemicals into the soil to inhibit the growth of nearby seedlings and therefore help the individual plant grow (Han et al., 2008).

If you happen to be surrounded by the golden colors of the prairie in the summer and early fall, look for the common sunflower. In addition to its brilliant blooms, when the plant dies, its decomposing remnants contain allelopathic chemicals that can be used to inhibit weed growth (Rawat et al., 2017). And of course, for our benefit, who is not familiar with snacking on a handful of their seeds? The plant has been prepared for a variety of purposes including as an expectorant, a remedy for colds and coughs, and cauterizing wounds and infections (USDA, n.d.).

Image: Wildflower buffer at Butler SWCD, Hamilton, Ohio

As an environmental education topic, allelopathy can be discussed indirectly through two activities in Project Learning Tree. Every Tree for Itself is a simulation that has students pretend they are trees and try to gather as much needed resources as they can. This activity can be changed to include the impacts different types of plants (including allelopathic plants) have in a forest. Dynamic Duos discusses the different kinds of ecological relationships in the natural world (i.e. mutualism, commensalism, and parasitism) and encourages students to think about how we depend on plants.

Maybe the ultimate way of preserving ways of living is through collaboration. In addition to allelopathic chemicals, plants provide us with a variety of benefits. By being grateful for the beneficial uses we derive from plants and taking action to protect them, we can preserve plant and human life.

Ohio's list of LEED-certified schools highlights the state's dedication to making a global impact.

MaryEllen Etienne, USGBC US Green Buildings Council

USGBC Ohio is pleased to recognize the Ohio Facilities Construction Commission (OFCC) on the LEED certification of the state's 355th public school. The state of Ohio continues to be the global leader in LEED-certified public schools, with more certified schools than any other state or province in the world.

LEED is the world's premier benchmark for the design, construction and operation of high-performance green buildings. Since 2007, the OFCC has required each school building it funds to seek LEED Silver certification, with the goal of achieving Gold.

Ohio is the recognized global leader in sustainable school design, with more than 560 total schools and child care centers either registered or certified through LEED. On average, Ohio's certified public schools have been designed to use 35% less energy, and an average of 30% less water, than comparable buildings constructed and operated to traditional standards. In addition, these schools provide healthier indoor environments conducive to learning.

"The Ohio Facilities Construction Commission is a global leader in creating healthy, sustainable schools," said Anisa Heming, Director of the Center for Green Schools at USGBC. "Since 2007, we have watched the OFCC successfully show that LEED works for Ohio. These schools are designed to save money, energy and resources, and they are providing an environment that supports student learning. Ohio demonstrates a deep commitment to the well-being of its students, teachers and communities through the use of LEED."

OFCC's Executive Director Cheryl J. Lyman says this announcement is "exciting, and certainly a statement on how Ohio has embraced environmentally friendly design. These projects, which represent a commitment to both our school children and the future of our environment, are the direct result of innovative teamwork from architects, construction managers, trade contractors and our project partners, the local school districts. I commend them for their accomplishments."

Of the 355 certifications, 110 schools have exceeded LEED Silver, earning LEED Gold or LEED Platinum status. Some of Ohio's notable LEED-certified schools include West Clermont High School in Clermont County, which became the 355th public education facility in Ohio to achieve LEED, with a LEED Silver certification. Fullerton K–8 ,of Cleveland Metropolitan School District in Cuyahoga County, was the 107th LEED Gold school in the state, boasting a 40% reduction in water usage and 30% energy savings. Robert A. Taft Information Technology High School in Cincinnati became the first public high school in the state to receive LEED Platinum certification, and Cloverleaf Elementary School in Medina County earned LEED Silver, which "shows taxpayers that the district is energy conscious," says Superintendent Daryl Kubilu.

The use of LEED also has a positive economic impact on Ohio and surrounding states. All OFCC projects using LEED encourage the use of products and materials that are harvested, manufactured or produced within a 500-mile radius of the project to support nearby economies, and the current version of LEED gives additional credit for products sourced within 100 miles. On average, nearly 32% of building materials for these schools were procured from regional sources, and 33% of the schools' building materials contain recycled content. The 355 schools have also diverted more than 70% of construction waste from Ohio landfills.

"We commend the OFCC for their commitment to green building by becoming the global leader with the most LEED-certified public schools," says Jim Ratliff, Chair of USGBC Ohio's Market Leadership Advisory Board. "This achievement brings us one step closer towards our goal of green buildings for everyone within this generation. By prioritizing sustainability with LEED in our public schools, Ohio can contribute to making a global difference."

For a complete listing of Ohio's LEED schools, visit:

the OFCC website *https://ofcc.ohio.gov/*

Ohio's LEED projects page *https://www.usgbc.org/chapters/usgbc-ohio?view=projects.*

USBS wesbite *https://www.usgbc.org/chapters/usgbc-ohio*

Ohio Environmental Education Fund

Because of pandemic-related budget uncertainty, state-funded grant programs like the Ohio Environmental Education Fund had to temporarily suspend grantmaking in 2020. Ohio EPA does not yet know when the OEEF will be able to resume grantmaking, but the Agency is continuing to support the multi-year EECO-Ohio EPA partnership and environmental career ambassador initiative.

Despite the pandemic disruptions and cancellation of many spring workshops, this year EECO members, Ohio EPA staff members and volunteer career ambassadors spoke with 13,294 middle school, high school and college students through career fairs and classroom presentations. The partners also mentored 110 students, offered 71 college internships, and two job shadowing opportunities to allow high school students to observe environmental professionals at work.

Ohio EPA staff and EECO's part-time regional directors work closely with educators at the local level to offer workshops and share teaching resources. This year the partners offered 35 regional professional development workshops to 1,776 educators, offering teachers certification in nationally recognized curricula such as Project Learning Tree; Project WET (Water Education for Teachers) and Healthy Water, Healthy People; Project WILD, Project WILD Aquatic, Flying WILD, and WILD School Sites; Windows on Waste, and the Wonders of Wetlands. The partners also exhibited or presented at 12 special events, festivals and conferences, interacting with 5,224 participants.

Ohio EPA Water Quality Report

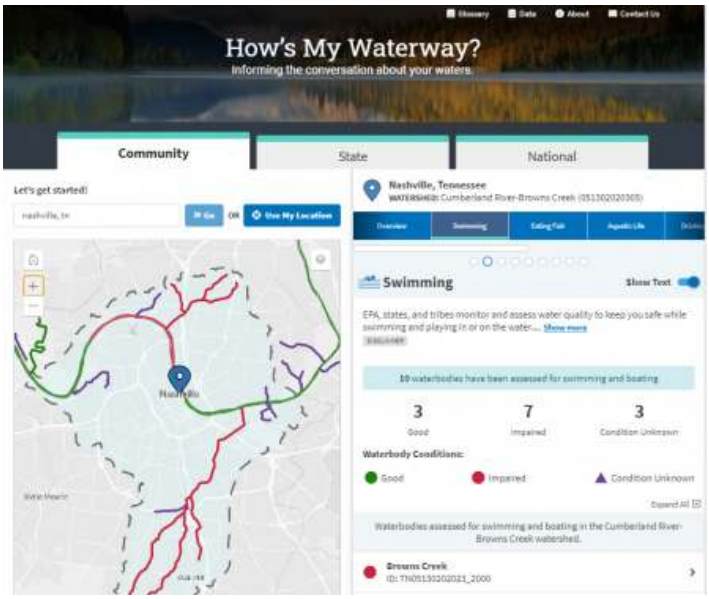
Ohio EPA recently announced that 88.2% of Ohio's large rivers are now in full attainment of national water quality standards. That's an improvement from only 21% in the 1970s and early 1980s. The newest Ohio Integrated Water Quality Monitoring and Assessment Report is the Agency's best source of plain-English information that can be useful to environmental educators trying to understand current conditions. It also includes a treasure trove for teachers seeking real-world data sets for their students to use. The 2020 report contains data from 1,538 watershed units, 38 large river units, and seven Lake Erie units. These data are used to judge whether these water bodies are suitable for four specific uses – aquatic life, recreation, human health, and public drinking water supplies. Water bodies not suitable for these uses (impaired) are prioritized and scheduled for more detailed study and restoration.

https://epa.ohio.gov/dsw/tmdl/OhioIntegratedReport

How's My Waterway App

Another useful resource highlighting Ohio water quality is the How's My Waterway tool. The tool contains, among other information, data about local drinking water, swimming, eating fish, and restoration and protection efforts. Map-based and mobile-friendly, the tool works on computers, tablets, and cell phones.

https://mywaterway.epa.gov/



Ohio EE Competitions Going Virtual

State Science Day

State Science Day usually is a bustle of students and judges, but this year it was virtual. To apply for the Governor's Award for Excellence in Environmental Research, each student submitted a research plan, abstract, collected data, and discussion of the results and conclusions. They also submitted photos and videos with their posters presenting summaries of their projects. These materials were reviewed and ranked by judges from Ohio EPA. The judges reviewed individually, then collectively in virtual discussions via Microsoft Teams. A few Ohio EPA employees compared the virtual experience this year to previous years. "*When done in person, you talk to the student more, get to know them better, [and] judge their environmental knowledge, enthusiasm, and commitment*", judge Annette DeHavilland said. However she "*was surprised how much [she] could still glean from their reports - what they chose to emphasize in their explanations and how their project fit into the larger environmental picture*." Rahel Babb was a team captain who said that the difficulties with the virtual experience "*were simply figuring out the new process and coming up with a game plan[…] for organizing our team meetings and making sure the final results were submitted on time*." Despite the difficulty she said that coordination "*went surprisingly smoothly considering the short time frame and the number of team members (there were seven of us), in various divisions and agency roles, that needed to be coordinated*."

Future City Competition

Future City Competition is an engineering competition for middle school teams designing a city of the future around an environmental theme. *https://futurecity.org/ohio* This January, Future City was a flurry of people clustered in the Eastland Career Center hallways with students huddled around carts moving models of future cities between classrooms and the gymnasium. The plan for January 2021 to be (literally) virtually different. All competitions will be online and teams will have the option of completing the deliverables in person or remotely. If you are interested in this event and want to know more about the changes being made, please visit the 2020-2021 Competition Updates page. *https://futurecity.org/about-the-competition/2020-2021-updates*

Virtually Awesome! Ohio Envirothon Continues

Ohio Envirothon Program By Emily Heppner, ODA

How do you host a "hands on" High School competition? With Google forms, Zoom, and lots of emails!

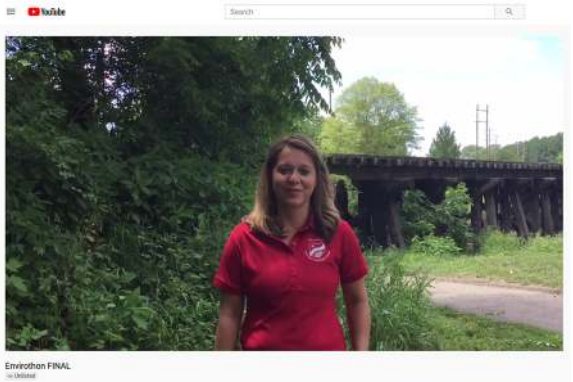
As the end of March quickly approached It became evident that Ohio would have to cancel all in person Area and State Envirothon competitions due to COVID-19. The Ohio Envirothon planning committee still wanted to provide some sort of competition to high school students in fear that advisors would quickly forget about the program in 2021. The committee quickly reacted and changed courses to get a "hands on" program to students in a virtual format.

The Committee reached out to advisors across state to gage interest of participation in a virtual competition. While we were waiting on the survey results the Committee met weekly on Zoom to plan out all the details of the new 2020 Envirothon. After lots of back and forth it was decided to utilized Google Forms for the testing with the team members meeting on Zoom to take the test as a group. The top six teams from the online testing portion would then develop a five-minute presentation that was judged virtually over Zoom.

Thirty teams representing, 19 school districts across the state participated in an online test in late April. Although we couldn't guarantee there would be cheating, we took every precaution to prevent cheating. Each Google form test was timed and could only be opened by the team captain with a unique

Continued on next page

Ohio Envirothon Continued



link. The top teams that had to give a presentation were asked to email their presentations the night before as a way for the teams to get an equal amount of time to work on their presentations.

Judges had a long day of watching presentations on Zoom but they all seemed to be impressed with the six teams, Dennis Clement, EPIO 1, Ohio EPA, said "When I was asked to judge (one of three judges) the oral presentations for the 2020 Virtual State Envirothon, I did so without hesitation. The judges watched 6, Zoom presentations and I was impressed hearing the presentations from the top placing teams. I was most impressed with the organization of the never before done virtual contest by the state committee and the in-depth organization and details each team provided during their oral presentation."

The winners were then announced via a Zoom call *https://www.youtube.com/watch?v=wGzvYKngiGk*

1st place- Bellefontaine 2nd place- Lynchburg-Clay 3rd place- Boardman

Justice Ruth Bader Ginsburg

By Howard A. Learner, Environmental Law & Policy Center

Justice Ruth Bader Ginsburg is one of my heroes – for her path-breaking public interest legal advocacy, for her leadership as a U.S. Supreme Court Justice, and for her values.

Justice Ginsburg's litigation for women's rights effectively broke new legal ground in analogous ways to Justice Thurgood Marshall's and the NAACP Legal Defense Fund's litigation to advance racial equality.

Ironically, many of Justice Ginsburg's leading opinions were in dissent. Hopefully, at some point they will become the basis for future majority opinions, or inspire legislation, as Ledbetter v. Goodyear led Congress to pass the Lilly Ledbetter Fair Pay Act of 2009. However, her majority opinions in U.S. v. Virginia (gender rights) and Olmstead v. L.C. (disability rights) were fundamental in advancing important legal principles and social change.

Less well-known is Justice Ginsburg's leadership on environmental issues. Her majority opinion in Friends of the Earth v. Laidlaw Environmental Services was a high-water mark. The Court recognized citizen standing to seek penalties for water pollution and held that a citizen suit for civil penalties should not be dismissed as moot when the defendant, following the commencement of litigation, has come into compliance with its permit: "A defendant's voluntary cessation of allegedly unlawful conduct ordinarily does not suffice to moot a case," Justice Ginsburg wrote for the Court. "Congress has found that civil penalties in the Clean Water Act cases do more than promise immediate compliance…they also deter future violations."

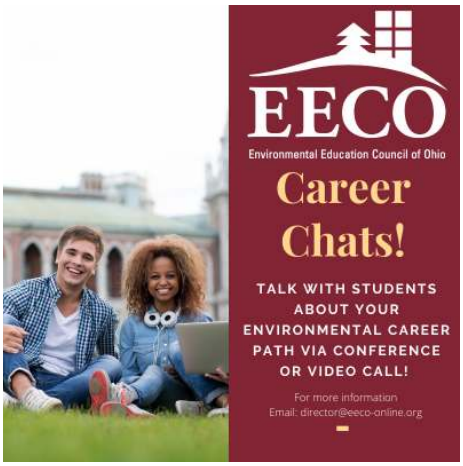
Her majority opinion for the Court in AEP v. Connecticut (climate change) limited federal common-law actions, but, also, solidified and stabilized the Court's landmark decision in Massachusetts v. EPA. It created the window for plaintiffs' state common law litigation for climate action and healthier clean air that took flight in Freeman v. Grain Processing (Iowa Supreme Court) and Bell v. Cheswick (Third Circuit). These issues are now before the courts in the Baltimore, California, New York and other cases brought against oil companies for their greenhouse gas pollution.

Justice Ginsburg's values, in addition to those reflected in her public interest litigation and judicial opinions, included maintaining relationships with people with whom she strongly disagreed – such as her famously enjoying opera together with Justice Scalia.

Career Chats

Where will the next generation of environmental professionals come from? Could you play a role in inspiring this career choice among today's students? Consider being an environmental career ambassador who is willing to chat with a student or classroom via a video call about your career. A classroom video presentation would be approximately 30 minutes and would include Q&A time. A small group or individual student career chat would be fifteen to twenty minutes in length.

We are also seeking individuals who are willing to participate in a prerecorded video about their career pathway. The prerecorded video would be an interview style setting about your career, and would be between five and ten minutes in length.



Some questions you may be asked are:

- Do you need a degree to do your career? What is your degree?
- What classes in High School were important to your pathway?
- What is your daily schedule like?
- What is the most important/fun part of your job?
- What is the least fun part of your job?
- Do you have a fun story about your job?
- If you knew then what you know now, would you have done something different in High School or College course work?
- Do you or your company/organization have internships for high school or college students?
- Could you provide a shadowing opportunity for students to see what professionals do in your field?

We are seeking Ohio professionals in:

- Air quality;
- Environmental health and policy;
- Energy, materials and sustainability;
- Land use and conservation;
- Water resources and water quality; and
- Wildlife and ecosystems.

If you are interested or would like more information please contact Brenda Metcalf with the Environmental Education Council of Ohio at *director@eeco-online.org*

New Education Resource for Educators in SW Ohio

The Butler, Clermont, Hamilton, & Warren County Soil & Water Conservation Districts of SW Ohio have partnered to bring area teachers and educators FREE online lessons and activities to support SW Ohio educators!

https://sites.google.com/view/swcd

Access lessons aligned to Ohio Learning Standards for grades K-12. Import into your Google Classroom or simply click on the lessons and begin! Plus, find out how to bring live virtual presentations and discussions to your classroom from our professional educators.

These resources are free to access for teachers elsewhere in the state, however they will need to contact their local Soil and Water Conservation District (SWCD) for any further virtual demonstrations or assistance. You can find your local SWCD at *https://tinyurl.com/OhioSWCD88*

Contact EECO

Partnerships strengthen EE in Ohio, leading to a more environmentally literate population and a healthier environment. You are welcome to become a partner and friend to EECO. Please contact any of our regional directors, officers, adivisors, and board members to find out more about becoming a part of EECO.

Regional Directors

Region 1 - Central Ohio
Linda Pettit, Franklin SWCD
lpettit@franklinswcd.org

Region 2 - NW Ohio
Jennifer Elsworth, Metro Parks of the Toledo Area
jennifer.elsworth@metroparkstoledo.com

Region 3 - NW Central Ohio
Sheila Cubick
SheilaC@zoominternet.net

Region 4 - SW Central Ohio
Donna Lewis, Clark County Park District
donna.clarkcountyparks@gmail.com

Region 5 - SW Ohio
Errin Howard, Riverworks Discovery
errin@riverworksdiscovery.org

Region 5 - SW Ohio
Gia Giammarinaro, Cincinnati Parks
gia.giammarinaro@cincinnati-oh.gov

Region 6 - N Central Ohio
Joanne Mudra
jcmudra@gmail.com

Region 6 - N Central Ohio
Janet Ellsworth, retired, Mansfield City Schools
wellsworth@neo.rr.com

Region 7 - S Central Ohio
Joe Brehm, Rural Action

joe@ruralaction.org

Region 8 - NE Ohio
Dawn Wrench, Yavne High School
sunnywrench@att.net

Officers & Advisors

Executive Director
Brenda Metcalf
director@eeco-online.org

President 2019-20
Josh Dyer
jdyer@crawdordparkdistrict.org

Past President2019-20
Allison Shaw
shaw@metroparks.net

Vice President 2019-20
Amanda Kriner
akriner@richlandcountyoh.us

Treasurer 2019-20
Matt Knittel
mjk@clevelandmetroparks.com

Secretary 2018-2020
Jenny Adkins
jennya@madscientistassociates.net

Advisor– OEE, OEPA
Carolyn Watkins
carolyn.watkins@epa.ohio.gov

Advisor– ODE
Lydia Hunter
Lydia.Hunter@education.ohio.gov

Advisor– ODNR
Jen Dennison
Jen.Dennison@dnr.state.oh.us

Board Members

Anne Drake
drake@brookvilleschools.org

Dave Moran
dmoran@daytonymca.org

Denise Natoli Brooks
denise.natoli.brooks@gmail.com

Lynn White
whitelr@butlercountyohio.org

Advisory Council

Chair
Paul Kaacherian
khachp@hotmail.com

Webmaster
Josh Flory
administrator@eeco-online.org

Newsletter
Lynn White
whitelr@butlercountyohio.org

E-Blast
Dave Moran
dmoran@daytonymca.org

Facebook
Jen Dennison
Jen.Dennison@dnr.state.oh.us