

# MTSU Center for Health and Human Services Newsletter



*Better Health and Well-Being  
for Tennesseans and That of the Nation*



## QUALITY

**"QUALITY IS NOT AN ACT. IT'S A HABIT."**

—Aristotle

**The Center for Health and Human Services (CHHS) continues to stay busy and has had an active summer.** As the center continues its work to promote better health and well-being for all,



Cynthia Chafin,  
M.Ed., MCHES® CHHS  
associate director for  
community programs

through projects and research with local, state, and national reach, we continue to focus on quality. With substantial growth over the last three years, the need for quality is very important

to us as a representation of not only CHHS but also the University. With a new grant award of \$1 million, which begins in September (see below) and is the largest single award in the center's history, it is critical that our work continue to be of the highest quality during this period of growth. With our current portfolio of research, projects, and programs that focus on mental health, substance abuse and misuse, obesity and diabetes prevention, foods and agriculture, environmental health, and workforce development, we continue to strive for the highest quality as we make a difference in the

lives of Tennesseans and others throughout the nation through these initiatives that have both a Tennessee and national footprint. CHHS looks forward to continuing to serve the public in these important areas.

For those who are not familiar with CHHS, please take an opportunity to visit the [center's website](#) to read more about our work. Previous editions of the CHHS newsletter are posted

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there, as is additional information on some of the many projects, programs, and research of the center.

**Recent CHHS highlights include:**

- **New \$1 million grant received for opioid prevention implementation funding**—CHHS recently applied for and received a Health Resources and Services Administration (HRSA) Rural Communities Opioid Response Program (RCORP) implementation grant, which will provide \$1 million to implement activities and secure needed resources in rural Wilson County communities to address the opioid epidemic over a three-year period. This funding will provide a transition from activities begun in October 2020 under a planning grant from HRSA. CHHS, our campus



partners, and Wilson County community partners represented by [DrugFree WilCo](#) look forward to continuing to fight the opioid epidemic and make a difference in the health and lives of Tennesseans. Read more about planned activities and areas of focus for this project later in this CHHS newsletter.

The work done in Wilson County through this grant may serve as a model for other counties in the state, particularly for data management and tracking of opioid overdoses and deaths. CHHS will continue to work with the [MTSU Data Science Institute](#) as a partner in this important work along with MTSU's [Department of Health and Human Performance](#). Future plans also include applying for funding in 2022 to address psychostimulants as an overlapping area. These efforts will be in partnership with [DrugFree WilCo](#) and will supplement current and future opioid prevention efforts in the county.

- **New partnership with Tennessee Department of Environment and Conservation** continues to thrive—CHHS' recent grant from the [Tennessee Department of Environment and Conservation](#)



[Conservation \(TDEC\)](#) to address environmental health and water

quality continues to thrive. The grant began in February with involvement from several partners, including the [MTSU Center for Environmental Education](#), [MTSU Department of Environmental Health and Safety Services](#), [MTSU School of Agriculture](#), and members of the TDEC Nutrient Reduction Task Force. A toolkit is being developed, and multimedia campaigns for identified target audiences focusing on water quality and nutrient reduction are under development. The TDEC partnership is featured in this quarter's CHHS newsletter as the "Community Partner Spotlight" and featured project.

- **Campus-focused mental health awareness grant wraps up and \$500,000 grant application submitted to continue the project**—CHHS is wrapping up its third year of a Substance Abuse and Mental Health Services Administration (SAMHSA) grant, which supports the Mental Health First Aid program on campus. Since 2018, 1,095 students, faculty, and staff have been trained in Mental Health First Aid since the program was launched on campus. Of those participants, 857 were faculty members or students training to work in one of the helping professions, and 238 were campus staff or community members, resulting in 1,218 referrals to mental health services both

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**QUALITY** *continued from page 2*

on campus and in the community. CHHS is currently seeking continuation funding to carry the project beyond October 2021, with a recent funding application submitted to SAMHSA that would continue the project for another five years, if awarded.

- **COVID-19 funded agriculture and STEM education project continues**—Work continues on the creation of agriculture, health, and STEM-focused materials for teachers, parents at home placed in educator roles unexpectedly, and home-school families in an 11-state area for grades K–14. The effort is funded by a Rapid Response Research on COVID-19 Impacts on Agriculture grant that CHHS was awarded through the U.S. Department of Agriculture’s National Institute of Food and Agriculture (NIFA) in the midst of the pandemic. The successful grant application was made in partnership with MTSU [School of Agriculture](#) Fermentation Science faculty. The project launched in October 2020, and tremendous work has been done through efforts of the MTSU team along with stakeholders in the 11-state area. The project team is working diligently to deploy 12 modules comprising 51 units, publishing at intervals throughout the year in support of agriculture, health, and STEM education.

STEMsational Ag: The Virtual Classroom offers K–14 learners from the Southeast U.S. region the opportunity to learn about the exciting world of agriculture through educational materials developed by experts. It is available at no cost, and teachers, learners at school, and learners at home have an engaging selection of units to explore. Learners can choose to investigate the amazing life of

bees, what chickens truly like to eat, what it really takes to make a pickle, and myriad other interesting agriculture topics. All units are connected to National Agriculture Literacy Outcomes and are available online, via USB, or as printed hard copies. Those interested in exploring the units can visit [mtsu.edu/STEMsationalAg](https://mtsu.edu/STEMsationalAg) to create a free account for access to all the units. Learn more about this project in the [spring 2021 CHHS newsletter](#).

- **New partnership with MTSU Tennessee STEM Education Center established**—CHHS is excited to partner with the [MTSU Tennessee STEM Education Center](#) on collaborative opportunities and to have the support of Greg Rushton, director of the STEM center and the Office of Research Services’ co-director for strategic growth, as CHHS continues its growth trajectory.
- **Blue Raiders Drink Up: Healthy Choices for Healthy Students enters its third year**—This obesity and diabetes prevention project funded by the Tennessee Department of Health’s Project Diabetes initiative has provided opportunities for thousands of MTSU students through twice monthly campus activities (virtual during COVID-19), access to free counseling sessions with a registered dietitian and/or health coach, personal training scholarships, and cooking classes. Since the launch of Blue Raiders Drink Up: Healthy Choices for Healthy Students (BRDU) two years ago, the program



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**QUALITY** *continued from page 3*

has gained tremendous momentum and is highly sought out by the MTSU student body. From July 1, 2019, to June 30, 2021, the CHHS team has been able to educate more than 2,650 MTSU students on the importance of reducing the consumption of sugary beverages. Blue Raiders Drink Up continues to offer a wide variety of activities such as cooking classes, counseling sessions with a registered dietitian and/or health coach, and 24 educational events per year where students learn how to lead a healthy lifestyle. Learn more about this project at our [website](#) or in the [summer 2020 CHHS newsletter](#).

- **Workforce Training and Development: Infant Death Scene Investigation and Safe Sleep project virtual classroom to continue for 2021–22 year**—Since 2004, more than 34,000 first responders and over 1,700 public health and social services professionals have completed training offered by CHHS with



support from University College. Death Scene Investigation training is required for first responders under Tennessee's Sudden

Unexplained Child Death Act. As part of this training, responders also learn about sudden unexpected infant death (SUID) and safe sleep for infants. The externally funded project on safe sleep offers additional training opportunities for other public health and social services professionals. Over the last

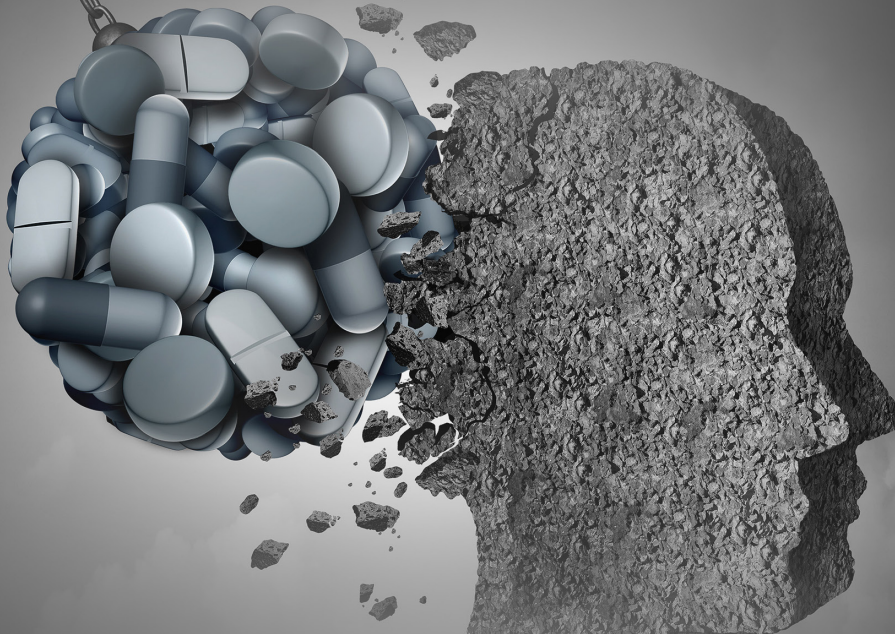
year, the training transitioned to a virtual classroom format due to COVID-19, which was a challenge but ultimately very successful with the support and hard work of University College. Trainers and speakers, including the state medical examiner, have historically provided an interactive day-long training for first responders. Transitioning this interactive training to a virtual format that in many cases was unfamiliar to the intended audience was quite the challenge, but it is now being looked at as a model to complement live trainings when those resume at a future, undetermined time. There have been many benefits to having a virtual option, including accessibility to training for first responders across the state who may not be able to travel even without COVID-19 restrictions, increasing opportunities for participation. The project was featured in the [summer 2021 CHHS newsletter](#), for those who would like to learn more. The project has filled a gap in much-needed provider training within the first responder community and within health and social services fields. Virtual training will continue for the 2021–22 grant year.

- **Partnerships and collaborations continue**—As always, multiple campus and external collaborators and partners continue to be involved in CHHS projects, programs, and research, and more information on each will continue to be shared via this quarterly CHHS newsletter, the CHHS website, and social media updates.

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*Cynthia Chafin, M.Ed., MCHES® CHHS  
associate director for community programs*

## Priorities, Progress, and Moving Forward— CHHS' Health Resources and Services Administration (HRSA) Rural Communities Opioid Response Program (RCORP) Implementation Grant



**According to Tennessee Department of Health data, fatal drug overdoses in Tennessee went from 2,089 in 2019 to 3,091 in 2020—a 48% increase.**

This is mostly due to a flood of fentanyl, which is more potent and more profitable for drug dealers to use, as well as the isolation that was caused by the COVID-19 pandemic. CHHS' RCORP team and partners hit the ground running to help reverse this alarming increase. Substance abuse has increased significantly during the pandemic for many counties as people reach for substances as a coping mechanism, creating an even greater need for this work.

Priorities were identified through the Wilson County Community Needs Assessment and Gap Analysis, as well as focus group sessions that the CHHS team, [DrugFree WilCo](#), and other local partners facilitated and completed in January 2021 as part of the HRSA planning grant. As a result, progress was seen in all of the following areas: the PIC Center (Preventing Incarcerations in Communities, a diversion center in Wilson County for first-time misdemeanor drug offenders), the need for a naloxone distribution program, jail-based reentry

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**OPIOID RESPONSE PROGRAM** *continued from page 5*

specialist to help with transition back into the community, and education for businesses/youth.

As a result of being approved for the \$1 million RCORP implementation grant, we are hopeful and excited to add several new strategies, which include these:

- Medication-assisted treatment (MAT) for the uninsured in Wilson County
- Transportation solutions for those who can't get to their treatment appointments
- Overdose map to track overdoses in real time and provide spike alerts to our citizens
- Initiating buprenorphine-based MAT in the emergency departments

As noted above, the work done in Wilson County through this grant may serve as a model for other counties in the state, particularly

for data management and tracking of opioid overdoses and deaths. CHHS will continue to work with the MTSU Data Science Institute as a partner in this important work along with the MTSU Department of Health and Human Performance.

Future plans also include applying for funding in 2022 to address psychostimulants as an overlapping area.

These efforts will be in partnership with [DrugFree WilCo](#) and will supplement current and future opioid prevention efforts in the county. To view the strategic plan developed as part of the planning grant, which includes strategies for future direction, scan the QR code on your electronic device.



## Want to donate to further the work of MTSU's CHHS?

**MTSU CHHS operates primarily through external funding.** To continue our mission of promoting health and well-being for all Tennesseans and that of our nation, we need financial resources to continue our work. We operate from public and private grants as well as sponsorships and donations.

Please consider a donation of any size, which will go directly to CHHS. Visit [mtsu.edu/chhs](https://mtsu.edu/chhs), click on Donate Now, and specify that your donation is for CHHS. The site accepts MasterCard, VISA, and American Express.

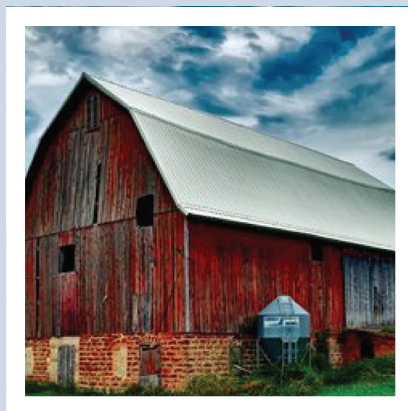
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# Whom Do We Serve?

The Center for Health and Human Services collaborates with MTSU faculty and staff, and public and private organizations and partners, to develop and implement local, regional, and statewide programs, projects, and research activities designed to improve the health and well-being of Tennesseans and of the nation. Did you know that much of our work involves off-campus initiatives? One of the more

common misconceptions about CHHS is that we solely serve the campus community. While some of our efforts do focus on our campus, the majority of our work is done in communities across Tennessee, some of which serve as models for other states. Our projects have touched all 95 Tennessee counties, with some involving multistate partnerships and others having national impact.



Ash Abro and Rose Chilsen, recent Dietetics graduates and former CHHS staff.

## CHHS Campus Resources

**MTSU Mental Health First Aid**

To date, 1,095 have been trained through MTSU Mental Health First Aid in the last three years. Want to learn more?



**Mental Health FIRST AID**

from NATIONAL COUNCIL FOR MENTAL WELLBEING

Please visit the [CHHS website](#) for more information. CHHS is currently seeking funding to support continuing MHFA workshops beyond September 2021. Please continue to check the website for additions and updates.

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# CHHS Continues Partnership with Global UNTOLD Project to Support Students' Mental Health



Books  
are coming  
soon!

**The Campus Diaries** is a “Dear Diary” showcase of stories of students. The “Dear Diary” pages are anonymous and serve the purpose of providing a therapeutic outlet for students to share their struggles while also providing inspiration to others as they see other students successfully overcoming life’s challenges and obstacles. Diaries have always been considered a safe outlet for people to write down their feelings, their experiences, and their thoughts. Creating a campus diary allows students to express how they feel, and students also get to see that they are not alone by reading other “Dear Diary” submissions.

The **Campus Diaries** project launched in spring 2020 right before COVID-19 emerged, and 50 students submitted entries throughout the semester. Submissions continued in fall 2020, with more than 100 as of the end of December. The initiative recently wrapped up submissions for the Spring 2021 semester. In addition to collecting more stories from MTSU students, the project expanded to other universities and campuses across the state as well as beyond, with universities in both the United States and Canada participating. Plans for fall 2021 on-campus events including photojournalism exhibits and podcasts continue to be delayed due to COVID-19 but will be added at a future time. A new book, *UNTOLD: The Campus*

*Diaries*, a collection of stories from students at university campuses across the country, will be announced soon and will include writings in a “diary” format with touching and spirited photography taken specifically for the Campus Diaries project. A smaller student edition also will be available and will include journaling pages. The project is seeking grant funding and sponsorships to be able to offer every student entering campus life at colleges and universities around the country a book upon orientation or during their first year to give encouragement, hope, and support to their new lives on campus.

Students are encouraged to use Campus Diaries to share their thoughts on whatever is on their minds—challenges with being a student, COVID-19 stress and concerns, or just life in general. Information for crisis support is provided for students who need intervention.

For more information on the project, visit the CHHS website [mtsu.edu/chhs/campus-diaries.php](https://mtsu.edu/chhs/campus-diaries.php) or UNTOLD Campus Diaries at [untoldproject.org/the-campus-diaries/](https://untoldproject.org/the-campus-diaries/). CHHS has offered several internships over the last two years for students to participate in operations and further development of the UNTOLD Campus Diaries project as a public health and mental health focused intervention.



# Staff Spotlight

## Michael Ayalon

Michael “Mike” Ayalon serves as the Wilson County Rural Communities Opioid Response Program (RCORP) coordinator as part of the Health Resources and Services Administration (HRSA) grant that CHHS received to conduct a needs assessment and gap analysis in Wilson County, Tennessee. Through the grant, Mike



Michael Ayalon

has successfully coordinated local activities for the planning grant with other members of the MTSU team, **DrugFree WilCo** (a local coalition to reduce drug abuse and addiction in middle Tennessee), as well as other

local stakeholders. Some of the areas of need identified that will continue through the recently awarded HRSA implementation grant include Wilson County’s first diversion center for first-time drug offenders, a jail-based reentry transition specialist position, and trauma-informed drug prevention activities and education for Wilson County schools and businesses.

Mike is also a professional speaker, author, host of the Fraternity Foodie Podcast, and CEO of Greek University. He has headlined keynote presentations on over 200 college campuses in 35 states to help solve problems such as sexual

assault, hazing, alcohol and drug abuse, and recruitment for college student organizations. As a speaker, he is able to take lessons learned from helping to build companies from startup to over \$25 million in annual sales, as well as best practices as the former executive director of Sigma Pi Fraternity with 120 chapters and more than 100,000 members, to create dynamic, positive, and results-driven keynotes and workshops that transform people’s lives.

Mike is the author of the new book *From Letters to Leaders: Creating Impact on Your College Campus and Beyond*. He is a graduate of the School of Management at the University at Buffalo, and has a master’s degree from Cumberland University in Public Service Management.

Mike lives in Franklin with his wife, Jennifer; his son, Jacob; and his daughter, Rachel. Collectively, they serve the “king of the household” Klondike, a spirited and talented feline family member who has become well known to the CHHS team over the last year as weekly staff meetings were held via Zoom. Mike’s personal interests include working out at the gym, reading, hiking, and seeing all the waterfalls of Tennessee.

Mike’s favorite quote is: “Inaction breeds doubt and fear. Action breeds confidence and courage. If you want to conquer fear, do not sit home and think about it. Go out and get busy.”—Dale Carnegie

CHHS is grateful for Mike’s dedication to his work. He has been a great addition to the CHHS team.

# Campus Partner Spotlight

## MTSU Center for Environmental Education, MTSU Environmental Health and Safety Services, the MTSU School of Agriculture

CHHS is partnering with the MTSU [Center for Environmental Education](#), MTSU [Environmental Health and Safety Services](#), the MTSU [School of Agriculture](#) to implement activities of a Nutrient Reduction and Water Quality Campaign, which will be carried out through December 31, 2021, using print, radio, television, and social media platforms to reach various audiences, including farmers, wastewater treatment facilities, K–12 students, educators, and the general public. **This project fits with the CHHS mission of improving Tennesseans' quality of life by addressing water quality issues and is made possible through a \$56,000 grant provided by the Tennessee Department of Environment and Conservation.** Campus partners in each of these departments will provide expertise to inform the public education campaign about water quality and the impact of nutrient runoff from Tennessee to the Gulf of Mexico on human and environmental health. CHHS also has created two internship opportunities for

MTSU students to help develop and promote educational materials on water pollution.

**Cynthia Allen**, environmental specialist for MTSU's Environmental Health and Safety Services and MTSU's stormwater program coordinator, said small daily changes can add up to huge cumulative effects. "By reducing local pollution, we not only improve our local water quality, but we also improve the water quality downstream, which has positive impacts on the gulf," Allen said. "Connecting to the big picture encourages citizens to change daily behaviors that can have tremendous impacts."

CHHS Associate Director **Cynthia Chafin** says, "CHHS is grateful for these campus partnerships. Without their support and hands-on efforts, this project would not be successful. We rely on their expertise and experience as the educational campaign is developed and implemented." To learn more about each of these departments, click on the web links highlighted in blue in the first column.



Dr. Kim Sadler



Ms. Cynthia Allen



Dr. Samuel Haruna



Cynthia Chafin

## Interview with Kim Sadler, professor, Department of Biology, and director, Center for Environmental Education

**CHHS:** What is your role in this environmental health and water quality project funded by the Tennessee Department of Environment and Conservation (TDEC)? Could you talk about any experience you have with environmental health prior to the project?

**KS:** My contribution to the project is the K–12 education and public education component. I compiled activities and resources that help educators teach about the issue of nutrient pollution in Tennessee waters. I also provide technical assistance as a former biologist from the Tennessee Division of Water Quality, where I worked as an instructor at the Operator Training Center for several years. However, for the past 30 years I have been active in environmental education.



**CHHS:** What is the biggest challenge you have faced while working on this project?

**KS:** There are wonderful educational resources related to water quality that have been made available for public use, but none of these are in one central clearinghouse. Sifting through the abundant information available and finding high quality resources has been a challenge. Producing activity lessons that teach about nutrient pollution for educators is one of my strengths, but thinking about how to motivate educators to introduce this topic into their classroom is what challenges me.

**CHHS:** Could you describe some of the greatest strengths of this project?

**KS:** The biggest strength is that as a team, everyone knows their areas very well, and we have met weekly to discuss different aspects of the nutrient reduction issue. You know the saying: “If you want something done, ask a busy person.” The biggest challenge is that we are all working on multiple other projects, as well as COVID-19 related delays, some target dates have had to be shifted. I have enjoyed meeting and working with the CHHS director, Cynthia Chafin; the interns, Michael and Jada; the project coordinator, Christina Byrd (who is a superb manager); and colleagues Dr. Samuel Haruna and Cynthia Allen.

**CHHS:** Where do you see yourself five years from now within your career?

**KS:** I plan to continue working on outreach projects that serve the public, for example, the Center for Environmental Education recently received notice from TWRA that our TAMP ([Tennessee Amphibian Monitoring Program](#)) has been funded for five years. The [MTSU Arboretum](#) walking tour will be revised and upgraded, as the campus continues to grow. I also am co-director for the [Center for Cedar Glade Studies](#), with several outreach projects underway. There are so many incredible opportunities here at MTSU, with multiple opportunities to work with wonderful students and colleagues.

**CHHS appreciates Kim Sadler’s expertise and technical support in carrying out the recently awarded TDEC funding grant project. Her impressive biography can be viewed on her [campus profile](#).**

# Community Partner Spotlight

## Tennessee Department of Environment and Conservation

MTSU Center for Health and Human Services formed a new partnership with the Tennessee Department of Environment and Conservation (TDEC) in fall 2020.

The mission of TDEC is to enhance the quality of life for residents of Tennessee and to be stewards of our natural environment by:

- Protecting and improving the quality of Tennessee’s air, land, and water through a responsible regulatory system
- Protecting and promoting human health and safety
- Conserving and promoting natural, cultural, and historic resources
- Providing a variety of quality outdoor recreational experiences

The department is “committed to providing a cleaner, safer environment that goes hand-in-

hand with economic prosperity and increased quality of life in Tennessee. We deliver on our mission through managing regulatory programs that maintain standards for air, water, and soil quality while providing assistance to businesses and communities in areas ranging from recreation to waste management. We also manage the state park system and programs to inventory, interpret, and protect Tennessee’s rich natural, historical, and archaeological heritage.”

MTSU and our campus partners in the Center for Environmental Education, Department of Environmental Health and Safety, and the School of Agriculture are working collaboratively with members of TDEC and

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## CHHS Team Member Promoted



Sarah Gwinn

While Sarah Gwinn is not new to CHHS, she recently has become full time with additional time at CHHS as well as providing support to the MTSU Tennessee STEM Education Center. Sarah is the CHHS “hidden gem” who works quietly yet diligently behind the scenes on all grant activity. Her hands touch every grant that is administered through CHHS, and she also is a critical to all new grant applications and submissions. Congratulations, Sarah, on your new role and full-time status.

**PARTNER SPOTLIGHT** *continued from page 12*

its Nutrient Reduction Task Force to develop educational and media campaigns that focus on nutrient reduction and water quality. A toolkit is being developed and multimedia campaigns for identified target audiences focusing on water quality and nutrient reduction are now under development. Jennifer Dodd, TDEC director of the Division of Water Resources, says she chose MTSU to assist with this project because of its excellent reputation, solid communication, and expertise within the state. When asked why this project and focus area, Dodd said, “We recognize technical solutions to excessive nutrients are well known and are mostly a social problem now. The right

messaging must reach the right people at the right time.”

For those who would like to learn more about TDEC, visit the website at [tn.gov/environment](https://tn.gov/environment). The department facilitates public meetings and hearings throughout the state and has newsletters ([tn.gov/environment/about-tdec/external-affairs.html](https://tn.gov/environment/about-tdec/external-affairs.html)) announcing grant opportunities, the latest news, and more. Upcoming events are posted on the website, as well as links to TDEC Annual Reports, educator resources, and more.

CHHS appreciates the work being done by TDEC and is pleased to partner with them on the nutrient reduction education and media campaign.



## Environmental Education

By Michael Rankins, MTSU Master of Public Health student  
Reviewed by Kim Sadler, professor, Biology Department,  
and director, Center for Environmental Education

### What is water quality?

Water is one of the most critical resources on which all life on Earth depends. Water quality can be defined as a measure of the suitability of water for a specific use based on selected physical, chemical, and biological characteristics. To protect human and aquatic health, the Clean Water Act of 1972 significantly reorganized the 1948 Federal Water Pollution Control Act. The Environmental Protection Agency (EPA) is responsible, along with the states and territories, for establishing water quality standards (WQS). Components

of the WQS focus on: (1) uses of a body of water, along with (2) criteria needed to protect the users of that water, and (3) requirements needed to protect the uses of high-quality/high-value waters (EPAWQS, 2021).

### What is nutrient pollution?

Nutrient pollution is caused by excess nitrogen and phosphorus in the air and water and is one of America’s most widespread and costly environmental challenges (TNDH, 2021).

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**ENVIRONMENTAL EDUCATION***continued from page 13*

Excess nitrogen in the air in the form of nitrous oxide produced from car exhaust can cause breathing difficulties, alter plant growth, and limit visibility. Too much nitrogen and phosphorus in the water causes algae to grow faster than ecosystems can handle (EPA, 2021). The algae blooms are dangerous to humans and are also harmful to aquatic populations (EPA, 2021). Large algae blooms can cause illness and death in fish populations. These excess nutrients come from a wide range of sources, including the general public and agriculture runoff.

**Why does water quality matter?**

Water doesn't know boundaries, and water practices in one state can dramatically impact water quality in another state downstream. A good example of this is the Mississippi River, which has 12 states that border the river and 31 states with rivers that drain into the Mississippi. Since 1985, data has shown that a zone of hypoxia has been an area of concern in the northern Gulf of Mexico (Moreau, 2009). The term hypoxia can be defined as having a deficiency of oxygen. The cause of the area of hypoxia comes from the surrounding states' runoff of excess nutrients such as nitrogen and phosphorus (Moreau, 2009). These excess nutrients cause the gulf's coastal waters to become over-enriched. The over-enriched waters cause large algae blooms, and when the algae die and decompose, this process depletes the water of dissolved oxygen (Moreau, 2009). Because of these events, large dead zones are created, and enormous stress is placed on the area's environmental health with depleted oxygen and toxic substances produced by the algae. We see similar hypoxic

zones in Tennessee waters when algae blooms occur. This negatively impacts drinking water by causing foul odors, reduced dissolved oxygen levels, and bad tastes (TDECWR, 2015). If the scale of the algae bloom is large enough, it causes harm to aquatic wildlife and human health. Our streams are used for multiple purposes throughout the state of Tennessee. Some uses include drinking water, recreational activities, commerce, agriculture, and wastewater purposes. Ensuring our streams remain safe and healthy is of great importance for every Tennessean.

**What now?**

All Tennesseans can join the call to reduce nutrient pollution in our streams by choosing when and how they fertilize their lawns, using phosphate-free cleaning products, composting vegetable matter rather than using the garbage disposal, conserving water use whenever possible, and properly disposing of refuse. For more information on nutrient pollution, please visit the United States Environmental Protection Agency website at [www.epa.gov](http://www.epa.gov).

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## CHHS Staff and Faculty Partners

The CHHS reports to Gregory Rushton, Ph.D., Interim Co-Director for Strategic Growth in the Office of Research and Sponsored Programs, who reports to David L. Butler, Ph.D., as Vice Provost for Research at Middle Tennessee State University.

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