

Tennessee Stormwater Association



TNSA TIMES AUGUST 2026

**Tennessee's Premiere Organization
for Stormwater Professionals**



EXECUTIVE DIRECTOR

Charlene DeSha

Charlene@tnstormwater.org

865-386-6917

WEBSITE

www.tnstormwater.org

A Message from the Executive Director

Thank you TNSA Members!

This is my 11th year as the TNSA Executive Director. During my time here I have seen and met some amazing people. I have to say, TNSA folks are the BEST hands down. You are all positive, encouraging and willing to give a helping hand to all of your colleagues. From what I understand, you have always been that way, since the conception in 2008.

We are giving the call to action again. A lot of our amazing committee members are moving up or retiring to better things. We are in need of new and excited volunteers to help with committees and local event planning. Have you been looking for something new to immerse yourself in? Are you fired up about stormwater and clean water in Tennessee? We have some great opportunities where you can grow and also help fill some voids within our organization. The only criteria is that volunteers must be TNSA members. All committee meetings are on Zoom or Teams.

Below are a few opportunities we have available:

- Urban Runoff 5K Committee Members (The race is July 31, 2027)
- SCM Committee Members
- Communication Chair and committee members needed
- Policy Committee Members (meets intermittently, when needed)
- Education Committee Chair and committee members needed
- One Associate Board Member Spot is Open to fill this year. (An email will be sent to the Associate Members)
- Conference Moderators (you can sign up online in October, keep an eye out for an email)



We may have additional opportunities come available before the end of the year. Please let me know if there is anything you need or if you have any questions. I am here to help make your job easier.

Keep up the good work,
Charlene DeSha

The Tennessee Stormwater Association is Tennessee's premier membership organization for stormwater professionals. TNSA's mission is to assist members with their local efforts to comply with State and Federal clean water laws; including stormwater regulations through EPA and TDEC (Tennessee Department of Environment and Conservation). TNSA's goal is to protect and improve the quality of the waters of Tennessee through the exchange of information and knowledge regarding design, construction, maintenance, administration and operation of stormwater facilities.

QUARTERLY REGION MEETINGS

Have you attended a TNSA Region Meeting this year?

Interested in what is going on with stormwater across Tennessee and nationwide? Region meetings are the best way to connect with professionals in your region. We talk about local, state-wide and nation-wide issues that are important to your daily job.

Region meetings are a great way to keep updated within your area and the state. Meet like-minded professionals, network, learn about statewide events and new ideas within the stormwater community.

Region chairs are always looking speakers at the meetings. If you are interested in speaking; please contact the region chair.
The chairs arrange the meetings and set the agendas.

Meeting Dates/Locations are subject to change. Email the region chair if you would like to be added to a specific region email list.
If agendas were provided before the meeting they will be uploaded to the Club Express document library under Region Meetings.

Regional meetings are held each quarter. You do not have to be a TNSA member to attend a meeting.

West Region Chair: Chris Masin, Chris.Masin@shelbycountyttn.gov

Sept 1: City of Lakeland 10001 US Hwy 70 Lakeland, TN 38002 Conf. Room A

Time: 1pm

2026 Dates: Dec 1

North West Region Chair: Tom Lawrence, tomlawrence@bellsouth.net

Sept 2 Obion County Public Library 1221 E Reelfoot Avenue Union City, TN 38261

Time: 11am

2026 Dates: Dec 2

Middle Region Chair: Don Green, biogreen1@comcast.net

Sept 3: Williamson County Ag Expo Park 4215 Long Ln Franklin, TN 37064

Time: 10am

2026 Dates: Dec 3

South East Region Chair: Erik Hancock, ehancock@chattanooga.gov

Sept 8: Greenway Farm Conference Center 4960 Gann Store Road, Hixson TN 37343

Time: 11am

2026 Dates: Dec 8

North East Region Chair: Amanda McMullen, AmandaMcMullen@KingsportTN.gov

Sept 10: Kingsport Water Services Center 1113 Konnarock Rd Kingsport 37664

Time: 1pm

2026 Dates: Dec 10

East Region Chair: Josh Clemens, joshua.clemens@adspipe.com

Sept 11: City of Morristown Public Works 4360 Durham Landing Morristown, TN 37813

Time: 8:30am Networking, 9:00am-11:30am Meeting Time

2026 Dates: Dec 4

TNSA BROCHURES AVAILABLE FOR PURCHASE & DELIVERED AT REGION MEETINGS

Small orders need to be submitted at least 1 week before delivery

Large orders need to be submitted 1 month before delivery

HOA Brochure - \$10.00 per 50 Homeowners Guide - \$15.00 per 100 EPA After the Storm - \$18.00 per 100

TENSI Activity Booklets and Stickers Booklets \$30, Stickers \$5

Order Link: <https://www.tnstormwater.org/ed>

DON'T FORGET

The TNSA Website (www.tnstormwater.org) and Club Express (<https://tnsa.clubexpress.com/>) have a lot information that can help you on a daily basis.

TNSA Website

- Job Openings
- Grant Opportunities
- Webinar Opportunities
- TNSA Talk Registration
- Online ordering of TNSA brochures and booklets

Club Express (Members Must sign in for some of these features)

- Event Registration
- Document Library
- Membership Registration and Account Management
- Event Calendar
- Forum for Questions and Communication
- Membership Directory



FREE

FUN RUN AND WATER QUALITY FESTIVAL

September 26, 2026

10am-1pm

International Harvester Managerial Park

4523 Canada Rd, Lakeland, TN 38002

<https://www.tnstormwater.org/westtrailrun>

Runners must register

Interested in a Water Quality Festival Booth?

Join us for FREE this year!



Proceeds benefit the Tennessee Stormwater Association

Due to the high volume of Trail Runs in September, we have decided to have a FREE Fun Run and FREE Booths for the Community Water Quality Festival.

September 26, 2026

10am-1pm

International Harvester

Managerial Park

4523 Canada Rd, Lakeland, TN

38002

We are looking for event sponsors. Event sponsors are the only way we will be able to hold this event. Sponsorship commitment deadline for print material is Friday, September 11.

We are planning on having a live band, food trucks, bounce house and more! The Fun Run will be 1 mile long and will help promote healthy living as well as clean water.

Please let me know if you have any questions and are interested in participating.

We would love to have you!

Charlene DeSha

865-386-6917

charlene@tnstormwater.org

Website Link

WE WOULD LOVE TO HEAR FROM YOU!

Our members are interested in what is happening in your community and all throughout the state.

Do you have a new project that is going well, lessons learned from a current or past project?

How about a great employee you would like to recognize?

Please send us your photos, articles and stories for the next TNSA Times.

At TNSA we are about you, our members.

Future 2026 Deadlines:

4th Quarter Edition - November 14

Email charlene@tnstormwater.org

14th Annual Urban Runoff 5K 2026

We are very excited to announce, we had 294 runners this year, despite the very, wet weather. I cannot remember a race day where we had rain, much less, a LOT of rain. Thank you to those who stuck it out for the morning.

Congratulations to Stantec for winning the Team Spirit Award.

In order to promote the implementation of local watershed quality stewardship projects, a portion of the proceeds generated from the Urban Runoff 5K are awarded back to the community through a watershed quality grant. The grant has been increased to \$2,000 this year from \$1,000 in years past.

Local Non-Governmental Organizations had the opportunity to submit specific stewardship proposals that were judged by the UR5K Planning Committee. The committee is always seeking projects focused on Pollutant Runoff Reduction Implementation. Grant entries include any proposed project that involves the implementation/installation Best Management Practices that will improve runoff within a specific watershed. Examples BMPs could include, but not be limited to, rain gardens or other bio-retention basins, tree plantings, downspout disconnection, rain barrels, etc.

This year's grant was sponsored by the City of Lebanon.

The winner this year is the Cookeville Food Forest at Cane Creek Park. The Cookeville Food Forest is working closely with the City of Cookeville to develop a Food Forest at Cane Creek Park. The city has invested \$1.5 million in infrastructure and the TN Urban Forestry department has issued a grant for landscape design and trees. The grants do not cover equipment. The Urban Runoff Grant will allow them to install a gutter and rain barrel to catch water on top of a hill to use for watering trees in the using a gravity feed during the summer drought. The grant will help place a small shed on the top of the hill to contain the tank, hoses, and other watering/irrigation-related items.

A BIG thank you to all of our sponsors this year including, the Tennessee Department of Agriculture, Forestry Division for providing the trees which were given as prizes. As well as, the City of Lebanon, Gresham Smith, Barge Civil Associates, LJA Engineering, Kimley Horn, Tennessee Erosion Control, City of Mount Juliet, Stantec, Hazen & Sawyer, Brown and Caldwell, Civil & Environmental Consultants, Inc., Strand Associates, Spectrum Environmental Inc. Metro Nashville, Evergreen Infrastructure, Fleet Feet, the City of Gallatin, Tom Palko for the beautiful birdhouses and Cheekwood for providing tickets for door prizes! This event would not be possible without your help.

A HUGE shout out to all of our committee members and professional partners! Aaron Rogge with CDM Smith, Trey Vincent with Strand Associates, Lauren Smith with Kimley-Horn, Gretchen Judkins with Metro Nashville, Joe Phillips with Sumner County, Kourtney Hopkins with the City of Gallatin, Kristin Hebebrand with Brown and Caldwell, Lauren Barber with Barge Design, Abigail Rosendale with the City of White House, Jonathan Stem with Rutherford County and Shannon Emrich with Barge Civil Associates. It takes a lot of volunteers and committee members to help run this event and we could not have done it without them!

Follow us on Facebook to see the photos and information about next years' event.

SAVE THE DATE: JULY 31, 2027

<https://www.facebook.com/NashvilleUrbanRunoff5k> and our new Instagram Page <https://www.instagram.com/tnurbanrunoff/>

Contact Charlene DeSha with any questions you have: charlene@tnstormwater.org 865-386-6917



Interested in helping plan this event?
We are in need of committee members!



Booths are a great way for MS4's to reach permit education requirements

TNSA COMMITTEE UPDATES

Conference: Coordinates the Annual Conference

Chair: Amy Hathaway, Ardurra

Join Us for This Year's Conference: "Ridges to Rivers"

Registration is now open for both the main event and our two pre-conference activities.

Early bird prices end Sept 30.

- **Field Tour of Noland Divide Research Field Station/Kuwohi Observation Tower**

Dr. John Schwartz (University of Tennessee) will lead participants on a tour of the Noland Divide Research Field Station. Following the tour of the Research Field Station, participants will continue up Kuwohi Road to have lunch at the Kuwohi Observation Tower. The Observation Tower can be accessed by a 1-mile round trip paved walking trail. **(Only 14 spots left)**

- **Guided Hike to Rainbow Falls**

Mark Foley will lead participants on a guided hike to Rainbow Falls, where participants will learn about the local geology and native flora. This 5.2-mile out and back trail features a stunning waterfall and winds through a vibrant forest. The trail climbs steadily as it meanders along Le Conte Creek. When the afternoon sun hits the mist from the waterfall just right, you can see a faint rainbow appear, thus the name, Rainbow Falls. **(Only 6 spots left)**

Dates to remember:

- Hotel Block Opens to the Public October 1, book your room by Sept 30.
- Early Bird Conference price ends September 30.

Website: <https://www.tnstormwater.org/tnsa-conference>

We look forward to seeing you there!

Please contact Amy at ahathaway@ardurra.com if you have questions.



2026 TNSA ANNUAL CONFERENCE RIDGES TO RIVERS

November 3-5, 2026

The Park Vista Hotel

705 Cherokee Orchard Rd, Gatlinburg, TN 37738

Pre-Conference Hike and Tour Monday, November 2

Room Reservations are Open to Book

Registration Open

Early Bird Prices End September 30, 2025

TNSA Membership Early Bird: \$350

Non-TNSA Member Early Bird: \$400

Prices include Wednesday Reception Dinner at Ober Gatlinburg

<https://www.tnstormwater.org/tnsa-conference>

TNSA COMMITTEE UPDATES (Continued)



CONFERENCE SCHOLARSHIPS 2026

*Tennessee Stormwater Association
Annual Conference on Nov. 3-5, 2026*

*Park Vista Hotel
705 Cherokee Orchard Rd
Gatlinburg, TN 37738*



SCHOLARSHIP BENEFITS:

- Free Registration ✓
- Paired Mentorship ✓
- Networking Opportunities ✓
- Career Inspiration ✓
- Connect with Professionals ✓

ELIGIBILITY:

- Currently Enrolled Student ✓
- Full-Time Student ✓
- GPA of 3.0 or Higher ✓
- Letter of Recommendation ✓
- Submit Application by 8/31/2026 ✓



APPLY NOW!

📞 865-386-6917

✉️ charlene@tnstormwater.org

🌐 www.tnstormwater.org

TNSA COMMITTEE UPDATES (Continued)

SCM: Standardizes Device Evaluation and Develops SCM Toolkit.

Email: dstayer@stormtrap.com, Jacob.Dorman@ContechES.com

Chair: Dana Stayer, StormTrap & Jacob Dorman, Contech

The committee is partnering with the TN Nutrient Task Force. Look for more to come about this topic in the future. Committee members are needed due to members retiring and moving on to difference positions. Please reach out to Dana or Jacob if you are interested.

Policy: Works with TDEC to share and update members on state and EPA regulations and policies.

Email: roggea@cdmsmith.com

Chair: Aaron Rogge, CDM Smith

No updates at this time.

Please contact Charlene DeSha or Aaron Rogge with any new bills or policies that affect our members.

Public Outreach: Working to create education resources for MS4's and TNSA members

Email: tomlawrence@bellsouth.net

Chair: Tom Lawrence, Thomas Lawrence Engineering

- Committee is receiving quotes in order to print the new Wetlands flyer.
- You can purchase pre-printed brochures here: <https://www.tnstormwater.org/ed>
- We currently have 3 brochures, a children's activity booklet and stickers.
- For additional brochures you can print yourself, visit the Club Express document library.

Communication: Goal is to work on communication within and outside of the organization

Email: roggea@cdmsmith.com

Chair: Aaron Rogge, CDM Smith

- We are looking for a new committee chair and committee members
- Mario Forgione has contact the TWRA Wildcast Podcast in order to represent TNSA in a podcast session.

Education: Manages and Creates Educational Training and Resources

Email: gangwrrc@utk.edu

Chair: Tim Gangaware, UT Water Resources Research Center

- We are looking for a new chair and committee members
- Committee will be working on getting universities on board with Level 1 training.
- Working on creating a Stormwater Basic 101 class.
- Looking for TNSA talk topics. TNSA Talks are free 1 hour Zoom education opportunities. Contact Charlene DeSha if you would like to host a TNSA Talk or would like for us to provide a needed topic.

Next TNSA Talk

Fine-Tuning Your Public Chapter 1044 – Plans Review Deadlines

September 17, 2pm Eastern Time

Receive 1 PDH

Speaker: Shelia Huffmire with MTAS

[Click here to register](#)

TNSA COMMITTEE UPDATES (Continued)

TENNESSE STORMWATER ASSOCIATION

WE ARE LOOKING FOR YOUR HELP!

Want to be a part of the **SCM Committee**?

OUR MISSION IS TO PROVIDE SCM GUIDANCE TO TNSA MEMBERSHIP

Join our committee! We're developing guidance on SCM design, and calculating the required WQTV in accordance with TDEC standards. By contributing to this resource development, you'll help us provide members with current and reliable recommendations.

CONTACT:

DANA STAYER, COMMITTEE CO-CHAIR
DSTAYER@STORMTRAP.COM

JACOB DORMAN, COMMITTEE CO-CHAIR
JACOB.DORMAN@CONTECHES.COM



TDEC UPDATES

Tennessee Water Regulatory Forums

The Division of Water Resources is excited to announce that they will be hosting a forum for each of the grand divisions of the state this year. These forums are designed to strengthen communication, transparency, and collaboration with our stakeholders. The Division's first forum brought together a diverse group of partners and participants, generating valuable discussion, practical insights, and meaningful feedback. Building on that momentum, the Division is expanding this effort to provide additional opportunities for engagement across the state.

[Click here to register](#)

November 10, 2026

Middle Tennessee Forum

Fleming Training Center

2022 Blanton Dr

Murfreesboro, TN 37129

Featuring: Columbia, Cookeville & Nashville Field Offices



2026 STORMWATER AND ENVIRONMENTAL CONFERENCES

TN Engineering Conference, September 20-22, Franklin

TCAPWA/SWANA Annual Conference October 13-15, Knoxville

TNSA Annual Conference, November 3-5, Gatlinburg

TNSA Board Updates

The TNSA Board Meeting was held on August 6, 2026.

- TNSA has joined SESWA (Southeast Stormwater Association)
- Urban Waters Report Card committee is working on getting the new website up and running. Additional information to come soon.
- The Nutrient Task Force has released a new Wetlands flyer. The TNSA board is looking at printing a large batch and distributing them at conference. The Task Force is looking at SCM terminology standardization, Integrating SCM inventories with the state, Affordable and accessibility of training and partnering with the TNSA SCM Committee.
- New AmeriCorps, Katie Carver starts September 8. Katie is in her second year of service and comes to us after serving her first year with the City of Oak Ridge. Welcome Katie at the Annual Conference in November.
- The board is very interested in facilitating research grants in the future. Preliminary discussions have started related to this request.
- TNSA is researching how to providing TDEC EPSC Level 1 training to various TN engineering and interested college students.
- Our next meeting is December 17, 2027. Please let Charlene or Will Stallard know if you would like any items addressed during the board meeting.

TN Stormwater Management Training Schedule

TNEPSC Level 1

September 11, 2026 - Zoom - 8am CT

TNEPSC Level 1

Online Video Course

TNEPSC Level 2

September 17 & 18, 2026 - Nashville - Southern Company, 2451 Atrium Way, Nashville, TN

TN Hydrologic Determination Refresher

December 2, 2026: UT West TN REC on Airways Blvd. Room 150 Jackson, TN

TNEPSC Registration Link: <https://tnepsc.org/index.asp?vp=1>

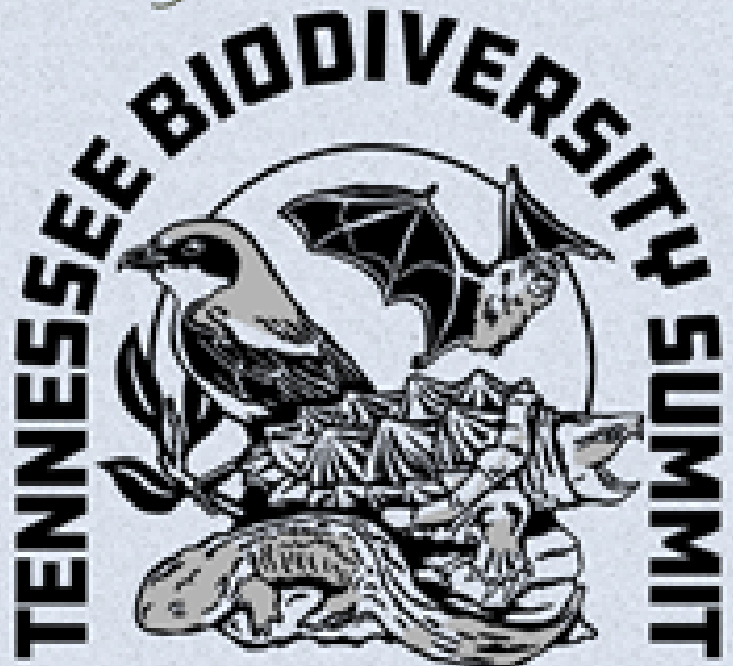
TN Hydrologic Determination Link: <https://tnhdt.org/Index.asp>



SAVE THE DATE

The Tennessee Wildlife Resources Agency invites all nature enthusiasts, from professionals to back yard wildlife watchers, to the second annual Tennessee Biodiversity Summit. This event celebrates the actions taking place for the betterment and longevity of Tennessee's species. This year's theme is *Moving the Needle*.

OCTOBER 21, 2026



COME A LEARNER. LEAVE AN EDUCATOR. CONTINUE A LEGACY.



MIDDLE TENNESSEE
STATE UNIVERSITY
STUDENT UNION

History of East Lake Park and Green Stormwater Infrastructure Solutions

Written by: City of Chattanooga, Natural Resources Team (Anna Mathis, Lyn Rutherford, Lucy Ellis, Erin Duffy, Kayla Reeves, Kaitlyn Curtis, Ethan Brincefield, & Jonathan Wilson)

East Lake Park is Chattanooga's oldest park. The land was given to the city in 1896 from the Mission Ridge Land Company as a "deed in fee" with the restriction that the land must always be maintained as a park. In the early 1900's, visitors could paddle themselves throughout the pond on a canoe with friends and enjoy a concert on a hot summer night. Thousands of goldfish were said to inhabit the pond, and visitors would support the park by paying a single penny for an attendant to scoop one out to take home. For a short period of time, the park contained a small zoo that housed several dozen animals from all over the world. Remnants of this zoo can still be seen today as the current bathrooms were once the ticket stand. The park is rich in history and is an important landmark for the East Lake community, but as the years went on and the city got bigger, problems arose with how to improve the water quality and integrate land management practices that would best serve the park and its visitors.

In the original design of the park, a spring and stormwater runoff coming from the steep slopes of Missionary Ridge was piped straight into the pond. When water is piped, it moves too fast, carrying sediment, pollution, and garbage. This was causing excessive sediment and nutrient deposition in the pond, unsightly trash, and algae blooms. East Lake has been dredged multiple times over the years in an attempt to clean it up, but dredging is only a temporary solution. During the last dredging in 2019, the City of Chattanooga worked to create more long term solutions by using green stormwater infrastructure (GSI).

The renovations included daylighting the piped spring that feeds East Lake pond. The Spring had previously been piped under a large playground, but the natural hydrology had persisted, always causing flooding and damp conditions in the area. Daylighting the stream restored a more natural stream flow, using concrete and rocks, and grading a gentle slope along the sides to slow down the flow of the water. Rocks in the stream channel act as a natural obstruction to slow down the water, and catch and trap sediment and trash while providing hides for small creatures, such as frogs and salamanders. The riparian zone was planted with seeds, plugs, shrubs and trees to hold the stream banks together, aid in absorbing excess nutrients, trap sediment, cool off the stream, and create habitat.



Photo 1. Daylighted stream at East Lake Park featuring a stream channel with rocks and a riparian zone with native plants.



Photo 2. Native wetland zone at East Lake Park on the southeastern side of the pond.

A native wetland was established along the perimeter of the pond to safeguard it from sediment, excess nutrients, and capture trash. This wetland zone also offers habitat and food for many different species of insects, birds, and other native wildlife. Plant materials included seeds, plugs, and shrubs that grow tall and reduce available nesting ground and line of sight for geese while still allowing park patrons to see throughout the park clearly. East Lake Park is directly across the street from an elementary school; both the student body and the surrounding community are frequent, if not daily, visitors to the park. Upholding a natural landscape that is both beneficial and safe for visitors requires a delicate balance. To address community concerns, Chattanooga manages the cattails around the pond, preventing their tall and dense growth from obstructing the view of children near the water.

Another green stormwater infrastructure practice used at East Lake park is a pervious pavement track that circles the pond. This was an appropriate solution to further protect East Lake pond, as it's an additional barrier of protection to slow water flow into the pond and surrounding areas during rain events.



Photo 3. Pervious pavement track that circles the pond at East Lake Park.



Photo 4. View of the native grassland created with SGI at the top of the hill at East Lake Park looking downhill towards the pond.

The steep slope of the ridge leading to East Lake park is limestone bedrock with shallow soil and low infiltration. A WPA ditch intercepts some runoff, but lower elevations of the park still flood and the playground suffers damage and needs continual maintenance from the high flow volumes. The City, in partnership with Southeastern Grasslands Institute, chose an acre of the slope above the WPA ditch to restore as a grassland that was previously mowed turf. The taller plants with deeper root systems reduce runoff and enhance the wildlife benefits of the wetland and stream by providing yet another kind of habitat. Orchard Knob Reservation, a National Park Service unit less than 4 miles away, still has remnants of a limestone glade plant community and was used as a reference site to help develop the seed mix sown on the slope of East Lake. Because of the site conditions, a specialized skidsteer-mounted no-till seeder was used instead of hand sowing. Heavy grazing pressure from the resident geese required an exclusion fence around the grassland during establishment.. The exclusion fence was successful in keeping out the geese while still allowing other organisms such as insects, songbirds, and nesting turtles to utilize this up and coming space.

The geese are often fed bread by the local community. Although this is discouraged through educational signage and by park staff, feeding has continued. The park is exploring alternate ways to communicate to the public why feeding the geese is harmful to the animals, the pond, and park as a whole. The renovation design included some features, like gravel areas, that were meant to deter goose nesting. However, there are currently at least 45 Canada geese living in the park, each producing about 1.5 pounds of feces per day. The geese are also overgrazing the lawn and new plantings in the park including on-going wetland additions. This has led to some erosion issues, which when combined with the presence of high nitrogen feces result in excess algae growth and eutrophication of the water. Canada geese often feed on mowed turf grass so reducing the mowed areas in the park have become a priority to help reduce waste from geese. The wetland surrounding the pond and the new native grassland are both great ways to test this management strategy.

East Lake Park has served Chattanooga for over 130 years and changes with the growing needs of its surrounding environment and communities. The City is proud to maintain a landscape teeming with natural beauty in the middle of a community that was previously heavy with industrious mills and factories. Chattanooga aims to refine its approach to environmental problem-solving by incorporating community feedback into adaptive management strategies, such as enhanced species management and the expanded use of green infrastructure.

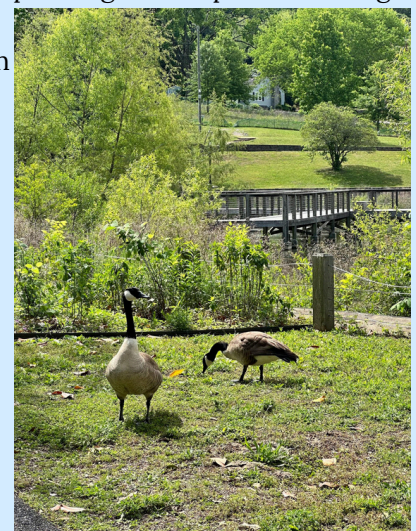


Photo 5: Two geese on the edge of the pond at East Lake Park.



AI Dives into a Sea of Data, from Plankton to Pollution

August 2026, by Micheal Cassauwers, Horizon Magazine

Scientists are turning to AI to analyze millions of images and sensor readings, spotting changes in oceans and rivers faster than ever before.

When asked why Jean-Olivier Irisson, a scientist at Sorbonne Université in Paris, decided to dedicate his life to studying microscopic creatures in the sea, his answer was simple: “They are beautiful.”

Beauty may not be the first thing that comes to mind when we think of plankton – organisms that drift in water and come in an extraordinary variety of shapes and sizes.

But images by Irisson’s team tell a different story. Shown in striking blues and oranges, as well as black and white, they reveal an unfamiliar and strangely beautiful world.

“This one served as the model for the head of the creature in the Alien movie franchise,” Irisson said, pointing to one particularly unusual specimen.

Plankton are not just fascinating to look at. They are fundamental to marine ecosystems, and play a crucial role in regulating Earth’s climate by helping remove carbon dioxide from the atmosphere.

“Half of the photosynthesis in the world is done by plankton,” said Irisson. “They also form the foundation of the food chain at sea. Without them, there would be no fish.”

Yet studying plankton is painstaking work. Researchers collect water samples and examine them under microscopes. They can contain huge numbers of organisms that all need to be identified and classified – a slow and demanding task when done manually. AI is now helping to speed things up.

“We already use software to capture and process images, to identify every individual organism,” said Irisson. “For a single dataset we have 2.2 million of these images of individual organisms. That’s impossible to classify manually. With AI, we can, however, do this very fast. That’s opening up new possibilities in our research.”

Drowning in Data

Irisson is far from alone in facing this problem. Underwater cameras and environmental sensors mean modern monitoring of oceans, rivers and lakes now generates far more data than researchers can realistically analyze by hand.

Making sense of that flood of information was the goal of iImagine, an EU-funded research collaboration between aquatic scientists and digital experts from 11 European countries.

Running from 2022 to 2025, the project developed AI tools to help researchers process and analyse large volumes of aquatic data faster and on a much larger scale.

Coordinating the effort was Gergely Sipos, an expert in research computing and digital infrastructure at the EGI Foundation, a not-for-profit organisation that connects researchers across Europe with computing, data and other digital services.

“This is about the health of the ocean, rivers and lakes that people depend on for food, climate, tourism and drinking water,” said Sipos. “Faster and cheaper monitoring means problems like plankton decline, litter accumulation, oil spills and coral degradation can be picked up and acted on sooner.”

AI Hype?

But does all this really require AI? With excitement around the technology running high, its capabilities can sometimes be overstated. For Irisson, however, the advantages for his kind of research are clear.

“If we didn’t have AI, we would need someone to sit in front of a sample and count everything,” he said.

“What used to take months to even years now takes a few days to weeks.”

AI can also help researchers make use of vast stores of data that were previously too time-consuming to analyse fully.

“Some underwater sensors have been observing what’s happening in our ocean for years, even decades,” said Sipos. “Millions of data points and images accumulate. Without AI, it would be impossible to analyse all that information efficiently. AI is opening up new kinds of research.”

Litter and Reefs

Across the 11 countries involved, researchers used the same basic approach to tackle very different aquatic challenges. In Austria, for example, the AI software developed was used to detect floating litter in lakes and rivers.

“That way we can recognise the scale of the pollution, and what kind of litter is in our waterways,” said Sipos. “This will help governments to organise clean-up operations.”

Elsewhere, researchers worked with underwater cameras deployed at various European locations, where AI can sift through years of images, identifying fish and distinguishing between species.

“We can create a statistical analysis that tracks the changes in species,” said Sipos. “That way we can see how ecosystems shift, and what the impact is of things like climate change. It also helps us to look at recovery efforts. We can follow how, for example, the creation of artificial reefs impacts biodiversity.”

A New Way of Watching our Waters

Although iMagine ended in 2025, the tools and data developed by the researchers have been made available for other scientists to use and adapt to their own work.

That includes the datasets used to train AI models to recognise everything from fish species to floating litter. Making them available means other researchers can build on what has already been learned, rather than starting from scratch.

“Anyone can access our work,” said Sipos. “We continue to support scientists. We offer training material, and even jump on video calls if needed.”

This kind of shared access is the idea behind Europe’s research infrastructures: rather than every research team having to develop expensive specialist resources from scratch, scientists can draw on advanced tools, data and expertise developed and shared across Europe.

Monitoring aquatic ecosystems faster and on a much larger scale could also support wider European efforts to restore the health of the ocean and waterways.

AI Dives into a Sea of Data, from Plankton to Pollution (cont. 2)

One example is the EU Mission: Restore our Ocean and Waters, which aims to protect marine and freshwater ecosystems, reduce pollution and support a sustainable blue economy by 2030. Better monitoring will also feed into Europe's growing digital picture of the ocean, including the European Digital Twin of the Ocean. This should help researchers and policymakers understand and respond faster to environmental changes.

The new EU OceanEye initiative, launched in June 2026, aims to build a much clearer, real-time picture of Europe's seas, rivers and lakes by combining data from satellites, underwater sensors and scientific research. AI tools such as those developed through iImagine could help turn that growing stream of images and observations into practical knowledge.

For Irisson, AI is already changing how aquatic scientists do that. As researchers gain access to information that would previously have taken months or years to analyse, new questions can be asked of data already being collected.

"The first papers which use AI to analyse data, in addition to processing it, are recent," he said. "AI is starting to replace well-established statistical analyses. Science needs to adapt to this new way of working."

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For more information: <https://projects.research-and-innovation.ec.europa.eu/en/horizon-magazine/ai-dives-sea-data-plankton-pollution>

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