



OKLAHOMA'S NONPOINT SOURCE MANAGEMENT PROGRAM

2024 ANNUAL REPORT

OKLAHOMA
CONSERVATION
COMMISSION

The USEPA provided partial funding for activities discussed in this report through §319(h) FY 2025, C9-996100-23, Project 2, Output 2.4.1a

For more information on activities discussed in this report, visit our website:
<https://conservation.ok.gov>

**Oklahoma Conservation Commission
Water Quality Division
2800 N. Lincoln Blvd. Suite 200
Oklahoma City, OK 73105**



This document was prepared as a requirement for the Clean Water Act Section §319 Program. This document is issued by the Oklahoma Conservation Commission (OCC) as authorized by Trey Lam, Executive Director. Copies have not been printed but are available through the agency website. Two printout copies have been deposited with the Publications Clearinghouse of the Oklahoma Department of Libraries. All programs and services of the OCC and the Oklahoma Conservation Districts are offered on a nondiscriminatory basis without regard to race, color, national origin, gender, religion, marital status, or disability.

Cover photo: Medicine Creek, Comanche County, Oklahoma
Back photo: Beaver Creek, Cotton County, Oklahoma

Oklahoma's Nonpoint Source Management Program

Overview:

Oklahoma's Nonpoint Source (NPS) Pollution Management Program is a combination of federal, state, and local agency programs. The NPS Program is supported federally by Section 319(h) of the Clean Water Act (CWA), which requires states to 1) assess and report on NPS issues in OK waters and 2) develop a Management Program that creates and implements objectives for addressing the problems. These core program elements are described in the Oklahoma NPS Management Plan.



By state statute, the Oklahoma Conservation Commission (OCC) serves as the technical lead agency of Oklahoma's NPS Program. This responsibility means monitoring and assessing waterbodies for NPS impacts and implementing programs to reduce these NPS issues, with the ultimate goal of restoring full support of the designated beneficial uses of all waterbodies. With input from the NPS Working Group, comprised of more than 30 agencies, tribes, organizations, and universities, the state follows an organized process to identify NPS threats and impairments to water resources, determine causes, extent, and sources of the problems, and prioritize the watersheds needing improvement. Solutions to the NPS problems are then planned and addressed, primarily through projects in priority watersheds to provide implementation and education.

Oklahoma's NPS Management Program is *non-regulatory*. On-the-ground conservation is the primary focus, and less than 10% of OCC funds support administrative duties. **Planning** and **educating** to address NPS problems are the backbone of OCC's program and are critical to its success. Long-term water quality **monitoring** and **assessment** are essential to help prioritize areas to target through the program and evaluate its effectiveness. **Implementation** of Conservation Practices (CPs) through cooperative, targeted, voluntary efforts allows improvement and protection of water quality and other resources while maintaining agricultural production goals.

Oklahoma's NPS program is largely funded through the Environmental Protection Agency (EPA) Clean Water Act Section 319(h) NPS Management Program. The Oklahoma Secretary of Energy and Environment (OSEE) is the state administrative lead and recipient of CWA program funds, disbursing Section 319 dollars to OCC and partners, ensuring that all NPS activities meet appropriate state and federal guidance and priorities. Federal funds are matched by monies from the State's Conservation Infrastructure Revolving Fund, state and local partners, and most importantly, local landowners who voluntarily participate in cost-share programs to install conservation practices which facilitate agricultural production goals while protecting soil and water resources. In recent years, Oklahoma has formed strong partnerships, networking with multiple agencies to secure matching funds to increase the total amount of funding available to address NPS issues.

In 2024:

The OCC implemented its 2024 NPS Management Program efforts with \$2.8 million in U.S. Environmental Protection Agency (USEPA) Clean Water Act Section 319(h) funding and \$1.9 million in state funds. The monitoring program is allotted 26% of the budget, the Blue Thumb education program receives 18%, and the remainder is used for technical support and implementation. However, the 2024/25 legislative year saw major state funding increases for the agency including but not limited to at least \$27 million in additional resources for programs that reduced nonpoint source impacts including drought response and mitigation, soil health, and repair of unpaved roads. Major accomplishments for the NPS Management Program in 2024 include 1) progress in partnerships and projects in watersheds including Illinois River, Grand Lake, Crow Creek, Lake Thunderbird, Bishop Creek, and Wister Lake, 2) development of NPS Success Stories in three new waterbody segments, 3) continued expansion of the soil health education program focusing on the nexus between healthy soils and water quality protection including implementation of the Soil Health Incentives Program, 4) expansion of education programs in support of partners including the Grand River Dam Authority, Oklahoma tribes, USDA NRCS, General Mills, and others, and 5) continued water quality monitoring of streams across the state for the fifth cycle of the Rotating Basin Monitoring Program. Highlights of Oklahoma's progress in implementing the NPS Management Program during FY2024 are included in the following pages. While efforts funded through Section 319 are emphasized, projects conducted by NPS Program partners are also included. Readers are encouraged to access more details on project and program efforts via web links where provided.

Oklahoma's NPS Management Program

Planning:

The long- and short-term goals of Oklahoma's NPS Management Program Plan set the course for addressing NPS pollution throughout the state and comprise the vehicle to its mission, "To conserve and improve water resources through assessment, planning, education, and implementation."

Long-Term Goals	Progress Toward Attaining
By 2030...establish a Watershed Based Plan (WBP), Total Maximum Daily Load (TMDL), implementation plan, or achieve full or partial delisting based on water quality success to restore or maintain beneficial uses in all watersheds identified as impacted by NPS pollution on the 2002 303(d) list, unless the original basis for listing is no longer valid.	<p>Oklahoma currently has:</p> <ul style="list-style-type: none"> • 636 TMDLs for 360 waterbodies impaired by bacteria, chloride, sulfates, turbidity, low dissolved oxygen, and nutrients. 210 of the 636 TMDLs are for 2002 303(d)-listed waterbodies. Work to address additional impairments is ongoing. • Eighteen WBPs (which address 57 of the 2002 303(d)- listed waterbodies), and implementation of CPs to improve water quality is ongoing in five of these watersheds. • 104 published success stories (78 of which are on 2002 303(d)-listed waterbodies) on the EPA's §319 website, indicating delisting of 151 pollutants from 103 impaired waterbodies due to CP implementation and education • Only 30 (< 7%) of 2002 303(d)-listed waterbodies have not had a TMDL, watershed plan, NPS success story, or delisting.
By 2050...attain and maintain beneficial uses in waterbodies listed on the 2002 303(d) list as threatened or impaired solely by NPS pollution.	Oklahoma has delisted more NPS impaired streams than any other state with a total of 103. Strong partnerships with other agencies, particularly the NRCS, are resulting in additional funding for implementation of practices focused on water quality improvement.
Short-Term Goals	Progress Toward Attaining
Monitor at least 250 streams, rivers, and other waterbodies every five years to determine causes and sources of NPS impairments.	The water quality of more than 14,639 stream miles has been assessed and presented in the State's biennial Integrated Report. Summary reports are written for each basin at the end of each two-year monitoring cycle.
Prioritize watersheds using the process described in the NPS Management Plan, then draft and update WBPs or similar planning documents for top priority watersheds.	Eighteen WBPs have been developed (16 approved). All watersheds in the state were assessed with the new prioritization scheme, and the OCC is working with partners to develop at least three additional plans.
Provide educational information through the statewide Blue Thumb Program. Blue Thumb staff will work with Conservation Districts as requested to develop and maintain education programs.	Oklahoma's Blue Thumb Education Program currently has active volunteers in 27 of the 77 counties of the State, with 100 active monitoring sites. Approximately 50 Conservation Districts have joined the nonprofit Oklahoma Blue Thumb Association.
Reduce NPS loading in priority watersheds with accepted WBPs through implementation of conservation practices. Implement water quality restoration and protection efforts in additional priority watersheds annually, as identified by the Unified Watershed Assessment (UWA) in the updated NPS Management Plan.	Oklahoma's NPS program has been successful at partnering with various agencies to secure funding and match federal funds to increase the total amount of funding available to address NPS issues, including EPA's Clean Water State Revolving Fund (CWSRF), NRCS, public companies, and private landowners. Work continues that will advance NPS related programs in watersheds prioritized in the Unified Watershed Assessment. This includes support for education and training, water quality monitoring, and partnering with USDA to focus conservation dollars in high priority UWA watersheds.

Oklahoma's NPS Management Program

Implementation:

Current OCC priority watershed implementation projects are located in two general parts of the state: the east and the west-central. The predominant agricultural practices vary between these two general areas, so the implementation focus is slightly different in each area. In the east, extensive poultry production and related land application of waste as fertilizer has contributed to the build-up of high levels of nutrients, particularly phosphorus, in the soils. Consequently, CPs focus on riparian buffers and animal waste management. In the west-central part of the state, wheat and cattle production dominate agricultural activity, often contributing to water- and wind-driven soil erosion in conventional tillage operations in the sandy soils. No-till and field conversion CPs are the focus of implementation efforts in this area. Establishing riparian buffers is an important component of all projects, as these vegetated regions act as filters to take up nutrients, and roots help stabilize streambanks to reduce erosion. Fencing livestock out of riparian areas also reduces the amount of fecal bacteria in the stream.

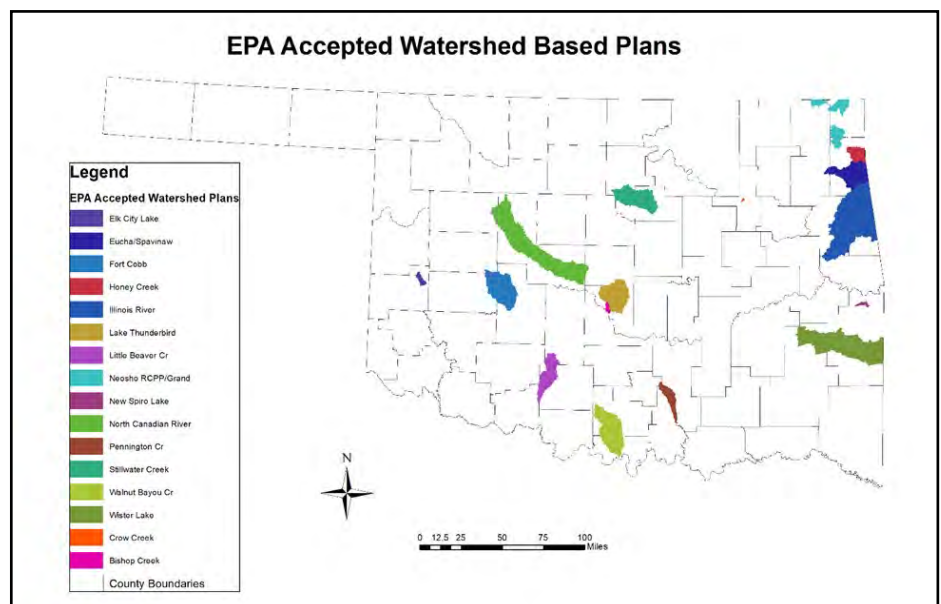
Despite some differences in CP focus, all OCC priority watershed implementation projects share a common design which has resulted in success both in number of participants who are implementing CPs in each area and in actual, measurable water quality improvement:

- Planning: have data/information that indicates NPS problems that can be addressed with a project
- Local leadership and buy-in: get support of local Conservation District and hire local coordinator; establish a Watershed Advisory Group (WAG) that includes all interests to drive implementation planning
- Targeting: use an effective model (e.g., SWAT) to locate pollution hotspots to target for implementation
- Effective monitoring: use a proven study design (e.g., EPA's Paired Watershed Method) and sampling method (e.g., continuous, flow-weighted sampling) to obtain sufficient data to evaluate impacts on water quality
- Demonstration/Education: establish a demo farm where landowners can see a suite of CPs in action
- Partnerships: look for creative ways to engage other agencies, leveraging hard dollars and matching funds

Implementation Projects:

During FY2024, approximately \$1,697,743 dollars in federal §319 funds, Oklahoma state funds, and private landowner funds were expended for implementation of CPs in priority watersheds with EPA-accepted Watershed Plans (see map). The majority of these funds focused on drought mitigation.

An additional \$15,723,402 in state and matching fund implementation dollars were invested statewide in NPS projects through the State Cost-Share Program, partnerships with General Mills, and Oklahoma Association of Conservation District CARES Project to support historically underserved producers to protect soil and water quality.



OCC Soil Health also accepted approximately 50 producers statewide into its Soil Health Implementation Program (SHIP). Although practice implementation did not begin in 2024, conservation planning was initiated to begin implementation in 2025.

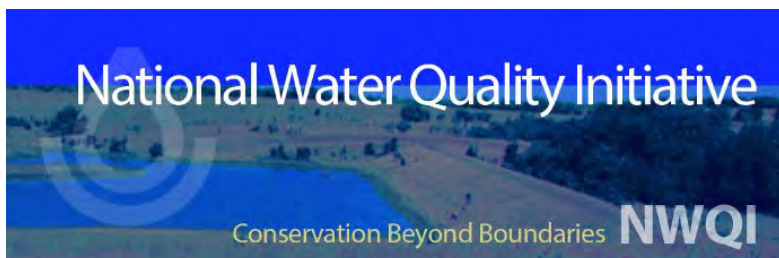
A brief update of implementation in each of the OCC priority watershed projects is given in the following pages. Details of each project, including reports and Watershed Based Plans, can be accessed via the OCC Water Quality Division website under Priority Watershed Projects.

The Oklahoma Conservation Commission (OCC) has an extensive and unique monitoring program assessing essential components of water quality, biology, and habitat in streams across the state. Effective monitoring and assessment are essential to determine the extent, nature, and probable sources of NPS pollution and show improvement due to conservation programs across the state.

Implementation Monitoring Program:

Implementation monitoring is performed to determine the effects of conservation practices (CPs) on water quality in high priority watersheds. Implementation monitoring usually involves sampling streams during defined periods before and after CPs are installed in a watershed.

Due to budget cuts, OCC and its partners are turning to collaborative projects such as the Regional Conservation Partnership Program (RCP) and the National Water Quality Initiative Program (NWQI) to fund implementation in priority watersheds. With these, OCC continues assistance in the technical delivery and the critical monitoring efforts needed to determine changes brought about by the prescription of CPs. OCC will remain flexible in the monitoring approach so that appropriate monitoring can determine changes in water quality in these watersheds with available funding and time constraints.



NRCS provides technical and financial assistance to landowners to plan and apply land treatment and structural practices on a voluntary basis to improve water quality while maintaining the essential production of food and fiber in Oklahoma's agricultural areas. NRCS has been engaged with landowners and partners on two ongoing water quality projects targeting assistance. The National Water Quality Initiative (NWQI) completed its third year of implementation in 5 watersheds located in eastern and SW Oklahoma. NWQI utilizes Farm Bill funding through the Environmental Quality Incentives Program (EQIP).

FY 2024:

Ongoing projects include: Riparian Protection in the Grand Lake and Illinois River Watersheds, Septic Tank Replacement in Grand Lake and Hudson Lake Watersheds, Regional Conservation Partnership Neighbors Helping Neighbors Project in eastern Oklahoma, and the development of the Oklahoma HAWQS water quality model.

The Rotating Basin Monitoring Program has been expanded in most of these watersheds to help measure potential impacts from conservation practice installation and education programs associated with these projects and to support watershed plan implementation. In addition, water quality monitoring completed by partners such as the Grand River Dam Authority and others helps supplement these efforts



Rotating Basin Monitoring Program:

The Rotating Basin (RB) Monitoring Program has allowed for the identification of impaired streams to target for implementation projects, the determination of high quality streams used as reference sites to gauge the health of other streams, the detection of changes in NPS pollutants following implementation of CPs by project partners, and the use of data by Oklahoma Department of Environmental Quality (ODEQ) to create total maximum daily loads for impaired streams.

For the RB program, a total of at least 250 fixed sites are monitored on a rotational schedule by basin (see map). Sites within a basin are sampled every five weeks for two consecutive years to gather water quality data. In addition, a fish collection and habitat assessment is performed. Benthic macroinvertebrates are collected twice a year. Each year a new basin is sampled, meaning all sites are sampled within a 5 year period. This frequency of sampling allows for both broad coverage of streams across Oklahoma and the assessment of streams for attainment of beneficial uses. Approximately 100 sites are assessed each year.

In 2024, OCC finished the fifth cycle of monitoring in Basin Group 2 (Cimarron, Upper Arkansas and Upper North Canadian), continued the second year of the fifth cycle of Basin Group 3 (Lower Arkansas, Lower North Canadian and lower Canadian) and began the fifth cycle of Basin Group 4 (Washita and Upper Red).

Oklahoma continues to experience climatic variations which present a challenge to ambient monitoring of small and medium sized streams. OCC has revisited planning efforts and made some revisions to the RB Program site list. OCC has dropped some sites which have stopped flowing or dried during previous monitoring cycles and added some sites deemed significant and important to the determination of the effects of NPS pollution.

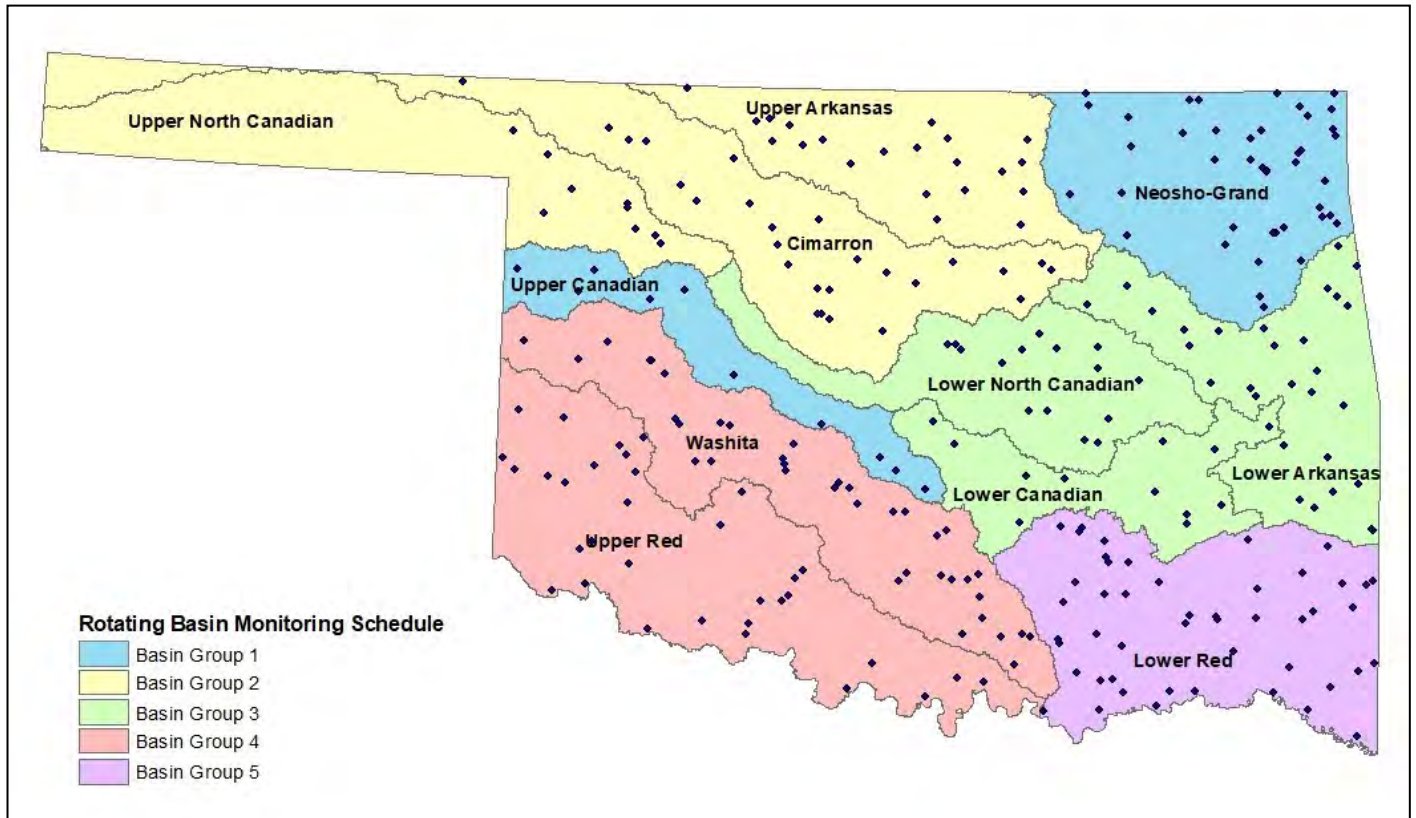
Water quality parameters assessed:

In field:

dissolved oxygen
water temperature
pH
turbidity
conductivity
alkalinity
hardness
instantaneous discharge

Lab:

ammonia
nitrite
nitrate
total Kjeldahl nitrogen
ortho-phosphate
total phosphorus
chloride
sulfate
total dissolved solids
total suspended solids



Estimating Load Reductions

In addition to tracking change in actual stream water quality results through its extensive monitoring and assessment program, the OCC determines conservative estimates of CP impacts on reducing priority NPS pollutant loads delivered to streams. Load reductions for nitrogen, phosphorus, and sediment are determined using the EPA's Spreadsheet Tool for Estimating Pollutant Loads (STEPL) and submitted through EPA's Grants Reporting and Tracking System (GRTS) for CPs implemented during the program year. Load reductions are estimated for projects implementing CPs directly funded or supported by OCC's NPS Management Program. Project efforts include but aren't limited to the OCC's statewide Locally-Led Cost-Share Program, ongoing riparian easement efforts in the Illinois River and Eucha-Spavinaw watersheds, OCC's Soil Health program, and poultry litter transfer efforts.



Watershed / Program	2024 Load Reduction Estimates*		
	Nitrogen	Phosphorus	Sediment
Riparian easement (Illinois River and Eucha/Spavinaw watersheds) and RCPP Projects	338,393 lbs/yr	28,934 lbs/yr	3,434 tons/yr
Statewide Locally-Led Cost-Share, Soil Health Program, and Poultry litter transfer	790,264 lbs/yr	421,757 lbs/yr	6,935 tons/yr

*Estimates rendered using EPA's Spreadsheet Tool for Estimating Pollutant Loads (STEPL) Model. Totals recorded in GRTS may include additional data not available during preparation of this report.



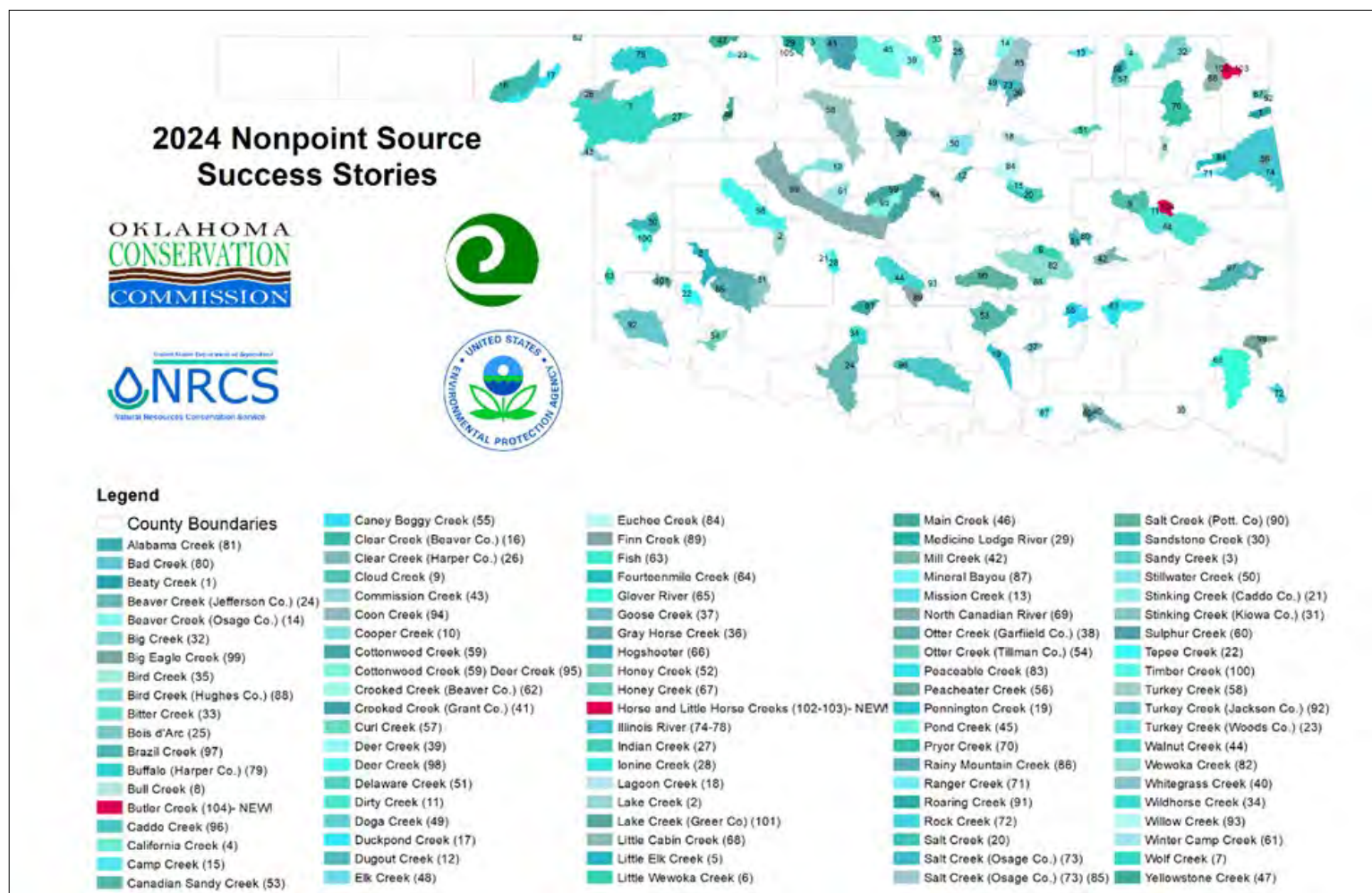
Documenting Success



NONPOINT SOURCE SUCCESS STORY

Oklahoma

EPA approved 3 new Oklahoma NPS Success Stories in 2024. Oklahoma has at least three additional watersheds that we anticipate submitting for 2025. These stories detail the results of cooperative efforts among the NRCS, OCC, conservation districts, and landowners to implement voluntary, cost-shared conservation practices (CPs) to improve water quality and result in delisting of at least one parameter from the 303(d) impaired waters list. These practices reduced the runoff of soils, waste products, and associated nutrients and bacteria and resulted in improved turbidity.



Oklahoma's 2024 Success Stories:

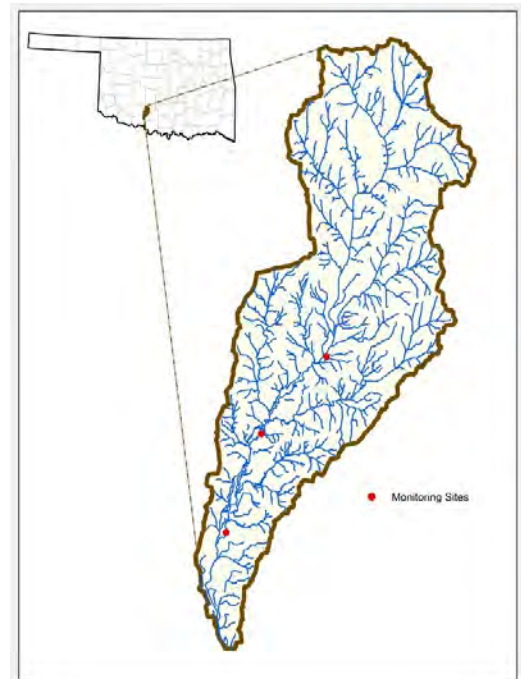
With the submission of the 2025 stories, Oklahoma will have 107 streams that are recognized as EPA NPS Success Stories, detailing removal of 154 pollutants. Oklahoma remains first in the nation for documenting NPS pollution reduction through NPS Success Stories.



Little Beaver Creek

- In 2015, four sub-watersheds of the Little Beaver Watershed were chosen as NRCS National Water Quality Initiative (NWQI) watersheds. Through NWQI, NRCS provides technical and financial assistance to help farmers and ranchers install conservation practices that will improve downstream water quality.
- Little Beaver Creek was listed as impaired on Oklahoma's 2012 Integrated Report for high levels of *E. coli* bacteria. Waurika Lake is listed as impaired for chlorophyll-*a* and turbidity.
- The Little Beaver NWQI project builds on a 2011 local emphasis area (LEA) project in Cotton, Stephens and Jefferson counties that includes the lower half of the Little Beaver Creek watershed. This program provided extra funding to install practices which protect water quality and quantity. Emphasis was given to adoption of renewable energy resources, exclusion of livestock from streams, and cedar removal.
- OCC began collecting water quality data on Little Beaver Creek in 2015, sampling at three locations (as shown on map) approximately once per month.
- The project received additional funding in 2016 through the NWQI Pilot Program to develop a watershed plan that would eventually allow implementation to spread into the two remaining HUCs in the Little Beaver watershed.
- In 2019, modeling, riparian assessments and critical area rankings were completed for all six HUC 12's in the Little Beaver Creek watershed. The NRCS/NWQI report was accepted and a little over a million dollars per year was granted to spend on targeted conservation practices that are designed to have a positive effect on water quality in the watershed. In addition to NWQI, the 319 Watershed-Based Plan was submitted and accepted by EPA in May.

In 2024 the new rotating basin monitoring cycle started, which included Little Beaver. We do not currently have an enough new data to update the analysis. The most current analysis from 2023 included total phosphorus, total nitrogen, total suspended solids, and *E. coli* collected across four cycles: (1) 2004-2006, (2) 2009-2011, (3) 2014-2016, and (4) 2019-2021. All metrics showed a significant trend across the four cycles except total suspended solids. Total phosphorus decreased over time, while total nitrogen increased. Total suspended solids were higher in the summer, likely as a result of higher stream stages from increased rainfall but did not decrease overall. *E. coli* decreased at all four monitoring sites across the four monitoring cycles. Although natural variability has to be considered, modeling results suggest that these trends will continue over time given the changes in land-use practices that have occurred in the Little Beaver watershed.



Blue Thumb Education Program



The Blue Thumb Program provides education and outreach on behalf of the Oklahoma Conservation Commission's Water Quality Division. Blue Thumb is a statewide citizen science effort focused on training volunteers to collect water quality data and share their knowledge with others. The Blue Thumb Program strives to achieve stream protection through education. Blue Thumb aims to inspire and empower people across the state to use education and monitoring to protect water in their region from nonpoint source pollution.

In 2024, the Blue Thumb program achieved the following:

- ◆ Supported approximately 124 certified volunteers who monitor
- ◆ Supported an additional 288 students who monitor with their teacher or professor
- ◆ Logged 6,031 volunteer hours (monitoring and education volunteers)
- ◆ Collected water quality data at 97 stream sites across Oklahoma
- ◆ Collected 137 macroinvertebrate samples and completed 22 fish collections in coordination with volunteers

Highlights from 2024 include:

- ◆ Expanded our program to train municipal employees to manage city-owned properties in stream friendly ways
- ◆ Became the sponsoring organization for Project Wild
- ◆ Continued efforts to equip educators to teach climate science and climate change concepts effectively
- ◆ Worked with students at Rogers State University and Northeastern State University to develop data projects
- ◆ Began work on a watershed based plan for Tar Creek
- ◆ Served on the Volunteer Monitoring Workgroup of the National Water Quality Monitoring Council
- ◆ Published the 2025 Blue Thumb calendar
- ◆ Continued support of the Yard by Yard Community Resiliency Program

Our work with disadvantaged communities included the following training opportunities: a two-day Blue Thumb Training at the Chickasaw Nation in Ada, Introduction to Habitat Assessment and Biological Collections (in coordination with the Inter-Tribal Environmental Council) in Tahlequah, and Introduction to Fish Collections with the Eastern Shawnee Tribe in Wyandotte. In addition, we supported the following education and outreach events: the Native American Student National Science Fair, the Cherokee Nation Watercress Festival, the Eastern Shawnee Fishing Derby, a butterfly event at the Chickasaw Cultural Center, the Lost Creek Water Festival and Spring Creek experiences with students from Lowrey and Tenkiller Public Schools. Finally, we began work on an EPA Environmental Justice Government-to-Government Grant with the Chickasaw Nation. Part of this project will involve hiring a Blue Thumb field person to serve the treaty area of the Chickasaw Nation.



The Soil Health Team/Program is one of the educational arms of the Water Quality Division, housed in the Oklahoma Conservation Commission. The Soil Health Team collaborates with the state's 84 local conservation districts, Native American tribes, other federal and state agencies, and non-government partner organizations (such as educational institutions and ag/conservation groups) to provide technical assistance and education related to regenerative land management. Soil Health team members provide one-on-one consulting services and soil testing to Oklahoma farmers, ranchers and urban citizens. The soil health team uses hands-on educational tools like the rainfall simulator demonstration, in-field workshops, farm show booths and student outdoor classroom events to expand communities' knowledge about land resilience and water quality. The team also supports area research efforts, collaborates with other OCC teams on joint projects, and is involved in planning and delivering conservation financial assistance programs.

Highlights from 2024:

- The Soil Health Team has continued to engage farmers, ranchers and citizens through traditional and nontraditional means. Our outreach has included individual on-site consulting, field days and workshops, school programs, farm shows, and multimedia content creation. In 2024 the team interacted with approximately 22,000 people and impacted the management of about 63,000 acres. Over 14,000 people have subscribed to the Soil Health Team's email newsletter, which shares educational content and upcoming event information. Multiple radio interviews reached thousands across the state.
- Building on the success of 2023's inaugural effort, the second annual Crossroads Conference took place in Enid this past July, presented by the OCC Soil Health Team and Garfield County Conservation District. It was a one-day regenerative agriculture event featuring content for farmers, ranchers, and specialty growers of all types and scales. 100 producers, both rural and urban, gathered to learn from one another and from experts who traveled here from as far as Australia. Feedback from attendees was overwhelmingly positive, and planning for a third event in 2025 is underway.
- The new OCC Soil Health Implementation Program (SHIP) was launched in collaboration with Oklahoma's local conservation districts. This innovative take on technical and financial assistance for producers will help them implement a multi-practice system of soil health agricultural management over a 3-year program period. Participants will become local mentors to their neighbors, helping further the adoption of regenerative practices. Interest in the program far exceeded our expectations, with around 300 applications coming in from all areas of the state. So far, 46 farmers, ranchers and urban food producers have been accepted into the program and are engaged in the conservation planning process with Soil Health Team members.
- The General Mills regenerative agriculture initiative expanded into 2 new northern Oklahoma counties in 2024, bringing the total of participating conservation districts to 6. The program now encompasses not only wheat farmers planting summer cover crops, but corn and soybean producers using winter cover crops as well. This expansion was encouraged by OCC and General Mills' offer of free cover crop seed for farmers in 2023. General Mills once again funded the distribution of free cover crop seed in 2024. Summer drought negatively affected planting of the seed, but the program continues to reduce the financial and "learning curve" risks farmers take when experimenting with soil health practices.
- The Soil Health Team and OCC's Public Information Manager, through a partnership with The Nature Conservancy and American Farmland Trust, completed 4 case studies showcasing the profitability of soil health crop production practices in our state. The case studies were released in the form of articles and videos available on OCC's website. Featured farmers are Rodney Hern from Grant County, Mark Nault from Blaine County, Scotty Herriman from Nowata County, and Jimmy Smith from Beckham County.
- In October 2024, the Soil Health Team co-hosted two "Noble Grazing Essentials" courses with Noble Research Institute in Mayes County. Through a grant related to water quality improvement in the Illinois River Watershed, we were able to put 70 producers through this intensive, 3-day regenerative grazing training at no cost to them. The course included information about how to effectively use poultry litter as fertilizer without creating nonpoint source pollution.
- The Soil Health team and OCC Water Quality division conducted preliminary soil and vegetation data for the Terry Peach Cedar Eradication Project, which aims to control this invasive species in northwest Oklahoma. This work will continue into 2025 as cedar removal work is performed. The Soil Health Team plans to further develop the WORMS soil health information database in 2025, and explore the potential for a statewide soil health monitoring initiative that would resemble the Water Quality division's rotating basin sampling program.



Oklahoma's NPS Management Program is a cooperative effort, blending partners from multiple state and federal programs to accomplish water quality protection and improvements. Each of the programs described here is coordinated by the OCC and works to complement NPS efforts of the agency. With support from EPA §319 funds, OCC staff have been able to engage relevant partners, generate interest, and obtain grants to leverage additional match for non-EPA grants.

Wetlands Program

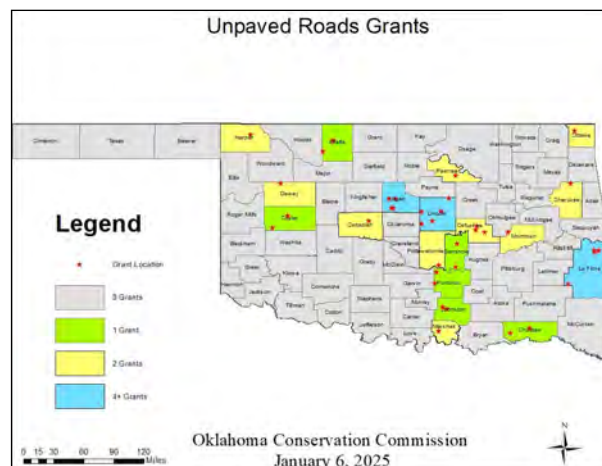
Wetland activities initiated by the OCC provide demonstration, restoration, and protection of wetland resources. Every wetland project the OCC pursues has the potential to improve water quality, particularly with regard to NPS pollution. The program is primarily funded through EPA §104(b)(3) Wetlands Program Development Grants (WPDG) with matching funds from state and local sources.

- Continued effort on our Restorable Wetland Identification Protocol (RWIP) project to apply the updated protocol in 30 HUC-8 watersheds across the state. RWIP is a desktop screening protocol designed by OCC to identify wetland restoration opportunities. The updated protocol includes a restoration feasibility component based on the extent of ditching and ponds near the restorable wetland. Additionally, a protocol was developed to identify areas in need of stream restoration based on the land cover within the adjacent and up-stream riparian zone.
- In partnership with Oklahoma State University, we completed our collaborative project titled "Development of a Guidebook and Conducting Training for the Oklahoma Rapid Assessment Method (OKRAM)". OKRAM is a rapid wetland condition assessment tool designed by OSU and OCC. This project consisted of the development of a comprehensive OKRAM guidebook, as well as an OKRAM training with US Army Corps of Engineers, NRCS, and the Oklahoma Department of Transportation to demonstrate OKRAM's utility for partner programs.
- In partnership with Oklahoma State University, we continued our project, "Integration of the Oklahoma Rapid Assessment Method into Wetland Management: Synthesis, Refinement, Transparency, and Application". The goal of this project is to further validate OKRAM using all available data, develop a database to house all existing OKRAM data, and develop a web application to make the data available to the public.
- Received federal grant funding for a new collaborative project with the University of Oklahoma to identify the location and condition of seep wetlands in the south central plains. An additional goal of this project is to update Oklahoma's Wetland Program Plan, which is a collaborative strategy document assembled through partnership to guide wetland-related activities across the state.
- Received federal grant funding for a new collaborative project with Oklahoma State University to conduct landowner surveys to better understand landowner participation in wetland conservation programs. Additionally, this project will focus on the development of a comprehensive state wetland restoration strategy to guide future voluntary wetland conservation efforts in Oklahoma.
- Received over \$4,000,000 in federal and private grants to deliver voluntary wetland conservation practices in Oklahoma. Hired a Wetland Conservation Specialist to support the Conservation Coordinator in delivering voluntary wetland restoration to landowners.
- Completed the development of a new Oklahoma Wetlands Program Website to provide information about ongoing projects and help guide citizens with wetland-related concerns or questions.
- Participated on the US Army Corps of Engineers Interagency Review Team to approve activities of an in-lieu fee mitigation program and consider a proposed mitigation bank.
- Completed desktop wetland determinations on projects that utilize state and/or federal monies.
- Met with numerous potential future partners in efforts to build collaborations to serve the needs of Oklahoma in the conservation of wetland and stream resources.

Unpaved Roads Program

The Unpaved Roads Program conducted 8 Environmentally Sensitive Maintenance (ESM) trainings across Oklahoma. This training is a requirement and first step for each county district that is interested in applying for future grants.

The program has awarded grants to 22 County Districts and worked on 1 pilot project. Funds awarded to projects total \$1,666,783.30, with in kind funds of \$3,237,819.76, for a total of \$4,904,603.06 going towards ESM practices to reduce sediment loading into Oklahoma waters. The Road/Stream Interaction area remains the focal point for most counties. These areas have been repaired for years with materials and culverts that only provided a temporary fix that became permanent due to funding. These structures have not allowed the adequate flow downstream and caused severe erosion, flooding upstream, and damage to the unpaved roads leading to and away from the crossings. The Road/Stream Interaction areas will be corrected with adequately designed structures and roadways corrected with recommended practices.



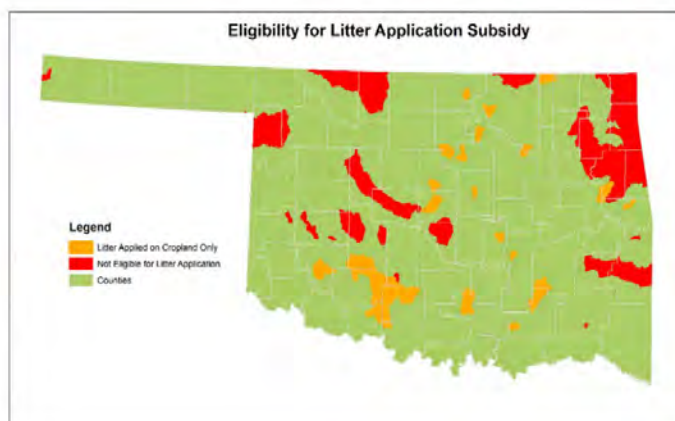
A project that will provide significant improvement to water quality is the Memorial Road Project in Canadian County. This project had issues such as low road base elevation, deep eroded ditches, steep road slope, failing bridge, and inadequate vegetation. The tributary creek located within this project flows into Uncle John's Creek, which is a 303d listed stream. This project utilized many ESM principles to reduce sediment leaving the roadway and entering the stream, thus providing a reliable, safe and efficient unpaved road.



Poultry Litter Transport Program

Since January 1, 2022, the OCC has provided support for the transfer of poultry litter out of nutrient-impaired watersheds to areas where land application of the derived nutrients poses a lower risk to downstream water resources. This program provides incentive to poultry growers (\$2/ton of litter sold) to sell litter to qualified buyers outside of the impaired watersheds and to the buyers (\$0.08/mi for transfer within 100 miles; \$0.05/mi for transfer outside 100 miles) to help offset the cost of litter transport for application to farmland in Oklahoma.

Nutrient-impacted watersheds, as depicted in the map below, include both watersheds where litter application is not eligible for the program (red) and watersheds in which litter is only eligible on cropland (orange). Litter application is eligible for some portion of the funding in all green shaded areas, as well as the orange shaded areas on cropland only.



In 2024, \$2,701.73 was paid in claims to growers and producers for litter transport reimbursement and 582 tons of litter were transported away from nutrient-limited watersheds. Throughout the life of the program, a total of \$49,409.05 was paid in claims to growers and producers for litter transport reimbursement, and 8,045.56 tons of litter were transported away from nutrient-limited watersheds.

Oklahoma Locally-Led Cost-Share Program

OCC's Locally-Led Cost-Share Program (LLCP) is a state-funded program providing technical and financial assistance to landowners and producers to install conservation practices to protect soil and water resources and reduce NPS pollution. The program is administered by OCC personnel and is implemented locally through the conservation districts who interact directly with landowners, NRCS, and other entities to draft the necessary conservation plans.

Landowners and producers participate voluntarily and contribute a minimum of 40% match based on pre-established cost-share rates by practice. OCC's LLCP is a critical mechanism to promote voluntary implementation of NPS controls statewide and serves as primary match for federal \$319 funds.

Contracts for FY2024 NPS pollution reducing practices totaled \$17,071,518.51 and were completed in conservation districts statewide. Conservation practices installed are shown in the table

Cleanout of sediment-filled ponds (number of ponds)	775
Conservation cover (ac)	1.3
Cover crop planting (ac)	1,826
Critical area planting (ac)	3
Fencing (ft)	182,449
Grassed waterways (ac)	10
Heavy Use Area Protection (yd ³)	109,251
High tunnel	6
Pasture/hayland planting (ac)	2,219
Pasture Taps (Rural Water Connections)	38
Pipeline (ft)	224,109
Ponds	140
Pumping Plants (number)	525
Range seeding (ac)	60
Structure for water control	16
Watering Facility (number of tanks)	321
Wells (number drilled)	555

Crow Creek Watershed Community

Crow Creek is a small urban stream running through one of the older parts of Tulsa. Residential properties, schools, businesses, and parks border the stream. The stream is enjoyed by many for its aesthetic value. Although the portion of the stream monitored by the Blue Thumb Program has excellent habitat, the macroinvertebrate and fish communities are impaired. The stream is on the 303(d) list for E. coli and has been for many years. Data suggest that domestic pets are the primary source of bacteria.

In 2015 the Crow Creek Community was organized by Blue Thumb volunteers who had monitored in the watershed for 20 years. The Crow Creek Community continues to be actively involved in education and outreach in the community. The group includes representatives of the City of Tulsa, the Metropolitan Environmental Trust, Philbrook Museum of Art, the Tulsa County Conservation District, the Tulsa Zoo and Blue Thumb. The group oversees the maintenance of Crow Creek Meadow, a water quality demonstration site located at 1025 East 33rd Place.

In 2024, the group decided to expand efforts to other streams in the area. As a result, the group changed its name to the Green Country Watersheds Coalition. The group will continue its efforts in the Crow Creek watershed, but will expand into watersheds in the Tulsa metropolitan area and the northeastern part of the state.

Crow Creek Community/Green Country Watersheds Coalition, with OCC, accomplished the following tasks in 2024:

- Held nine planning meetings
- Hosted two "Do You Know Crow?" events (one at the Philbrook Museum and one at the Tulsa Garden Center)
- Held a tour and a bench dedication at the Crow Creek Meadow
- Facilitated an education event at The Gathering Place
- Published a quarterly newsletter
- Continued to support the "Yard by Yard" Community Resiliency Project in coordination with partners from OCC Soil Health, Friends of Blue Thumb, Tulsa and Oklahoma County Conservation Districts and the Oklahoma Association of Conservation Districts
- Offered two "Butterflies, Birds and Bees, Oh My!" workshop
- Participated in SpringFEST at Tulsa Garden Center
- Hosted a webinar to introduce the Green Country Watersheds Coalition
- Hosted Wildflowers: Fall, Fun and Friends at the Nathan Hale Library in Tulsa



NPS Program Partner Activities

Oklahoma's NPS Management Program is a collaborative effort of federal, state, and local agencies, as well as nonprofits and citizen groups. Here are just a few examples of partner agencies which usually do not receive federal §319 funds yet have programs that mitigate NPS pollution and improve and protect water quality in the state.

Oklahoma Natural Resources Conservation Service

The Oklahoma NRCS natural resources conservation programs help people reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damages caused by floods and other natural disasters. NRCS addresses NPS concerns through various efforts.

One example is the Agricultural Conservation Easement Program (ACEP) – Wetlands Reserve Easements. Through this the NRCS prioritizes applications that protect, restore and enhance habitat for wildlife on their lands and reduce damage from flooding and recharge groundwater. “USDA is committed to restoring and protecting vital sensitive wetlands that provide important wildlife habitat and improve water quality,” retired Oklahoma State Conservationist Gary O’Neill said.

Land eligible for easements includes cropland, rangeland, grassland and pastureland, land owned by private individuals or Native American Tribes. Wetlands Reserve Easements provide habitat for fish and wildlife, including endangered species, improve water quality by filtering sediments and chemicals, reduce flooding, recharge groundwater, protect biological diversity and provide opportunities for educational, scientific and limited recreational activities.

The Agricultural Conservation Easement Program (ACEP) has two components, one for Agricultural Land Easements (ALE), and Wetland Reserve Easements (WRE). Applications for both ALE and WRE are accepted on a continuous basis.

- Under the ALE component, funds are provided to eligible entities that use ACEP funding to purchase permanent agricultural land easements that not only protect the future of the nation's food supply, they also support environmental quality, wildlife habitat, and historic preservation and protection of open spaces.
- Under the WRE component, funding is provided directly to landowners for the purchase of an easement and for restoration. Wetland reserve easements allow landowners to successfully restore, enhance, and protect habitat for wildlife on their lands. Eligible landowners may choose to enroll in a permanent or 30-year easement. Eligible lands include farmed or converted wetlands that can be successfully and cost-effectively restored.



NPS Program Partner Activities

Oklahoma Water Resource Board (OWRB)



The Oklahoma Water Resources Board (OWRB) is committed to enhancing water quality and infrastructure across the state. Through innovative funding programs, the OWRB's Financial Assistance Division provides funding solutions to address critical issues, including nonpoint source (NPS) water pollution and infrastructure challenges. Funding for NPS projects is submitted to the Oklahoma Conservation Commission under the state's Nonpoint Source Management Plan, ensuring strategic alignment with statewide goals.

The Clean Water State Revolving Fund (CWSRF) offers below-market interest rate loans and principal forgiveness for projects supporting the Clean Water Act's objectives. These initiatives include rehabilitating wastewater treatment plants, improving dam safety, and transitioning septic systems to sewer collection systems. Additionally, the OWRB administers the Water and Wastewater American Rescue Plan Act (ARPA) grants program, funded by the U.S. Department of the Treasury, to address pressing water and wastewater infrastructure needs in communities across Oklahoma.

In fiscal year 2024, the OWRB funded four notable projects through its CWSRF and ARPA programs, helping to protect water resources and advance sustainability.

The Duncan Public Utilities Authority received \$4,105,000 in CWSRF funding to rehabilitate the Clear Creek Lake Dam, a critical water source and a 303(d)-listed lake. A 2022 safety inspection identified significant issues and this project includes upgrades that will strengthen the dam's structural integrity, secure Duncan's water supply, and reduce the likelihood of future dam failures. The improvements may also enable maintenance activities to enhance in-lake water quality through managed water releases.

The Jay Utilities Authority secured \$1,369,000 in CWSRF funding, including 100% principal forgiveness, to modernize its aging metering infrastructure. The current drive-by Automatic Meter Reading (AMR) system, which tracks both water and gas usage, is beyond its operational lifespan and prone to frequent failures. The funding will enable the replacement of 1,166 water meters and 616 gas meters with an Advanced Metering Infrastructure (AMI) system. This upgrade will enhance monitoring accuracy and improve leak detection helping ensure Lake Eucha, the city's water source, maintains its lack of mercury impairment, a significant achievement given that 75% of Oklahoma's sampled lakes show excessive levels of mercury in fish tissue indicating contamination.

The Lawton Water Authority is tackling critical safety and water quality challenges at the Gondola Lake Dam in Comanche County. The \$2,000,000 ARPA-funded rehabilitation project will evaluate and implement one of three proposed upgrades to the dam, which serves as a recreational and ecological resource for the Medicine Creek area. The dam's deteriorating condition poses a risk to downstream water quality and public safety, as sediment discharge from a potential failure could degrade the creek.

The River Parks Authority received \$4,200,000 in ARPA funding to reconstruct an earthen berm along the Arkansas River, damaged during a 2019 flood. The berm's compromised state heightens flood risks for nearby neighborhoods and businesses while threatening to introduce pollutants into the river. The reconstruction will restore flood protection for the area and safeguard the river's water quality.

Through targeted funding programs like the CWSRF and ARPA, the Financial Assistance Division continues to address critical infrastructure and water quality challenges across Oklahoma. Partnerships with the OCC and communities like Duncan, the City of Jay, Lawton, and River Parks, demonstrate the OWRB's commitment to providing communities with the resources needed to maintain and improve essential water quality. By leveraging innovative funding solutions, the OWRB reaffirms its leadership in advancing water management and environmental stewardship statewide.

NPS Program Partner Activities

Oklahoma Water Resources Center (OWRC)



The Oklahoma Water Resources Center (OWRC) and the Oklahoma Conservation Commission (OCC) work closely to address a wide variety of water resources issues across Oklahoma. The OCC serves on the OWRC's Water Research Advisory Board, providing guidance on research needs and project funding priorities. The OCC serves on the Advisory Board for the OWRC Southern Great Plains RegenAg project (funded by USDA-NIFA), providing guidance and expanded reach for our research and Extension activities.

The OCC partners with the OWRC to help deliver findings from OSU virtual fencing research through the OCC soil health outreach programs. OCC and OWRC work together to deliver groundwater quality education program through joint delivery of the OWRC's Oklahoma Well Owner Network program with Blue Thumb events. The OCC has also funded several OWRC projects aimed at improving water management in Oklahoma. Below, we highlight the activities and impacts of OWRC projects that are either partially or fully funded by the OCC.

OK-HAWQS

For the fourth year in a row, our team — represented by the Oklahoma Conservation Commission, OWRC, and Texas A&M University — have worked to develop a customized version of HAWQS (Hydrologic and Water Quality System) for Oklahoma (OK-HAWQS). This specialized version integrates a calibrated SWAT model designed specifically for Oklahoma, including watersheds from neighboring states that contribute to Oklahoma's drainage. OK-HAWQS has the ability to model hydrology and water quality for Oklahoma streams at the HUC-12 scale. Additionally, it can rapidly produce research and management reports elucidating the hydrological and water quality implications of various scenarios related to land use, agricultural management, soil and water conservation practices, and climate.

The following tasks were accomplished in year 4:

- Water Quantity Calibration
- Support to the Illinois River Basin (IRB) modeling effort
- Water Quality Calibration
- Best Management Practice (BMP) Module
- Poultry House (CAFO) Identification
- Inclusion of additional data, calibration, and management efforts
- OK-HAWQS Workshops and conference presentations
- Project Management and Outreach



Ogallala Aquifer Study

The agricultural productivity in the Oklahoma Panhandle heavily depends on the availability of water from the Ogallala Aquifer. This aquifer meets over 98% of the total water demand in the region, with irrigation being the largest consumer. Over the years, the groundwater level in the Ogallala Aquifer has been declining due to extensive groundwater extraction for irrigation. There is a need to investigate efficient irrigation water management strategies to preserve the diminishing groundwater resources of the Ogallala Aquifer. We completed the assessment of ag water savings based on potential cropping change and using alternative irrigation systems in the OK Panhandle. We have a manuscript that's in preparation based on this work. Our findings are summarized on the next page.



NPS Program Partner Activities

Oklahoma Water Resources Center (OWRC)

Ogallala Aquifer Study Cont.

The model was applied to both water-intensive crops (such as grain corn) and drought-tolerant crops (including grain sorghum and cotton) in sprinkler-irrigated fields across each county in the Oklahoma Panhandle—namely, Cimarron, Texas, and Beaver counties.

Our results show that the seasonal net irrigation was highest for corn, with an average estimate of 560 mm, while the smallest estimate was for sorghum at 469 mm. The comparison of irrigation demand among the three crops indicated that cotton requires 7–15%, and grain sorghum needs 12–22% less irrigation compared to grain corn during the growing season. These results imply that transitioning from corn cultivation to cotton or sorghum has the potential to conserve groundwater in the Oklahoma Panhandle. This study contributes to our understanding of the potential benefits of irrigation management practices on the aquifer and assists with water planning for the region.

Oklahoma Master Irrigator Program 2024

In 2024, the fourth edition of the Oklahoma Master Irrigator Program was offered in Woodward, OK. 25 participants registered for the program of which 22 participants graduated. The graduating participants included 13 producers, 2 industry personnel, 1 crop consultant, 1 OK county extension agent, 4 USDA-NRCS employees, and 1 OCC employee. The overall response of the knowledge gained reported by the participants in the post program survey indicated considerable knowledge gains on the topics of moisture sensors, irrigation scheduling models, irrigation systems, and soil health.



From March 19 – 21, 2024, irrigation water uniformity audits were conducted for OK-Master Irrigator Program participants as a part of the Mobile Irrigation Laboratory. The water uniformity tests (conducted by Dr. Sumon Datta) are synchronized with pump energy tests (conducted by Dr. Scott Frazier) to provide a systematic overview of irrigation efficiency and distribution uniformity.

Findings from the audited field showed the pivot had very good distribution uniformity. The producer was recommended to consider sprinkler system examination and look out for blocked and worn-out sprinkler nozzles as we observed some over and under-application of water in some areas. If the producer changes regulators on the nozzles, assuming 125 drops in the system (an estimated upgrade cost of \$1,000), a pump efficiency of 80%, an expected Distribution Uniformity (DU) afterwards of 88%, and an average seasonal runtime of 2100 hours, the producer could save \$999 per season in electricity cost (12,482 kWh saved) running the pivot.

Auxiliary Irrigation Improvement Activities:

- With Oklahoma Mesonet and OSU, Dr. Datta is leading the development of “[Oklahoma Irrigation Scheduler](#)”, a tool to precisely manage irrigation for agricultural producers in Oklahoma. We hope to do a demo of this tool at the 2025 OK-Master Irrigator Program.
- Drs. Frazier and Datta met with USDA NRCS engineers (Diane Perry, Rachel Schlais, and Charlie Colvin) at their OSU Campus office on June 18, 2024, to discuss how the USDA NRCS engineers can be trained to do the audits themselves. We have shared the instrumentation lists with them. We discussed the possibility of this [training program](#) to be funded by USDA NRCS.



- [Extension Factsheet:](#)

Frazier, R. S., and Datta, S. (2024). Understanding the Results of Oklahoma Master Irrigator Center Pivot Energy Efficiency. *Currently under review at Open Journal System.*

NPS Program Partner Activities

Yard by Yard Community Resiliency Project

The Oklahoma Conservation Commission became one of several partners to support the “Yard by Yard” Community Resiliency Project in 2020. Marcus Long, urban soils specialist in the Oklahoma County Conservation District, is in the leadership role for the project, gaining support from all involved conservation districts, Jack Titchener, urban soils specialist in Tulsa County, and Cheryl Cheadle with the Blue Thumb water quality education program. In 2024, 2 additional counties voted to participate in the project. This represents an accomplished goal from the previous year, which aimed to gain more support outside of the OKC and Tulsa metro areas. The project is supported by Friends of Blue Thumb, the Oklahoma Association of Conservation Districts, and the Oklahoma Conservation Commission.

Yard by Yard is a multi-faceted approach to changing our world for the better. Conservation districts have long been known as the “go to” to assist farmers and ranchers and districts are comfortable in this role.

Some favorite conservation actions are:

- Planting native plants – native plants feed pollinators, increase infiltration, add habitat, and offer beauty.
- Growing of vegetables – locally produced fruits and vegetables add nutritious options to the table. These shared spaces of food production can mitigate the effects of deserts and build community.
- Mowing a little taller – grasses that are cut no lower than three inches increase the infiltration of rain and reduce the frequency of firing up the lawn mower, thus reducing air pollution.

The efforts of this project are led by the most urban counties- Oklahoma, Tulsa, and Cleveland. With Tulsa County and Oklahoma County both more than doubling their certification from 2022 to 2023. Currently 220 yards across the state are certified!

“Yard by Yard Community Resiliency Project” Participating Districts



Oklahoma Department of Agriculture, Food, and Forestry (ODAFF)



In December 2012, the Oklahoma Department of Agriculture, Food, and Forestry (ODAFF) received authorization from the U.S. Environmental Protection Agency to administer agriculture-related Clean Water Act discharge permits. This is a permitting program and under certain conditions, it authorizes discharges to Waters

of the U.S. from three agriculture related programs. Upon authorization, ODAFF referred to this program as the Agriculture Pollutant Discharge Elimination System (AgPDES) program. One of those programs is the AgPDES Construction General Permit (CGP). The CGP addresses storm water discharges associated with construction activities on some agriculture construction activities. One of the requirements is for construction operators or owners to develop a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP includes a description of the Best Management Practices (BMPs) that will be used to reduce pollutants in storm water discharges. The CGP also requires operators to conduct regular site inspections to ensure BMPs are performing as designed and to monitor and maintain BMPs throughout the project. Since authorization of the program through November 2024, the AEMS Division has issued 309 CGP authorizations associated with Ag related construction sites.



The AEMS Division has an educational brochure to help educate the public on who may need coverage under the AgPDES CGP program. For additional information please see <https://ag.ok.gov/wp-content/uploads/2021/10/Construction-Storm-Water-Brochure-2021.pdf>

NPS Program Partner Activities

Long-term Riparian Conservation Protection Programs



The Grand River Dam Authority (GRDA) and OCC have a long-term partnership to protect water quality in northeastern Oklahoma through riparian area conservation. These efforts include a variety of easement and contract terms and formats, ranging from 10 year agreements up to perpetual easements. These contracts have focused on protection of the Illinois River Watershed but this year expanded to the Grand Lake Watershed. GRDA maintains a program of 30 –year or longer easements. At the same time, the OCC, Adair, Cherokee, and Delaware county conservation districts maintain annually-renewed 10 to 15 year riparian protection contracts.

GRDA has 1,621.97 acres (ac.) in the Illinois River Watershed and 450.96 ac. In the Grand Lake Watershed enrolled in 30 year or perpetual riparian easements at a cost of \$3,942,255.45. The majority of those (1,726.34 ac.) were enrolled since 2017 with the remainder added in 2007. Approximately 200 additional ac. of easements are currently pending.

The OCC and conservation districts currently have multi-year riparian agreements with 18 landowners in the Illinois River Watershed. These total 1,074.3 ac. in Adair (782.8 ac.), Cherokee (242.5 ac.), and Delaware (49 ac.) counties at a cost of \$65,479.50 per year.



Grand River Dam Authority Education and Outreach



The Grand River Dam Authority (GRDA) participated in or hosted 48 events in 2024, reaching over 4,000 people. We hosted 27 events focused on water education, either at our facility or at a partner's facility, for youth ages pre-K through 12th grade for a total of 1845 students. Tools for these events included our stream trailer, watershed model, mussel display, incredible journey, or live creek macroinvertebrates. We hosted two summer camps where we were able to take students to a creek or river and let them explore what lives there. We received 12 entries in our second annual trash art contest, where winners got a trip to the Oklahoma Aquarium. Additionally, we spoke to over 1,800 people, both kids and adults at several partner events which included Har Ber Village, the Lost Creek Water Festival, the Shoal Creek Water Festival, an Earth Day event in Tahlequah, and the Red Fern Festival.

- We worked with over 80 college students on various projects or gave them a tour of our facility and discussed our water quality monitoring programs.
- We hosted several workshops for adults, mostly focused on landscaping and rainwater harvesting. We also presented at various conferences and held our educator workshop in Tahlequah this year partnering with Blue Thumb, Oklahoma Ag in the Classroom, OSU Extension, and the Illinois River Watershed Partnership. We reached over 400 people at these events and gave away over 100 rain barrels.
- We replaced an additional 7 septic tanks in the Grand Lake area and are working to implement a similar program across the state in cooperation with the Oklahoma Conservation Commission and the Oklahoma Water Resources Board.
- Through a partnership with Oklahoma Turnpike Authority, 8 new signs on the Will Rogers Turnpike identifying river crossings that flow into Grand Lake were installed.
- We are working with the City of Tahlequah, Save the Illinois River, Illinois River Watershed Partnership, Oklahoma State University Environmental Engineering, U.S. Fish and Wildlife Service, and the Mission Park Project on transforming a city park into a natural landscape and installing a bioretention cell to reduce stormwater runoff.



NPS Program Partner Activities

FreshRx - Human Health and Soil Health



FreshRx Oklahoma is a produce prescription program improving health outcomes for individuals with Type 2 diabetes through locally, regeneratively sourced fruits and vegetables, while generating over \$3.9 million in healthcare savings and over \$1.5 million in economic impact with local farmers since 2021.

Directed by Erin Martin, the program has served over 400 participants, supported 27 small-scale growers, and achieved remarkable success, including a 132-pound weight loss fully reversing her diabetes and coming off all medications in 8 months.

In 2024, FreshRx expanded with the Muscogee Creek Nation's Healthy Roots produce prescription demonstration program, working towards fostering Indigenous vegetable production, and is set to launch a rural pilot to reach more underserved communities and more underserved farmers in 2025. Erin testified before Congress, advocating for produce prescriptions in the Older Americans Act, while FreshRx continued policy leadership through the Oklahoma Food is Medicine Coalition and the national Coding4Food project, solidifying its role in bridging local agriculture and healthcare innovation.



Conservation and Agriculture Reach Everyone (Care) Project

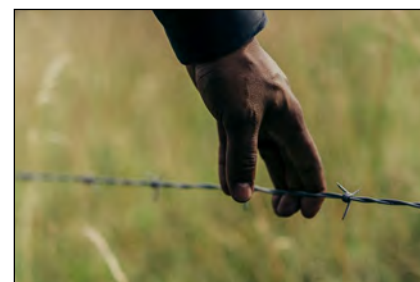
The Conservation and Agriculture Reach Everyone (CARE) project is a collaboration between the Oklahoma Association of Conservation Districts, the Oklahoma Black Historical Research Project, the Texas Agriforestry Small Farmers and Ranchers, and individual conservation districts to increase the number of minority and veteran farmers that are accessing conservation technical and financial assistance. The project is focused on identifying and empowering minority and veteran farmers and ranchers that are willing to be CARE Champions and provide information on conservation back to their communities.

Each CARE champion works with a certified conservation planner to complete a demonstration project in either soil health or invasive species removal. Through collaboration with the Oklahoma Conservation Commission, each champion receives \$70/acre for up to 40 acres for their project. After completion of the project, CARE Champions host a field day to show their communities the practice that they have completed. Champions also participate in educational and networking opportunities.

The CARE program has reached 4,000 minority producers and 400 veteran producers in the last two years alone. The project is five years old and to date there have been over 45 CARE champions in Oklahoma and Texas.

Outreach involved 7,032 producers including 3,354 socially disadvantaged farmers/ranchers and 453 veterans in 2022.

Twenty-six demonstration projects on soil health and/or invasive species removal were completed. This included 880 acres and 2 projects on urban/specialty production operations. The practices that were completed include fencing off of riparian areas, grass plantings, prescribed grazing, eastern red cedar removal using both livestock (goats) and mechanical removal, blackberry removal, over crop plantings, and field border plantings for pollinators.



NPS Program Partner Activities

Oklahoma Department of Transportation (ODOT)



The Oklahoma Department of Transportation (ODOT) over the last year has created a newly formed Clean Water Section in Environmental Programs Division. This section houses our stormwater program, 404 program, and the field liaisons. 2024 is the first full year of having a staff of seven field liaisons who are based out of ODOT field districts, and the department has seen great success in utilizing them. Environmental Programs has continued to develop robust internal trainings to help equip both the liaisons and ODOT staff state-wide. One new training is called Habitats and Highways where over the course of 8 months, a different natural resource is highlighted. Personnel spend a full day in the field to investigate, observe, and gain understanding on the needs, location, and regulations for various resources (i.e. bald eagles, bats, water resources).



The agency also continues to promote and utilize innovative Best Management Practices (BMPs) for sediment and erosion controls. In October of 2024, the Agency, in partnership, with the Oklahoma Association of General Contractors, Oklahoma State University, the Oklahoma Turnpike Authority, and the Oklahoma Department of Environmental Quality, held the Third Annual Contractor Construction Conference in Stillwater, OK. This event was a large success, and demos on products were able to be shown. Plans are in progress for this event to be re-occurring in 2025.

City of Oklahoma City



The purpose of the Oklahoma City Storm Water Quality Division (SWQ) is to provide inspections, water quality assessments and technical services, public outreach, household hazardous waste services, and emergency response to residents, businesses, and government agencies so they can comply with the Clean Water Act and enjoy a safe and clean environment.

Storm Water Quality outreach programs recorded an estimated 6.83 million advertising impressions through media releases, news coverage, radio, and printed advertisements. An additional 246,732 personal contacts were made through email correspondence, newsletters, workshops, booths/displays, webinars, and presentations. Oklahoma City's floatable debris management programs cover a range of City maintenance activities and volunteer initiatives. City maintenance activities such as the street sweeping contracts and the storm water netting programs removed a total of 1,698,217 pounds of debris from urban areas and waterways, and the Oklahoma River Management program removed an additional 945 cubic yards of debris. The Adopt-a-City-Street and the Waterway Clean Sweep volunteer programs included 1,049 volunteers whose efforts removed over 17,983 pounds of debris. The Household Hazardous Waste Collection Center served 9,812 facility customers that delivered 712,583 pounds of household hazardous waste such as paint, used oil, and pesticides. 221,203 pounds of that waste stream was separated and either recycled or released for public reuse. Storm Water Quality Management staff completed 13,402 construction site and industrial facility inspections. Staff inspected and managed 833 pollution incident reports ensuring proper cleanup of spills and illicit discharges.



NPS Program Partner Activities

City of Norman



City of Norman

In 2024, the City of Norman continued to demonstrate leadership in protecting water quality, reducing pollution, and advancing sustainable practices through the efforts of its Division of Environmental Resilience and Sustainability (DoERS). By implementing targeted monitoring and strategic interventions, DoERS successfully addressed pollutant sources, improved compliance across multiple sectors, and expanded water quality efforts, including the adoption and monitoring of Dave Blue Creek.

Key programs such as the Industrial Pretreatment Program, MS4 Program, and the permanent Household Hazardous Waste Facility played critical roles in safeguarding Norman's waterways from pollutants. Complementing these efforts, the Blue Neighborhood Pilot Program empowered neighborhoods to reduce nutrient pollution, implement sustainable stormwater practices, and strengthen environmental stewardship. Community involvement was further bolstered through initiatives like the Sixth Annual Artful Inlets, which combined education and creativity to raise awareness of stormwater impacts.

Norman also engaged residents in hands-on sustainability through workshops on composting, sustainable and native landscaping, and foraging. In partnership with the Central Oklahoma Stormwater Alliance (COSWA), the city distributed nearly 100 rain barrels and composters, promoting resource conservation. Cleanup events drew hundreds of participants, resulting in the removal of 2,500 pounds of debris from local watersheds, while the Household Hazardous Waste Facility processed over 20 tons of hazardous materials, and e-waste events recycled nearly 29 tons of electronics.

Blue Neighborhood Pilot Program



The Blue Neighborhood Pilot Program is an innovative initiative launched in 2024 to address nutrient pollution, enhance water conservation, improve soil health, and support wildlife habitat within Norman neighborhoods. The program incentivizes residents to adopt "blue" practices that reduce non-point source pollution and contribute to sustainable stormwater management, benefiting local waterways and Lake Thunderbird. The pilot area, located in a one-square-mile region between Tecumseh Road and Rock Creek Road, was selected based on its higher nutrient loading into Woodcrest Creek, a key waterway that flows into Lake Thunderbird. The waterways in this area were identified as being primarily impacted by residential home practices, making it an ideal target for education and individual lot action. The program focuses on three main activities: installing rain barrels to conserve water and reduce stormwater runoff, applying compost to replace chemical fertilizers and improve soil health, and creating rain gardens or pollinator pockets to filter runoff and provide wildlife habitat. Participants are supported with financial incentives, educational outreach, and installation assistance for practices like rain gardens and pollinator pockets. Through this residential engagement, the program directly addresses nutrient pollution while fostering a culture of environmental stewardship.



NPS Program Partner Activities

City of Norman cont.



Localized Monitoring and Strategic Pollution Reduction

In 2024, the Division of Environmental Resilience and Sustainability (DoERS) focused on localized monitoring as a way to strengthen its efforts to improve water quality and address non-point source pollution. A key initiative in this effort was the adoption and monitoring of Dave Blue Creek. Adoption allows our team to monitor a high value and bellwether waterway in the Thunderbird watershed for any issues, while also providing needed numerical water quality data for statewide stream assessment efforts.



Norman strives to integrate local monitoring efforts, both through Blue Thumb and its TMDL Monitoring and Compliance Plan, with targeted actions. Enhanced surveillance was conducted in areas with high pollutant loading or other irregularities, and the team was able to trace pollutants to sources, such as stormwater runoff from construction sites. The team provided targeted technical assistance and education leading to improved compliance, the reduction of pollutant loads, and the identification and resolution of previously unknown pollution issues.

Artful Inlets Program: Blending Art and Environmental Education

The Artful Inlets program has become a cornerstone of Norman's community outreach, using art to engage residents in understanding their role in preventing stormwater pollution. By blending creativity and education, this program reinforces Norman's commitment to protecting water quality and fostering environmental stewardship. The theme for 2024's Sixth Annual Artful Inlets program was "Think Blue, Act Green" and selected pieces showcased how everyday actions affect stormwater quality and the health of Norman's ecosystems. This year's installations were located at Vineyard Park, Sequoyah Trail Park, and Chisholm's Cattle Trail Park – parks located within the Blue Neighborhood Pilot Program area. Each park featured two unique works by local artists and the selected pieces follow:



Message in a Bottle by Ruth Loveland



Impactful Roots by Katie Graham



Think and Act by Shana Brown



Think, Act, Fish by Deanna Wong



Plants and Animals of Oklahoma by Asha Chidambaram



Where Does Your Rainwater Go? by Sophie Miller

NPS Program Partner Activities

City of Tulsa



The City of Tulsa's Stormwater Quality Program includes monitoring, enforcement, education, and inspection programs, all aimed at keeping Tulsa's waterways pollutant free. Tulsa has continued its comprehensive monitoring program, aimed at identifying and eliminating all illicit discharges, but focusing special attention these last several years on ones that are contributing bacteria to our rivers and streams, and identifying the source (human, dog, bird, etc.). Tulsa is in the process of developing a microbial source tracking program that will significantly improve the detection of these sources.

Tulsa's Household Pollutant Collection Facility, opened in 2016 continues to be very successful, not only for Tulsa's citizens, but also open to the surrounding communities, some of which have traveled over 60 miles to use our services. In this past year, 4,273 customers from the greater Tulsa metro area properly disposed of 381,890 pounds of pollutants – an increase of 9,615 pounds from the previous year. Proper disposal prevents these pollutants from being dumped outdoors or from causing issues in the City trash pickup, or sanitary sewer system. A new Swap Shop was implemented into the facility in recent years, allowing citizens to take new or slightly used items that were dropped off and repurpose them. This reuse provides a benefit to both the citizens and the environment.



Tulsa's Education and Outreach Program has been very busy, completing 163 education outreach activities this past year, including the State Fair, radio ads, Greater Tulsa Clean Up, cable and streaming tv commercials, and much more. Tulsa is still awaiting finalization of its Low Impact Development Manual as a way to slow and sink stormwater runoff into the ground as opposed to running off properties carrying pollutants and eroding streams. Information on Tulsa's Stormwater Quality Program from the past fiscal year can be found at www.cityoftulsa.org/sos

Save the Illinois River (STIR)



Founded in 1984, Save the Illinois River, Inc., STIR, is a private, not-for-profit organization chartered exclusively for the preservation of the Illinois River (Upper and Lower), Flint Creek, Barren Fork Creek, Tenkiller Lake, their tributaries, and their aquifers.

STIR continues advertising messages to help manage nonpoint pollution in the Illinois River watershed and the watersheds of other

Oklahoma Scenic Rivers. STIR donates pet waste disposal stations to cities and government agencies within the Illinois River watershed in both Arkansas and Oklahoma. These stations dispense biodegradable plastic bags for the disposal of pet waste.

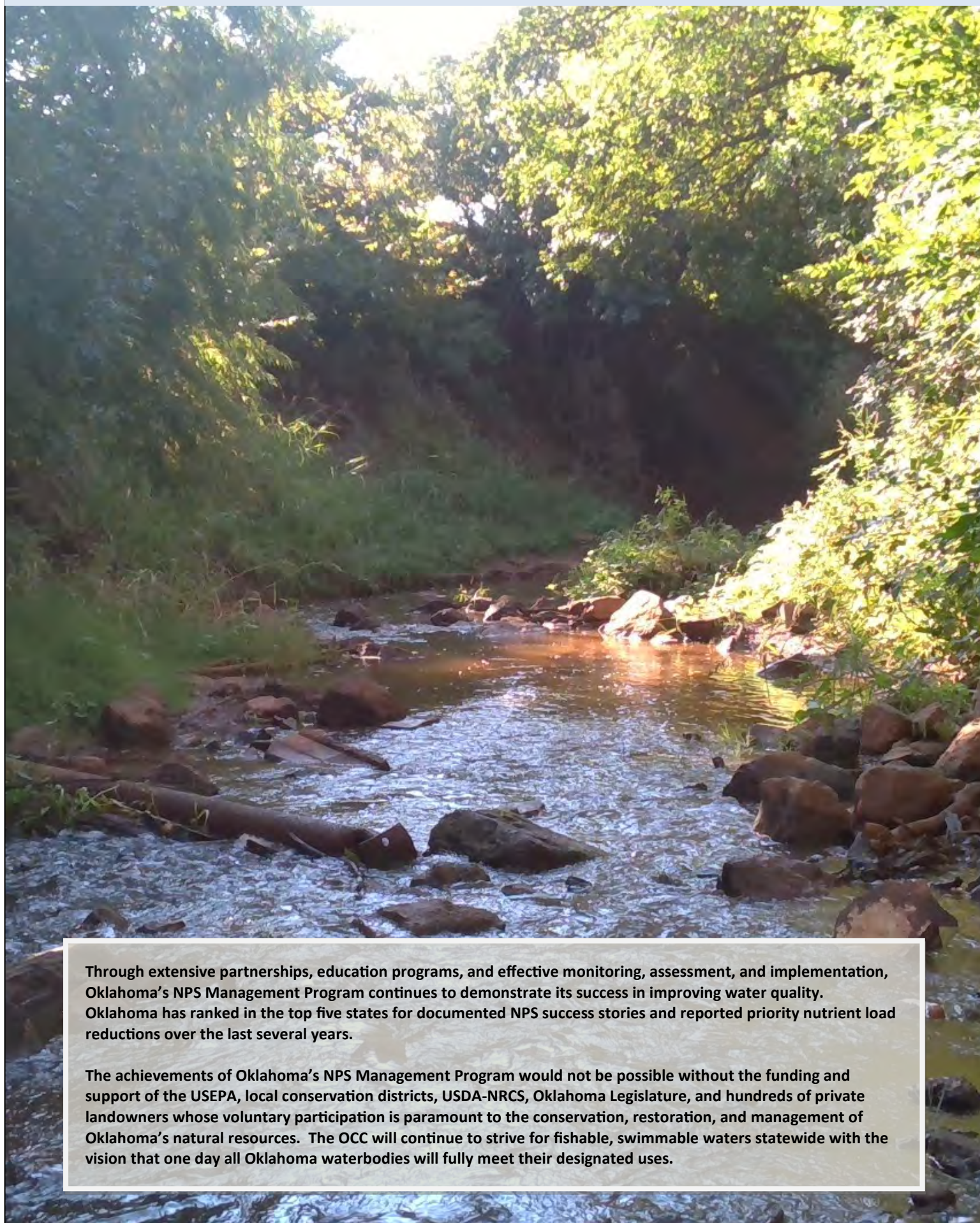
Entities using STIR pet waste disposal stations in Oklahoma include Tahlequah Parks Department, Grand River Dam Authority, Lake Tenkiller State Park, and Greenleaf State Park.

STIR, GRDA, Mission Park Foundation, Keep Oklahoma Beautiful, and the Tahlequah Parks and Recreation Department are currently seeking grants to build native plant habitats for Monarch Butterflies and for public education exhibits and facilities including a pavilion.

STIR is endowing scholarships at Northeastern State University in Tahlequah for students in the Freshwater Sciences Study Program. In 2023, STIR contributed \$20,000 towards the endowment, as well providing two scholarships.

STIR supports the Ozarks Tourism Association (Lake Tenkiller) which conducts two shoreline trash cleanup each year called Tidy Up Tenkiller. STIR sponsors an advertisement in the association's lake guide promoting water quality protection from nonpoint source pollution.





Through extensive partnerships, education programs, and effective monitoring, assessment, and implementation, Oklahoma's NPS Management Program continues to demonstrate its success in improving water quality. Oklahoma has ranked in the top five states for documented NPS success stories and reported priority nutrient load reductions over the last several years.

The achievements of Oklahoma's NPS Management Program would not be possible without the funding and support of the USEPA, local conservation districts, USDA-NRCS, Oklahoma Legislature, and hundreds of private landowners whose voluntary participation is paramount to the conservation, restoration, and management of Oklahoma's natural resources. The OCC will continue to strive for fishable, swimmable waters statewide with the vision that one day all Oklahoma waterbodies will fully meet their designated uses.