

# **OKLAHOMA'S NONPOINT SOURCE MANAGEMENT PROGRAM 2019 ANNUAL REPORT**



The USEPA provided partial funding for activities discussed in this report through  
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For more information on activities discussed in this report, visit our website:  
**[www.conservation.ok.gov](http://www.conservation.ok.gov)**

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



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**Cover photo: Medicine Creek, Comanche County, Oklahoma 2019**

**Back photo: South Fork Dirty Creek, Muskogee County, Oklahoma 2019**



# 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 2019:

The OCC implemented its 2019 NPS Management Program efforts with \$2.4 million in U.S. Environmental Protection Agency (USEPA) Clean Water Act Section 319(h) funding, and \$1.7 million in state funds. The monitoring program is allotted 24% of the budget, the Blue Thumb education program receives 16%, and the remainder is used for technical support and implementation.

Major accomplishments for the NPS Management Program in 2019 include 1) progress in partnerships and projects in watersheds including Little Beaver Creek, New Spiro Lake, Grand Lake, Elk City Lake, and Wister Lake, 2) publishing NPS Success Stories in 12 new waterbody segments, including 5 segments in the Illinois River Watershed, as well as updates to three older stories delisting additional parameters, 3) continued expansion of the soil health education program focusing on the nexus between healthy soils and water quality protection, 4) expansion of education programs in support of partners including the Grand River Dam Authority, Oklahoma tribes, USDA NRCS, and others, 5) continued water quality monitoring of streams across the state continuing the fourth cycle of the Rotating Basin Monitoring Program, and 6) submission of an update to Oklahoma's NPS Management Program.

Highlights of Oklahoma's progress in implementing the NPS Management Program during FY2019 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 support its mission, "To conserve and improve water resources through assessment, planning, education, and implementation."

**OK's NPS Program areas: Planning, Implementation, Education, and Assessment.**

| 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. | Oklahoma currently has: <ul style="list-style-type: none"> <li>• 723 TMDLs for waterbodies impaired by bacteria, turbidity, low dissolved oxygen, and nutrients. Work to address additional impairments is ongoing.</li> <li>• Thirteen WBPs, and implementation of CPs to improve water quality is ongoing in five of these watersheds.</li> <li>• 84 published success stories on the EPA's §319 website, indicating delisting of 120 pollutants from 84 impaired waterbodies due to CP implementation and education.</li> </ul>  |
| 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 84. 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 14,338 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.   | Thirteen WBPs are currently 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 22 of the 77 counties of the State, with 84 active monitoring sites. Forty-seven 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 (CW-SRF), 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
- Long-term commitment: commit to have multiple phases in the project (i.e., be in watershed for more than 5 years) to allow project concepts to take hold and prove their way from producer to producer

## Implementation Projects:

During FY2019, approximately \$672,634.94 dollars in federal §319 funds, federal Clean Water State Revolving funds, Oklahoma state funds, and private landowner funds were expended for implementation of CPs in six priority watersheds (see map). Cost-share funds from participating landowners comprised a significant portion of these monies.

An additional \$2,224,510 in state and matching fund implementation dollars were invested statewide in NPS projects through the Locally-led Cost-Share Program and Oklahoma Energy Resources Board remediation of abandoned oil and gas production sites.

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 (RCPP) and the National Water Quality Initiative Program (NWQI) to fund implementation in priority watersheds. With these projects, 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.

Ongoing projects include: Middle and Lower Neosho River Basin/Grand Lake RCPP Project; Elk City Lake RCPP Project; Little Beaver Creek NWQI Project; and the New Spiro Lake/Holi-Tuska Creek NWQI Project.



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 two watersheds located in eastern and SW Oklahoma. NWQI utilizes Farm Bill funding through the Environmental Quality Incentives Program (EQIP).

In FY 2019, NRCS continued to assist landowners with the installation of key conservation practices addressing gully erosion and grazing management. Key practices included grade stabilization structures, watering systems and prescribed grazing. NRCS and OCC have partnered on a pilot project through NWQI to conduct watershed assessments in two HUC 12 watersheds in SW Oklahoma. The outcome of these assessments was being used to develop a watershed based plan to address water quality needs and critical acres contributing to identified impairments. Additional funding for conservation practices has been budgeted and partners are currently working to design education and outreach activities to support additional installation of CPs.

NRCS Natural Resources  
Conservation Service



## 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 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 2019, OCC finished the fourth cycle of monitoring in Basin Group 2, continued the second year of the fourth cycle of Basin Group 3 and began the fourth cycle of Basin Group 4.

Oklahoma continues to experience climatic variations which present a challenge in 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.

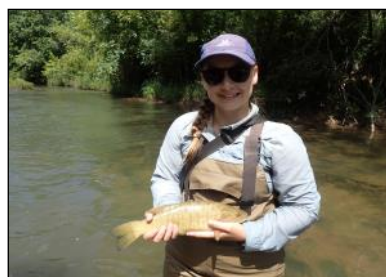
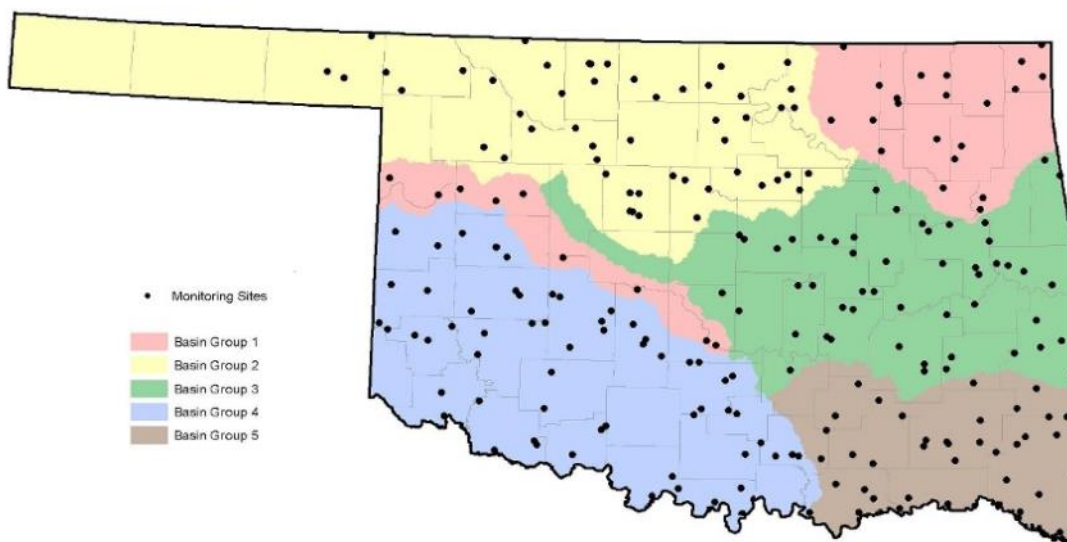
### Water quality parameters as-

#### 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 are not 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  | 2019 Load Reduction Estimates* |                |               |
|--|--------------------------------|----------------|---------------|
|  | Nitrogen                       | Phosphorus     | Sediment      |
| Riparian easement (Illinois River and Eucha/Spavinaw watersheds) and RCPP Projects | 356,901 lbs/yr                 | 30,768 lbs/yr  | 4,039 tons/yr |
| Statewide Locally-Led Cost-Share, Soil Health Program, and Poultry litter transfer | 418,038 lbs/yr                 | 423,022 lbs/yr | 875 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.





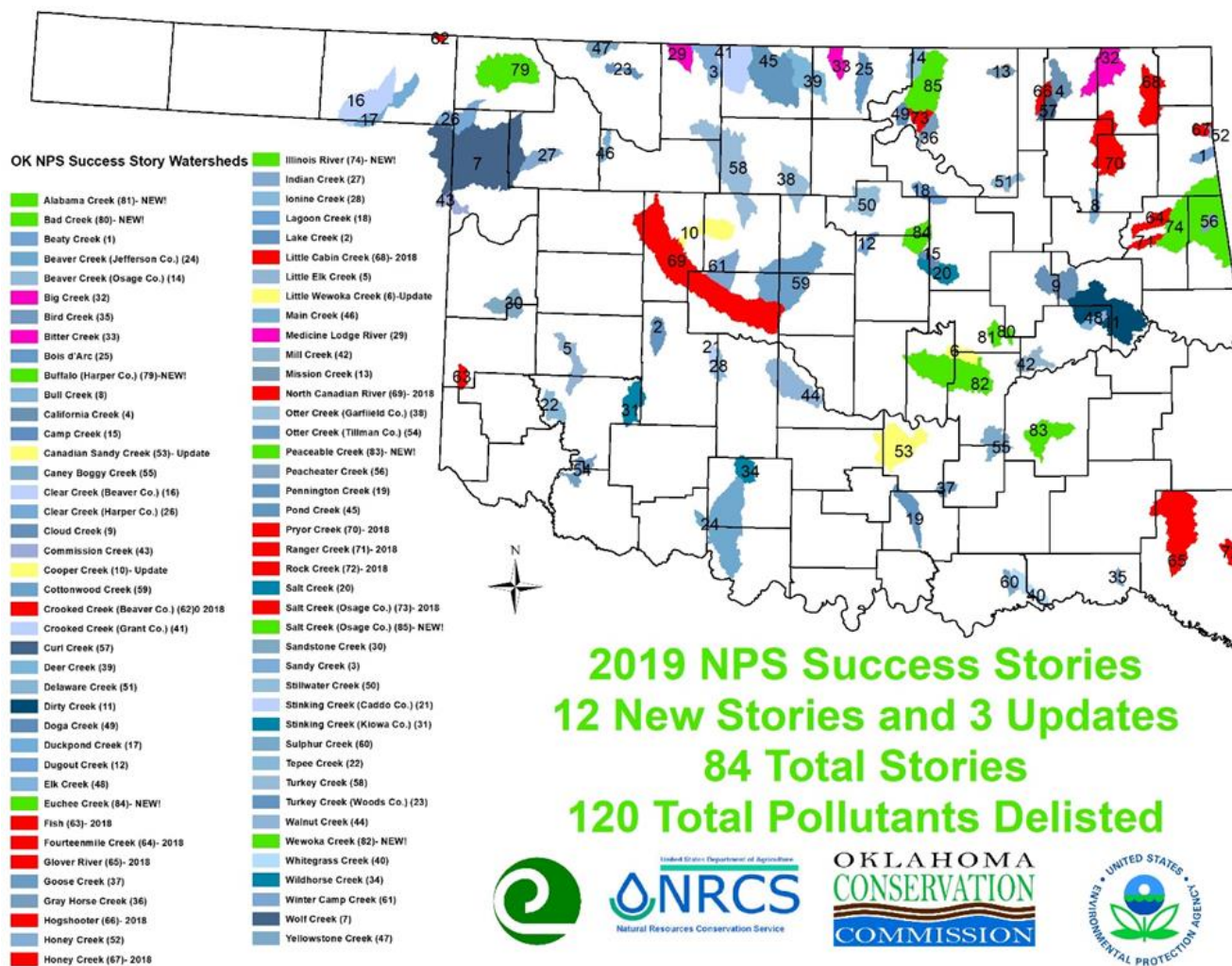
## Documenting Success



### NONPOINT SOURCE SUCCESS STORY

Oklahoma

EPA approved 12 new Oklahoma NPS Success Stories in 2019, as well as updates to 3 stories. 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.

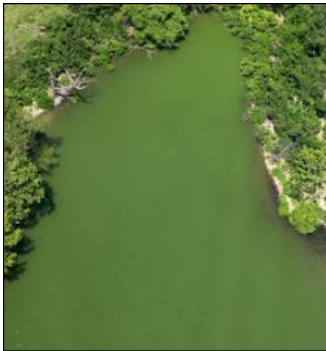


### Oklahoma's 2019 Success Stories:

With the submission of the 2019 stories, Oklahoma has 84 streams that are recognized as EPA NPS Success Stories, detailing removal of 120 pollutants. Oklahoma is now second in the nation for documenting NPS pollution reduction, and the lead in the nation in the number of independent watersheds where our program has documented successful water quality restoration through voluntary NPS programs.



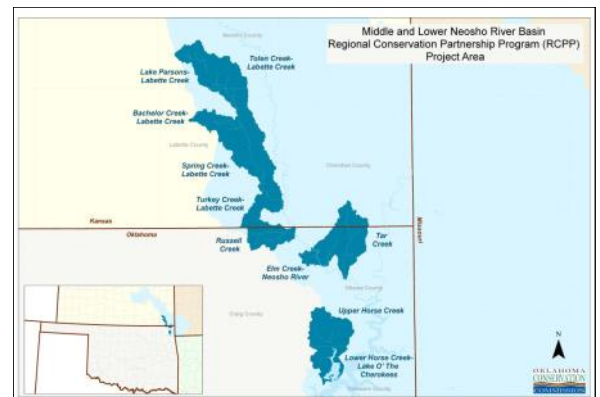
## Middle and Lower Neosho River Basin/Grand Lake



**Grand Lake is an important water supply, flood water retention, electrical power generation, and recreation source for the region. Eutrophication in the lake led to severe blue-green algae blooms in 2011 and bacteria outbreaks at beaches in 2014.**



- The Neosho River Watershed is a high priority for both Kansas and Oklahoma and each state has devoted significant effort towards diagnosing and solving water quality degradation in the watershed.
- The Regional Conservation Partnership Program (RCPP), created by the farm bill of 2014, promotes coordination between NRCS and its partners to deliver conservation assistance to producers and land-owners.
- Many of the streams, rivers, and reservoirs in the watershed have water quality problems and impairments related to excess nutrients, sedimentation, and bacteria. Of particular concern to both states are watersheds in the Middle and Lower Neosho Basin, because of concerns raised by stakeholders in the watershed and, in part, because these watersheds contribute directly to water quality degradation in Grand Lake.



### In FY 2019:

- Water monitoring continues in five streams on a monthly basis.
- Continued education and outreach.
- Four active federal contracts obligated for \$391,835.
- State contract agreements for \$66,058, which included 149 acres of riparian area exclusion.



Cover crop planted in Ottawa Co. to improve soil health and water quality.





## Elk City Lake

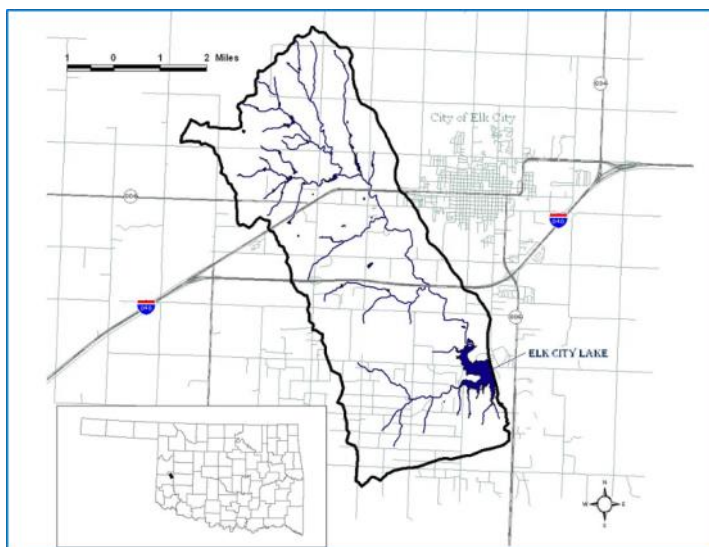


Partners in the Elk City Lake Watershed RCPP will work cooperatively with landowners to install conservation practices on cropland and rangeland in the watershed that contribute to nutrient and sediment related water quality impairments in downstream waterbodies.

- The Elk City Lake was constructed in 1970 primarily for flood control but is now operated by the City of Elk City for recreation.
- Elk City Lake has had both water quantity and quality problems related to excess nutrients, sediment, and bacteria.
- The primary purpose for the project is to restore water quality and protect West Elk Creek, and downstream Elk City Lake from future degradation.
- Land use in the watershed is primarily range, pasture, and cropland with little to no riparian buffer along much of the stream courses and direct access by livestock.

### In FY 2019:

- Monitoring continued on West Elk Creek with monthly grab samples and additional runoff samples after rain events.
- Conservation Practices installed:
  - Cover Crops (596 acres planted)
  - Riparian Fence (3,562 ft.)
  - Riparian Livestock Exclusion (31.6 acres excluded)
  - Nutrient Management (546 acres)
  - Soil Health Tour Field Day held at Elk City in April with more than 40 people attending
- Conservation practices planned:
  - 118 acres cover crops, 2 acres critical planting area, 2 grade stabilization structures, 7,293 ft. fencing, 14.2 acres riparian protection, 176 acres forage and bio mass planting, 176 acres prescribed grazing and one stream crossing.





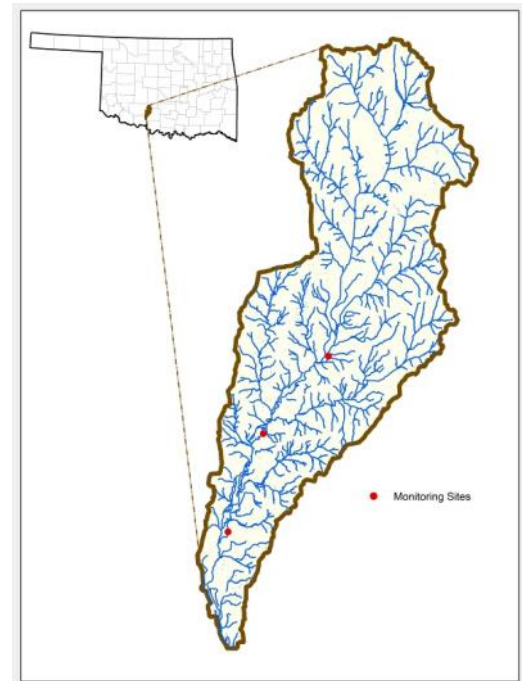


## Little Beaver Creek

- 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 in 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.
- The 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 FY 2019:

- Water monitoring continued on Little Beaver Creek.
- Conservation practice implementation continued to be strong in 2019 with the majority of contracts including some component of reducing livestock access to streams.
- Modeling, riparian assessments and critical area rankings have been completed for the 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.
- A GIS based tool was developed for the NRCS field staff to use in targeting landowners/producers for conservation programs.
- A Watershed Advisory Group has been established and the first meeting of 2020 will take place in the summer.

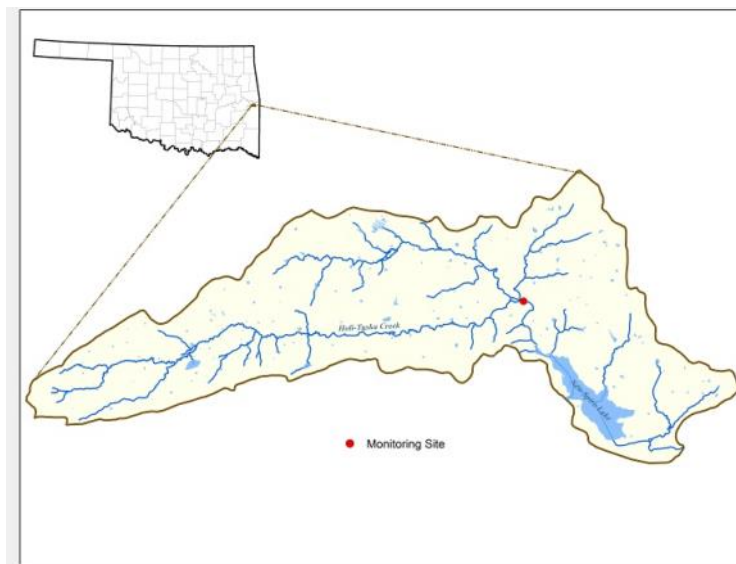






## New Spiro Lake/Holi-Tuska Creek

- The water quality of New Spiro Lake has deteriorated over recent decades. The lake has excessive chlorophyll-a, too little dissolved oxygen, and high turbidity impairing its beneficial uses as a public water supply and warm water aquatic community.
- In 2015, through the collaboration of NRCS, the OCC, the Oklahoma Department of Environmental Quality and local input, Holi-Tuska Creek was selected for the National Water Quality Initiative (NWQI) Program. NRCS is providing financial and technical assistance to the landowners and farmers to work the land in a sustainable way which provides cleaner water.
- The New Spiro Lake Monitoring Program has three components: watershed load monitoring, volunteer creek monitoring, and lake monitoring. Monitoring is being conducted by the private consulting firm Bio x Design, with the assistance of the Town of Spiro and the Oklahoma Conservation Commission.



### In FY 2019:

- Water quality monitoring on Holi-Tuska Creek began in 2015 and continues through 2020. Water quality monitoring has been maintained in New Spiro Lake for more than a decade.
- Installation of conservation practices has been slow to begin in the watershed. Many producers were interested in conservation practices that weren't appropriate for their natural resource concerns. As a result, OCC, the Choctaw Nation, and the City of Spiro are beginning work on eroding, unpaved roads in the watershed to address an additional source of NPS pollution. This will involve a watershed survey and prioritization of eroding roads, as well as at least one restoration site in partnership with the Oklahoma Department of Transportation and LeFlore County Commissioners to be completed in 2020.



# Blue Thumb Education Program



The Blue Thumb Program is the education arm 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 2019, the Blue Thumb program achieved the following:

- ◆ Supported approximately 280 active monitoring volunteers
- ◆ Logged 7,841 volunteer hours (monitoring and education volunteers)
- ◆ Collected water quality data at 84 stream sites across Oklahoma
- ◆ Collected 145 macroinvertebrate samples and completed 17 fish collections in coordination with volunteers
- ◆ Reached over 19,000 people through education and outreach events
- ◆ Held four two-day trainings, one one-day training, five mini-academies and one joint Soil Health/Blue Thumb training
- ◆ Facilitated five groundwater screenings and processed 146 well water samples in cooperation with conservation districts



*Photo: Fish collection with volunteers*

**Highlights from 2019 include:**

- ◆ Publication of an e-newsletter for volunteers (monthly, beginning in June)
- ◆ *H2Oklahoma*, an educational water festival for students in fourth and fifth grades
- ◆ *Riverology 101*, a three-day stream ecology camp for teachers
- ◆ *A Grand Adventure*, a day camp to help children learn about the ecology of Grand Lake
- ◆ A series of three Blue Thumb presentations by volunteers at the Oklahoma Clean Lakes and Watersheds Conference
- ◆ Publication of a 2020 Blue Thumb calendar
- ◆ *Full Circle Citizenship*, a one-day soil health and water quality training
- ◆ Provided (and are continuing to provide) support for the Smithsonian *Water/Ways* exhibit, an interactive exhibit about the central role of water in our lives



*Photo: Macroinvertebrate collection with volunteers*



*Photo: A Grand Adventure*

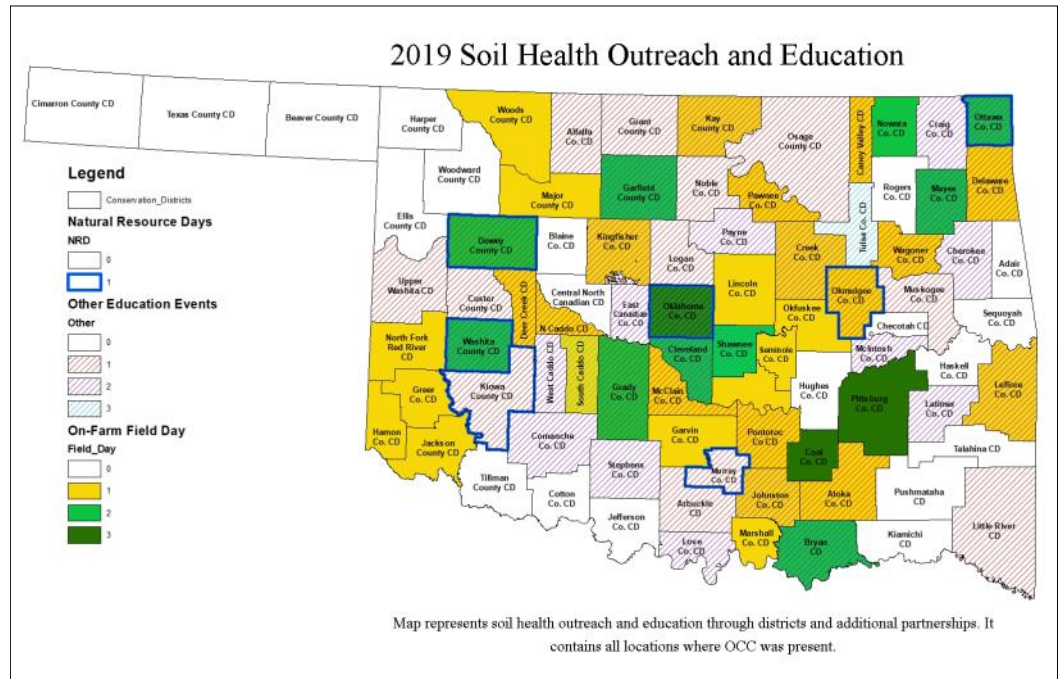


*Photo: H2Oklahoma*



The Soil Health program is one of the educational arms of the Water Quality Division housed in the Oklahoma Conservation Commission. The Commission collaborates with other state, federal, tribal, and private partners to provide education assistance to the 77 conservation districts, and to tribal groups and city organizations across Oklahoma to further soil health and pollinator habitat education. The soil health team uses educational tools like the rainfall simulator (both table top and trailer version), plant ID workshops, backyard pollinator plot conversion classes, and cover crop and grazing land field days to provide hands on experiences to communities to expand knowledge about land and water quality.

**INFORMATION AND EDUCATIONAL EVENTS**  
**OVER 10,000 OKLAHOMANS REACHED**  
**84 EVENTS ATTENDED, PROVIDED EDUCATION AND ASSISTED IN ORGANIZATION**



In 2019, the Soil Health program incorporated pollinator education and drew connections to soil health improvements with the goal of reaching urban and rural citizens. Encouraging diversity in lawn spaces helps improve soil health by increasing water infiltration and reduces city storm water runoff. Rural land owners and farmers benefit from diversity and increased water quantity as organic matter increases and water infiltrates faster. In addition, encouraging plant diversity and pollinator friendly habitat provides resources for our ecological growth.

This year was the first year to provide a full day, combined class of Blue Thumb (water quality) and Soil Health education to a community. We provided the community members with water quality and soil health basic education in a classroom setting and then traveled to a farm devoted to conservation that had a monitored creek running through the property. Participants were able to see that best land management practices reflect great water quality properties. We viewed the soil properties and then Blue Thumb walked the creek and collected fish. We also connected poor water infiltration in soil to poor water quality.



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.

In 2019, approximately \$17,347.44 in non-§319 EPA funds were used to accomplish the activities below:

- Continued development of the Oklahoma Rapid Assessment Method (OKRAM) in collaboration with Oklahoma State University. OKRAM was applied at 28 riverine wetlands across the state between June and October, along with the collection of vegetation and soil data. Biological data will be used to evaluate OKRAM's ability to determine the condition of riverine wetlands.
- Applied the Restorable Wetlands Identification Protocol (RWIP) statewide to identify wetland restoration opportunities. Over 29,000 areas have been mapped as potentially restorable wetlands. Sites will be prioritized and top ranked sites will be entered into the Wetland Registry database.
- Completed a draft of our 5-year Wetland Program Plan for 2020-2025, which will guide and focus wetland related activities within the state to ensure that programmatic goals are met.
- Received funding for a competitive USEPA 104(b)(3) Wetland Program Development grant to complete a project, titled "Improving Wetland Maps for Floodplains of the Canadian and Arkansas Rivers and Associated Tributaries". In collaboration with Oklahoma State University, this project will focus on utilizing satellite imagery specifically timed to coincide with flood events to better understand the spatial extent of floodplain wetlands.
- Also, in partnership with Oklahoma State University, OCC will provide assistance on a second USEPA 104(b)(3) grant for the project titled "Development of a Guidebook and Conducting Training for the Oklahoma Rapid Assessment Method (OKRAM).
- Continued to manage the Oklahoma Wetland Website, which hosts information on wetland activities and programs from government agencies (all levels), academia, tribes, and non-governmental organizations.
- 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.
- Attended the Association of State Wetland Managers meeting in April 2019.
- 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.

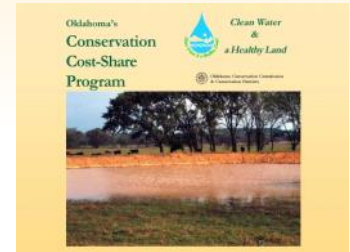




# Other OCC Programs

## 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 FY2019 totaled \$1.92 million and were completed in 75 conservation districts. Conservation practices installed are shown in the table on the right.

|  |        |
|--|--------|
| Alternative water (units)              | 87     |
| Ponds (units)                          | 81     |
| Cover crop planting (ac)               | 1,033  |
| Diversions (ft)                        | 1,517  |
| Fencing (ft)                           | 90,346 |
| Grade stabilization structures (units) | 2      |
| Grassed waterways (ac)                 | 35.4   |
| Pasture/hayland planting (ac)          | 2,034  |
| Range seeding (ac)                     | 203.7  |

## Crow Creek Watershed Community

Crow Creek is a small urban stream running through one of the older parts of Tulsa. Residential properties, schools 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. In 2004, the stream was listed as impaired for dissolved oxygen, but more recent data do not indicate a dissolved oxygen impairment. The stream is also on the 303(d) list for *E. coli*, and has been for many years. The most recent *E. coli* data on Crow Creek indicate a continued *E. coli* impairment.

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, the Tulsa County Conservation District, the Tulsa Zoo and Blue Thumb, as well as local residents. The group maintains the Crow Creek Meadow, a water quality demonstration site.

Outreach efforts sponsored by the Crow Creek Community in 2019 include:

- A sign dedication ceremony at Crow Creek Meadow
- Two maintenance days/clean-up events at the Meadow
- A stream clean-up event at Zink Park
- A Halloween educational event at the Meadow
- Providing educational yard signs to residents in the watershed

The Crow Creek Community and Blue Thumb are engaged in a collaborative effort to develop a watershed based plan (WBP) for Crow Creek. The group has monthly planning meetings. The WBP will be completed in 2020.



# 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 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 BMP are performing as designed and to monitor and maintain BMPs throughout the project. Since authorization of the program, the AEMS Division has issued 151 CGP authorizations associated with Ag related construction sites.

The AEMS Division has an educational flyer to help educate the public on who may need coverage under the AgPDES CGP program. For additional information on the program, and a full glimpse at the flyer please see <http://www.oda.state.ok.us/>



## Oklahoma Department of Transportation (ODOT)



The Oklahoma Department of Transportation (ODOT) uses best management practices (BMPs) to control and manage storm water. These include structural devices, maintenance procedures, and management practices that prevent or reduce the harmful effects of storm water runoff; such as pollution, erosion and flooding.

A requirement of ODOT's Phase I and II storm water permits require the development and implementation of a Storm Water Management Plan (SWMP). A component of ODOT's SWMP is the Illicit Discharge Detection and Elimination (IDDE) program. The purpose of ODOT's IDDE Program is to identify and eliminate any discharge to a Municipal Separate Storm Sewer System (MS4). Our employees and consultants are the eyes of the program and yearly training is conducted with maintenance personnel to ensure we do our part to prevent the discharge of pollutants to Oklahoma rivers, streams, creeks and lakes.

In 2019, ODOT has focused on employee training and collaboration in moving our stormwater efforts forward. ODOT's Environmental Programs Division traveled to all eight divisions of the state to conduct a training for personnel on stormwater management, endangered species compliance and cultural resources. Along with these trainings, our stormwater team has spent significant time out in the field conducting inspections and offering assistance to our field personnel. With these site visits and training ODOT's goal is to collaborate our efforts, educate our department toward compliance and progress in regards to stormwater. Our Storm Water Action Team (SWAT), consisting of representatives of divisions of ODOT, meets monthly to collaborate on updating standards, research BMPs, and engage new ideas and BMPs that can be utilized on ODOT projects in order to maintain quality in the waters of the state. ODOT expects the efforts of this team will be reflected early in 2020 with added pay items and new and updated standards.





# NPS Program Partner Activities

## Grand River Dam Authority Riparian Easements



In 2016, the Grand River Dam Authority (GRDA) absorbed the mission and responsibilities of the Oklahoma Scenic Rivers Commission (OSRC). In doing so, they absorbed a program and partnership with the OCC to implement long-term riparian area agreements in the Illinois River. In 2007, OSRC developed over 440 acres of 30 year riparian easement agreements to protect the Illinois River. These agreements were developed to protect riparian areas in the Illinois River watershed that were not eligible for the USDA Farm Services Agency Conservation Reserve Enhancement Program (CREP).

When the CREP program was discontinued in 2017, OCC and GRDA determined to develop an alternative program to CREP that would continue the mission of long-term riparian area protection. Therefore, GRDA and OCC began expanding this acreage through a new partnership. In 2019, \$111,194.10 dollars were spent to protect 1,872 riparian acres in the Illinois River Basin.



## City of Oklahoma City



The purpose of the Oklahoma City Storm Water Quality Division (SWQ) is to provide inspections, water quality assessments, household hazardous waste services, and public outreach to residents, businesses, and government agencies.

In 2019, SWQ reached out to 4.4 million people through press releases, newspaper articles, interviews and presentations. Through the floatable debris program, over 390,000 pounds of debris was removed from the Oklahoma River and properly disposed. Over 9,600 residents delivered 583,465 pounds of waste to the Household Hazardous Waste Collection Facility which included paint, used oil, pesticides, pool chemicals and other types of harmful waste.

Additionally, 74,446 pounds of household hazardous waste was collected, separated and released to the public for reuse. SWQ inspectors completed 9,256 construction site and industrial facility inspections.

Environmental Technicians also responded, investigated and resolved 526 pollution and hazmat requests.



# NPS Program Partner Activities

## City of Norman



The City of Norman's Environmental Services Division oversees many environmental programs including the Industrial Pretreatment Program; Fats, Oils and Grease (FOG) Program; the annual household hazardous waste (HHW) collection event; the staff liaison for the Environmental Control Advisory Board, and Earth Day. In 2019 approximately 89,000 pounds of chemicals were collected at the HHW Event and 165,000 gallons of grease were kept out of the sanitary collection system through the FOG Program helping to prevent sanitary sewer overflows. In addition, year-round collection for oil, antifreeze, oil filters, kitchen grease and tires was provided at no charge to citizens at Norman's transfer station. The Sanitation Division provides curbside recycling and yard waste collection that helps keep our streams and creeks clean. In 2019, over 7,900 tons of recyclables were collected and 26,800 tons of yard waste

April, or Earth Month as it is also known, is always a busy month for public participation in the City of Norman. The Environmental Control Advisory Board (ECAB) was assisted by the Stormwater Division and the Environmental Services Division with the Big Event planning of a clean-up event. In 2019, despite several weather cancellations, the Stormwater Division organized and facilitated two clean-up events, executed the rain barrel pickup and implemented a new educational event called Artful Inlets with their Norman Arts Council and Public Arts Board partners.

On April 5<sup>th</sup> and 6<sup>th</sup>, the Stormwater Division handed out approximately 140 rain barrels and accessories to people who ordered them through the Central Oklahoma Stormwater Alliance (COSWA) rain barrel promotion. COSWA (of which the City of Norman is a member) is a consortium of Phase I and Phase II MS4 permittees located throughout the Oklahoma City Metropolitan Area who pool resources to meet permit requirements. In addition to handing out the barrels to purchasers, the Stormwater Division facilitated two rain barrel workshops at the Lindsey Yard presented by Amanda Nairn, ECAB Chair, with approximately 29 people in attendance.

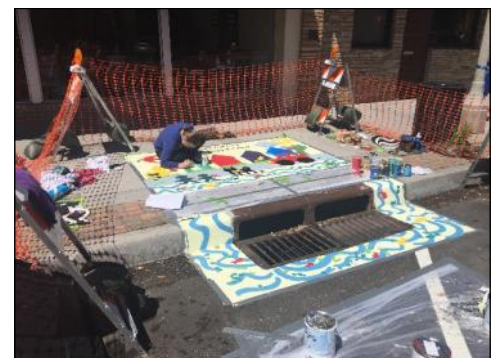
On April 20<sup>th</sup>, the second annual 12<sup>th</sup> Ave SE Clean-up was held between Boyd and Lindsey. Five people helped remove almost 100 pounds of trash from the right-of-way, which was a pretty large amount considering that the trash consisted mainly of lightweight paper and plastic.

On April 27<sup>th</sup>, the Stormwater Division hosted a Ward 1 Park Cleanup at Woodcreek Park. Four people helped remove over 113 pounds of trash from the Bishop Creek watershed.

Finally, on April 28<sup>th</sup>, the City of Norman's Environmental Services Division, Parks and Rec Department and the Cleveland County Conservation District held the annual Earth Day Festival. Thousands of attendees received educational information and participated in activities. Over 40 government, profit and non-profit organizations provided booths at which they shared messages of respect for our planet in fun, family-friendly and imaginative ways. The Stormwater Division participated in the Earth Day Festival teaching community members about their ability to positively or negatively impact stormwater quality. Stormwater Division staff led an educational activity called "Scoop the Poop" where both children and adults were taught how to properly pick up after their pets to keep this material from entering our stormwater system and had a street sweeper available for attendees to view. Over 200 people participated in the "Scoop the Poop" game during the event.



Molly Neary's Grand Prize winning poster





# NPS Program Partner Activities

## City of Norman cont.



### **Builders Workshops**

As part of the Stormwater Division's ongoing outreach to the building and development community, two Builders Workshops were held on June 19<sup>th</sup> and November 14<sup>th</sup>. On June 19<sup>th</sup>, attendees met at the Trailwoods residential subdivision to learn about Low Impact Development (LID) features that had been installed and are being monitored by the Oklahoma Water Survey (OWS). OWS gave the participants a tour of the features, explained their use, and discussed ways LID could help in other developments. On November 14<sup>th</sup>, attendees met at Moore Norman Technology Center, and a representative from Stormcrete educated attendees on permeable pavement in general and Stormcrete's modular pre-cast products in particular.

### **Lake Thunderbird Watershed Blitz Park Clean-ups**

As part of the Stormwater Division's ongoing public education and outreach efforts, the Third Annual Lake Thunderbird Watershed Clean-up Blitz was held in parks across the watershed. The kickoff event was held on September 29, 2019. Though the day was rainy, eight volunteers removed almost 135 pounds of trash from Crestland Park! The Watershed Blitz continued on Sunday, October 6, 2019 at Griffin Community Park (1001 E. Robinson St.). While the earlier forecast was a bit scary for some potential participants, 9 volunteers braved the weather and helped make the Lake Thunderbird watershed better by removing almost 40 pounds of mostly lightweight material, such as Styrofoam and plastic wrappers!

### **4<sup>th</sup> Annual Lake Thunderbird Watershed Workshop**

The 4<sup>th</sup> Annual Lake Thunderbird Watershed Workshop and Clean-up Event was held on October 27, 2019, at the Lake Thunderbird State Park. Over 40 participants learned about stormwater and water quality and actions they can take to help improve their water resources. Additionally, attendees heard from several organizations about opportunities to get involved and about actions being taken to protect and improve the lake's water quality. The organizations included Blue Thumb, the Oklahoma Water Survey, the Oklahoma Tourism and Recreation Department and the Oklahoma Conservation Commission. Attendees were also treated to a rain simulation demonstration by Blane Stacy, Soil Health Program Assistant Director, Oklahoma Conservation Commission. After the workshop, participants actively improved the watershed by removing over 600 pounds of trash and debris from the State Park. This year's event was a great success, and we look forward to next year!

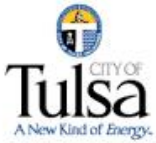
### **Stormwater Division Provides Candy and Educational Material to Festival Attendees**

During the Downtown Fall Festival held on November 1, 2019, along Main Street, the Stormwater Division handed out approximately 1300 color-changing reusable cups filled with candy and stormwater educational material to parents and children attending the event.



# NPS Program Partner Activities

## City of Tulsa



The City of Tulsa's Stormwater Quality Program includes monitoring, enforcement, and education programs, all aimed at keeping Tulsa's waterways pollutant free. Tulsa has continued its robust outreach program, including media such as billboards, radio, TV and mobile advertising. The goal of our outreach is to simply make Tulsans more aware of stormwater issues and help them to realize how everyone has an impact on our watersheds and streams.

Tulsa opened a Household Pollutant Collection Facility in January of 2016 which has proven very successful. Last year over 120,000 lbs. of pollutants were properly disposed of, keeping our streams and lakes cleaner and healthier.

Tulsa's Watershed Characterization Program continues rotating through all our major watersheds over our 5 year permit cycle. Information from this program is insightful to stop illicit discharges and identify better best management practices. Tulsa is also developing a 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](http://www.cityoftulsa.org/sos)



## City of Tahlequah Stormwater Program

Friends of Town Branch Creek was formed in 2016 through a partnership between the City of Tahlequah Stormwater Program and Blue Thumb to aid in preserving the unique biology and aesthetic value of Tahlequah's Town Branch Creek watershed through public outreach and involvement. Town Branch Creek is a beautiful, clear, spring-fed stream located in the heart of Tahlequah, OK. The six mile long creek is more than just water flowing through town; it is the focal point of several city parks and provides a welcoming feature for Northeastern State University. Town Branch Creek, a tributary of the Illinois River, is impaired by *Escherichia coli* (*E. coli*), which may pose health risks to people fishing and swimming in the creek. Friends of Town Branch members monitor for *E. coli* once a month to assist the City of Tahlequah's Stormwater Program in an effort to identify sources of contamination with the ultimate goal of removing the creek from the 303(d) List of Impaired Waters.

- Blue Thumb provided training for *E. coli* collection in November 2016, beginning the group's monitoring efforts. Friends of Town Branch Creek members continue to work in conjunction with the Stormwater Program to protect our creek.
- Friends of Town Branch Creek received two mini-grants, and the Stormwater Program supported the group by matching the grant award amounts. The Friends of Blue Thumb grant was awarded for educational outreach materials, and the Keep Oklahoma Beautiful grant was awarded for materials to perform creek cleanup events.
- Several outreach events have been hosted by the City of Tahlequah Stormwater Program, including the TahlequaH<sub>2</sub>O Celebration, Winter Water Fun Day, and various kid's camps. Outreach materials include an enviroscape model, fish prints, and other hands-on activities. We have provided education or outreach materials to approximately 600 people in our effort to increase awareness of water quality in our community.







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.