

# Oklahoma Blue Thumb Final Report

January 1-December 31, 2022

FY 2021-2022 §319(h)

EPA Grant #C9-996100-22-Project 4



Girl Scouts seine for fish at Camp Tallchief near Skiatook



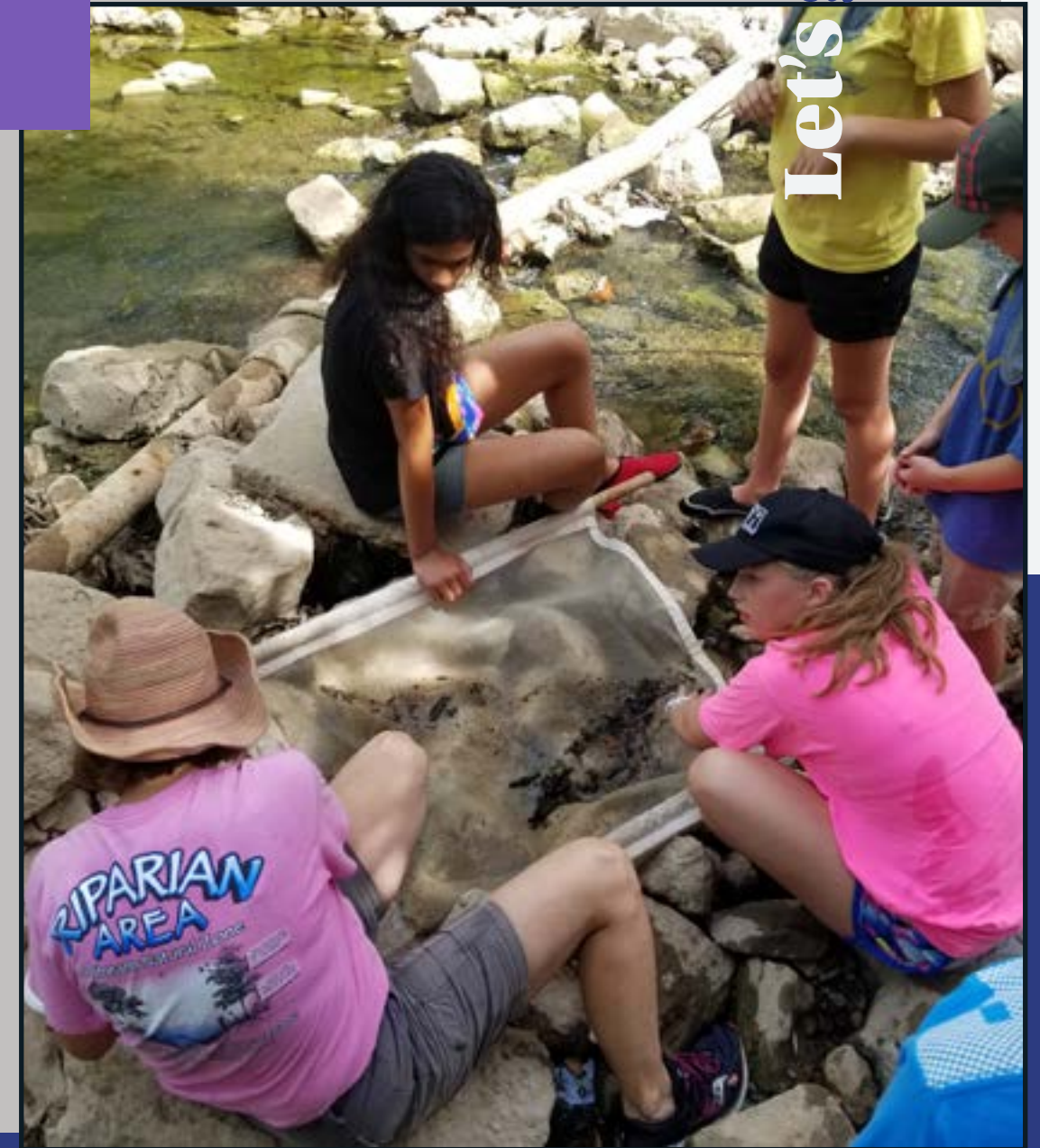
Our goal is healthy, functioning streams.  
We accomplish this goal by empowering Oklahomans to  
make decisions that protect water quality through  
hands-on education and direct experiences with streams.



## Program Description

Blue Thumb provides public education and outreach on behalf of the Oklahoma Conservation Commission's Water Quality Division. Blue Thumb supports a network of citizen scientists who collect monthly water quality data at stream sites across Oklahoma. Blue Thumb also facilitates education and outreach events about nonpoint source pollution across the state. The mission of Blue Thumb is to recruit, train, inspire and empower Oklahomans to engage in behaviors that protect local streams. The 2022 Work Plan identifies the following subtasks:

- 8.1: General Program Maintenance
- 8.2: Education in Priority Watersheds
- 8.3: Groundwater Education/Screening Program



**Outdoor experience with  
Discovery Lab**



## 8.1 General Program Maintenance



**Creek experience with environmental science students from Tulsa Community College**

In 2022, the Blue Thumb Program continued to support citizen scientists across the state as they collected data on local streams. Blue Thumb reached over 6,118 people through face-to-face and virtual education and outreach efforts. We held seven two-day trainings, four Mini-Academies for Monitoring and a Full Circle Citizenship workshop. We also incorporated Project WET training into the Riverology 101 workshop. We have continued to strengthen our social media presence on Facebook and Instagram and have continued publishing a monthly e-newsletter for volunteers. We interviewed volunteers and asked how we can best meet their needs, and are making programmatic changes based on feedback from volunteers.

### SUPPORTING CITIZEN SCIENTISTS

Blue Thumb volunteers complete monthly chemical monitoring, quarterly quality assurance (QA) sessions, biannual macroinvertebrate collections, and fish collections and habitat assessments once every four or five years. Monthly monitoring and sample analyses are completed independently. During a monthly sampling run, volunteers record streamside observations, collect and “fix” two dissolved oxygen samples and collect a water sample which the volunteer later tests for orthophosphate as phosphorus, nitrate, nitrite, ammonia, chloride and pH. Typically, volunteers take their water samples indoors to complete analyses. Analyses are completed with Hach test kits. During the recreation season (May 1-September 30) volunteers have the option of collecting and analyzing E. coli samples. Biological collections and habitat assessments are completed in cooperation with Blue Thumb staff. In 2022, 134 active volunteers completed monitoring at 81 sites in 28 counties (see map on page 7). Additionally, Blue Thumb staff supported approximately 241 students who monitor with their teacher or professor. Volunteers and staff completed 132 macroinvertebrate collections and 11 fish collections.



## All About Volunteers

The Blue Thumb Program recruited approximately 34 new volunteers who monitor individually or in teams. New volunteers attended one of the following two-day trainings:

- Stillwater Training, January 29-30 (15 attendees)
- McAlester Training, March 5-6 (9 attendees)
- Langston Training, April 9-10 (6 attendees)
- Oklahoma City Training, June 11-12 (19 attendees)
- Milo's Tea Training in Tulsa, August 31-September 1 (8 attendees)
- Tulsa Training, September 10-11 (8 attendees)
- Weatherford Training, October 15-16 (8 attendees)

We scheduled a Blue Thumb Training in Woodward (March 26-27), but it was canceled due to low registration.



Blue Thumb Training in Stillwater

We have several volunteers who teach in public schools, vocational schools or on college campuses. These teachers conduct stream monitoring with groups of students. We offer Mini-Academies for Monitoring to teach new groups of students how to complete the chemical analyses. We provided four Mini-Academies for Monitoring in 2022:

- Southwestern Oklahoma State University, Weatherford, January 14
- Rogers State University, Claremore, January 27
- Muskogee, March 14
- Oklahoma City University, Oklahoma City, September 22





**Teach.  
Inspire.  
Empower.**

Nature-based

Hands-on

One of the ways the Blue Thumb Program supports citizen scientists is by encouraging volunteers to write interpretations of their data upon receipt of a data package. A data package includes chemical, biological and habitat data. Data packages are assembled by the QA Officer, Kim Shaw, upon receipt of fish data from the taxonomist. Kim offered a virtual data interpretation workshop to Rogers State University students on February 24. As a result of this workshop, we received four volunteer-written data interpretations.

### PRESENTATIONS AT CONFERENCES

In 2022, Cheryl presented at the Inter-Tribal Environmental (ITEC) Conference on August 4. This was a virtual event. She also presented at the Resource Management Conference in Tulsa on September 14.

### OTHER PRESENTATIONS

Outside of professional conferences, staff offered the following presentations:

- Human Community Network, February 23
- OACD State Meeting, March 1
- Human Community Network, March 2
- Northeastern Oklahoma A & M College, April 21
- Soil, Water and Ways to Make a Difference Workshop at Durant Earth Day Festival, April 22



- Muskogee Master Gardeners, April 28
- Know Your Watershed event for Sustainable Tulsa, June 2
- ODEQ Green Team, June 7
- Pontotoc County CD and Linnaeus volunteers on June 29
- Love Your Lakes event, July 30
- Ecological Methodologies class at OCU, September 8
- NWQMC Volunteer Monitoring Webinar Series, September 13
- Nasturtium Garden Club in Tahlequah, October 3
- OSU Tulsa Sustainability class, October 25
- University of Oklahoma Soil and Water Conservation Association, December 5

## 8.2 EDUCATION IN PRIORITY WATERSHEDS

The Blue Thumb Program recognizes two types of priority watersheds. The first type is watersheds identified in the 2014 State of Oklahoma Unified Watershed Assessment (UWA). In the UWA, water bodies are ranked according to three sets of variables: severity of threat or impairment, impact of threat or impairment on human health, and restoration potential. The document identifies 50 high priority watersheds in the eastern half of the state and 50 in the western half. These watersheds are known as Category I watersheds. During 2022, Blue Thumb worked in two Category I watersheds: the Illinois River watershed and the Lake Wister watershed.

Efforts in these watersheds include:

- Candice received the Golden Paddle Award for her collaboration with the Illinois River Watershed Partnership, February 8
- Journey to the Bottom of the Creek children's camp, July 29
- Rebecca received EPA comments on the Lake Wister WBP, February 15
- The Lake Wister WBP was accepted by EPA, August 18

Blue Thumb considers watersheds in which the local community is mobilized to act as "priority watersheds" even if these watersheds are not identified as Category I watersheds in the UWA. In 2022, Blue Thumb worked in three watersheds with mobilized watershed groups: Crow Creek, Spring Creek and Bishop Creek. Efforts in these watersheds include:

## Everyone lives in a watershed.

- Unveiling of educational sign at Eastwood Park on Bishop Creek, January 14
- Crow Creek Community meeting, February 10
- Bishop Creek Stakeholders meeting, April 18
- Do You Know Crow? event at Philbrook Museum, May 6
- Bishop Creek Stakeholders meeting, May 21
- Bishop Creek Stakeholders meeting, June 20
- Creekside education at Crow Creek, June 21
- Crow Creek Community meeting, June 23
- Crow Creek Community workday, June 25
- Bishop Creek Stakeholders meeting, July 18
- Crow Creek education event at Florence Park in Tulsa, July 23
- Crow Creek Community meeting, July 28
- Crow Creek Community meeting, August 25
- Bishop Creek Stakeholders meeting, September 19
- Crow Creek Community meeting, September 22
- Spring Creek walk with Lowrey School, September 23
- Crow Creek cleanup event, September 24
- Trash for Treat at Zink Park in Tulsa, October 29
- Crow Creek Community meeting, November 10
- Crow Creek Meadow workday, November 12
- Bishop Creek Stakeholders meeting, November 21
- Bishop Creek Stakeholders meeting, December 19

Subtask 8.3: Groundwater Education

Healthy planet,  
healthy people



During a groundwater screening event, our Quality Assurance Officer, Kim Shaw, supervises volunteers as they analyze groundwater samples for alkalinity, sulfate, chloride, nitrate and pH with Hach test kits. Following a groundwater screening, well owners receive their results as well as educational information about wellhead protection. If their results suggest the need for additional testing, they are encouraged to contact the Oklahoma Department of Environmental Quality (ODEQ). We held the following groundwater screening events in 2022:

- Groundwater Screening Event for Harper County Conservation District, March 30
- Groundwater Screening Event for North and West Caddo Conservation Districts, April 28

Results from the groundwater screenings are available upon request.



Measures of Success



Measures of success documented in the FY 2022 Blue Thumb Work Plan:

1. Complete all subtasks and submit deliverables on time.

All subtasks were completed and deliverables were submitted on time.

2. Work with volunteers to support the completion of at least five data interpretations.

Blue Thumb volunteers submitted four data interpretations in 2022. After completion of the quality assurance review, the data interpretations will be made available online.

3. Increase actively monitored sites by at least two new sites, preferably in areas that do not currently have active Blue Thumb sites.

In 2021, we had 83 actively monitored sites. In 2022, we had 81 actively monitored sites. Although our total number of actively monitored sites is down slightly from 2021, approximately 14 sites were monitored in 2022 that were not monitored in 2021.

4. Maintain rigorous QA processes; where possible, align QA procedures with those of the Rotating Basin program.

We have continued to maintain the rigorous QA procedures documented in our QAPP. The most recent revision was approved September 8, 2021 and re-certified on December 26, 2022 (QTRAK # 21-430). In addition to maintaining our routine QA procedures, we have continued working with the Rotating Basin program to align QA processes where appropriate.

5. Continue developing the capacity of volunteers to represent Blue Thumb at education events.

We have continued developing the capacity of volunteers to represent Blue Thumb at education events through Blue Thumb Trainings, Project WET Trainings, and one-on-one support from the Volunteer Coordinator.



# Completion of Subtasks

Subtask #	Outputs Identified in Work Plan	Completed Outputs
8.1.a	Hold at least four new volunteer training sessions across the state to cultivate new groups and maintain and support existing groups	Held seven two-day trainings, four Mini-Academies for Monitoring, one Full Circle Citizenship workshop and incorporated Project WET training into Riverology 101 workshop
8.1.b	Prepare data packages for sites with new fish data; facilitate completion of volunteer data interpretations	Kim Shaw prepared four data packages in 2022. Four volunteers submitted data interpretations.
8.1.c	Prepare and submit Semi-Annual Reports	Submitted in July 2022 and January 2023
8.1.d	Update and/or re-certify Blue Thumb QAPP	Approved September 8, 2021; re-certified December 26, 2022
8.1.e	Present at a minimum of two conferences (staff or Blue Thumb volunteers)	Staff presented at two conferences.
8.1.f	Prepare and submit Blue Thumb Annual Report summarizing program activities for 2021	Submitted March 2022
8.2	Participate in or hold an average of at least five education events per month during the project period	We held or participated in approximately 118 education and outreach events for an average of almost 10 events per month.
8.3	Facilitate at least two groundwater screenings at conservation districts	Facilitated two groundwater screenings in cooperation with three districts.



**Stream protection through education**