Fiscal Year 2022 Executive Summary

Fiscal Year 2022 was a time for CATT to clear the backlog of projects created during the covid-shortened field seasons of 2020-2021. We completed work on 10 field projects across 7 national forests and supported several Southern Research Station projects as well. The road-stream crossing inventories we completed will help several national forests to prioritize infrastructure improvement projects, our extensive stream fish and habitat inventories support project planning and forest-level monitoring, and our snorkeling education programs continue to show visitors the value of our forest waters.

Fiscal Year 2022 was also a time of change for the CATT field team. Several of our longest-tenured field team members left for other opportunities following the field season. We sincerely appreciate all that our departing staff contributed to the CATT during their time with our team. While we will miss them all, we are also excited to welcome new team members. We anticipate working with our partners at Virginia Tech to bring on several new staff this winter and spring. Stay tuned for upcoming job announcements!

As always, we are grateful for the many partners that contributed to the CATT mission in Fiscal Year 2022. We look forward to working with you all again in Fiscal Year 2023!

What is CATT?

The Center for Aquatic Technology Transfer (CATT) is a science delivery program. CATT biologists and technicians are Southern Research Station (SRS) employees working hand-in-hand with the National Forest System (NFS) and other partners to put science to work. Guided by core values of communication, partnership, inclusion, accountability, and safety, we collaborate with the Forest Service science community and others to develop custom solutions for our project partners.

When was CATT created, and why?

The CATT was created in 1995 in response to the growing need for research technologies to be applied directly to management challenges. The number of research personnel was, and still is, too small relative to the number of fisheries and aquatics resource managers to satisfy specific needs. Our mission is to increase the capacity of our partners through delivery of science-based support.

Where does CATT work?

Full-time CATT personnel are stationed in Blacksburg, VA and provide services throughout the U.S.

What services does CATT provide?

Our focus is on aquatics related management challenges. Our flexible organizational structure allows us to rapidly develop and apply custom solutions to both short- and long-term projects. Past projects range from providing a field technician for an afternoon of fish sampling, to region-wide, multi-year efforts, including sampling design, personnel management, data analysis, and reporting.

How can I learn more about CATT?

Contact Craig Roghair 540 230-8126 (craig.n.roghair@usda.gov), or visit our website: http://www.srs.fs.usda.gov/catt.
CATT field teams were able to complete 10 projects on 7 national forests (green) and a national park (orange) in fiscal year 2022. The USDA-FS, SRS CATT is headquartered in Blacksburg, VA (red circle).

**FY 2022 CATT field projects.**

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**Cherokee National Forest**  
**Ocoee, Tellico, and Watauga Ranger Districts**

**Project Type**  
Road-stream crossing inventory

**Goal**  
Provide information needed to prioritize crossing improvement projects

**Objective**  
Complete road-stream crossing inventories in high-priority watersheds in February-April 2022

**Approach**  
Forest selects high-priority watersheds for inventory  
CATT hires, trains, and deploys field teams to complete standardized crossing assessments  
CATT submits data to SARP for inclusion in the regional fish passage barrier database  
The Forest, partners, and CATT apply decision support tools to prioritize crossings for replacement

**Accomplishments**  
Assessed 192 crossings  
Entered field data into project database  
Worked with national forest staff and partners to apply decision support tools

**Partners and Contacts**  
Partner: Southeast Aquatic Resources Partnership (SARP)  
USFS Contact: Ali Williams, Hydrologist

**Project Summary**  
The Forest Service and its partners are engaged in a multi-year effort to identify, assess, prioritize, and remediate road stream crossings in areas of mutual interest. Road-stream crossings that provide for a safe and efficient transportation system, provide resilience to a changing climate, and maximize benefits for aquatic and riparian species are a key component in reaching shared goals. The information collected by CATT field teams will be incorporated into an online prioritization tool to allow resource managers on the Cherokee National Forest and their partners to identify problematic crossings and prioritize among potential remediation projects. The online tool is available at: [https://connectivity.sarpdata.com/](https://connectivity.sarpdata.com/)
Daniel Boone National Forest
Stearns Ranger District

Project Type
Stream fish and habitat inventory

Goal
Provide stream biota and habitat information needed for project-level and forest-level planning

Objective
Use established monitoring protocols to complete stream fish and habitat inventories in June 2022

Approach
Forest identifies streams with gaps in fish or habitat information
The CATT trains and deploys field teams to complete inventories
The CATT provides project database for incorporation into Forest datasets

Accomplishments
Completed stream habitat, macroinvertebrate, and riffle stability index inventories on 6 streams
Sampled fish in 4 streams
Entered data into project database and provided to project partner

Partners and Contacts
USFS Contact: Mac Cherry, Forest Hydrologist

Project Summary
Monitoring allows national forests to detect and respond to trends in forest health. Each year the Daniel Boone National Forest collects information on stream habitat, fish, and aquatic insects in support of its stream monitoring program. Samples are collected using standardized techniques on medium-sized streams throughout the Daniel Boone National Forest. Since 2005, the Daniel Boone National Forest has partnered with the CATT to collect its stream samples. We collect fish and aquatic insects, measure substrate particles, record stream characteristics, enter data into a project database, and summarize the results in an annual report. The Daniel Boone National Forest uses the information to assess forest plan objectives as well as for project-level environmental analysis and effectiveness monitoring.
Francis Marion & Sumter National Forests
Andrew Pickens, Long Cane, and Francis Marion Ranger Districts

Project Type
Stream fish and habitat inventory

Goal
Provide stream biota and habitat information needed for project-level and forest-level planning

Objective
Complete stream fish and habitat inventory in October-November 2021 and June 2022

Approach
Forest identifies streams with gaps in fish or habitat information
The CATT trains and deploys field teams to complete inventories
The CATT provides project database for incorporation into Forest datasets

Accomplishments
Completed 34.2 miles of inventory on 41 streams
Sampled fish in 25 streams
Entered data into project database and provided to project partner

Partners and Contacts
USFS Contact: Keith Whalen, Forest Fisheries Biologist

Project Summary
Periodic aquatic resource assessments provide the information national forest managers need to effectively identify current status and trends, management options and impacts, and threats and impacts of fire, insects, disease, and other natural processes on aquatic resources. In FY22, Francis Marion & Sumter National Forests partnered with the CATT to assess stream habitat and fish in high-priority management areas, the latest effort in a long history of inventory and monitoring partnerships on the forest. Our current effort is intended to fill data gaps and update aquatic resource information needed for forest- and project-level analyses.
George Washington & Jefferson National Forests  
Eastern Divide and North River Ranger Districts

Project Type  
Stream channel classification

Goal  
Provide information needed to provide adequate stream channel protection in timber management units

Objective  
Classify stream channels in timber management units in 2022

Approach  
Forest provides list of timber units with pending harvest  
CATT works with Forest and district staff to develop standardized classification system  
CATT deploys field teams to classify stream channel  
CATT supplies project GIS to Forest

Accomplishments  
Submitted maps of classifications to district and Forest personnel  
Classified stream channels in 191 timber stand sale units across 2 districts

Partners and Contacts  
USFS Contacts: Dawn Kirk, Forest Fisheries Biologist; Zack Mondry, Hydrologist (PH) / Soil Scientist

Project Summary  
Intact, functioning riparian areas are critical elements of forested landscapes. The George Washington and Jefferson National Forest seeks to retain, restore, or enhance ecological and physical processes and functions of riparian areas along all perennial, intermittent, and ephemeral streams and wetlands by identifying, classifying, and delineating all stream channels within the project areas of timber management units. Central to this goal is the ability to accurately and efficiently identify perennial, intermittent, and channeled ephemeral streams. The Forest has partnered with the CATT to develop and apply a standardized approach for stream channel classification. We developed a field guide to channel classification and then hired, trained, and deployed field teams to classify channels in timber management units across the George Washington and Jefferson National Forests. The Forest uses the classifications to lay out Riparian Corridors and Channeled Ephemeral Zones in timber management units, as prescribed in the Forest plan.
George Washington & Jefferson National Forests
Lee Ranger District

**Project Type**
Connecting people to the outdoors

**Goal**
Support RioPalooza event

**Objective**
Provide a snorkeling education station at Elizabeth Furnace during RioPalooza in September 2022

**Approach**
RioPalooza organizers recruit participants and advertise event; Forest Service and partners provide staffing and resources to support programming; George Washington & Jefferson National Forests provide venue and logistical support; CATT provides staffing and equipment for snorkeling station

**Accomplishments**
RioPalooza attracted over 500 participants from the DC and Baltimore metro areas and local communities

**Partners and Contacts**
USFS contact: Kim Winter, NatureWatch National Program Leader

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Project Summary

National forests, parks, and other federally managed public lands are promoted as places where all people are welcomed to recreate, relax and recharge. However, a 2019 study found that people of color accounted for only 5 – 12% of visits to our Public Lands. In September 2022, The Forest Service and a host of Partners invited the Latino community to experience the outdoors by hosting RioPalooza, a culturally tailored event at Elizabeth Furnace Recreation area on the Lee District of the GW&Jeff NF. RioPalooza attracted over 500 participants and provided the perfect opportunity to experience beautiful Passage Creek while celebrating National Hispanic Heritage Month and the 50th Anniversary of the Clean Water Act. Activity stations featured bi-lingual hosts and offered opportunities to snorkel, tube, fish, dance and ride horses. The CATT sent a snorkeling educator and a cache of snorkeling equipment to the event, and outfitted each snorkeler with a mask, snorkel, and wetsuit.
National Forests in Alabama
Shoal Creek Ranger District

Project Type
Blue Shiner (a federally listed threatened species) and freshwater mussel monitoring

Goal
Update species distribution data for Blue Shiners and mussel species

Objective
Assess the distribution and relative abundance of Blue Shiners and mussels in June 2022

Approach
National Forests in Alabama identifies data gaps in fish and mussel dataset
CATT provides field team to assist Forest staff with sampling

Accomplishments
Completed Blue Shiner and mussel inventories at 6 sample sites

Partners and Contacts
USFS Contact: John Moran, Forest Fisheries Biologist

Project Summary
The southeastern U.S. is home to the highest diversity of freshwater fishes and mussels in North America, but many species are rare or imperiled. A clear understanding of the distribution and relative abundance of fish and mussel species is imperative for identifying and avoiding adverse impacts to remaining populations, particularly in areas with active land management. In 2022, the National Forests in Alabama partnered with CATT to complete a qualitative assessment of Blue Shiner and mussel distribution and abundance on the Shoal Creek Ranger District. The results will be used to fill data gaps and update aquatic resource information needed for forest- and project-level analyses.
**National Forests in Florida**

**Ocala Ranger District**

**Project Type**
Connecting people to the outdoors

**Goal**
Support Get Black Outside (GBO) Day activities at Alexander Springs

**Objective**
Provide staffing and equipment for snorkeling at Alexander Springs during GBO Day in February 2022

**Approach**
GBO organizers recruit participants and advertise event; DIVERSe Orlando provides staffing; WO provides funds to support programming; Ocala National Forest provides logistical support; CATT provides staffing and equipment for snorkeling station

**Accomplishments**
GBO registered over 80 participants for the 2022 event

**Partners and Contacts**
Partners: GBO organizers, DIVERSe Orlando, Outdoor Afro
USFS Contact: Tonee Davis, Natural Resource Specialist

![GBO participants and staff](image1)

![Snorkeling in Alexander Springs](image2)

**Project Summary**
Although national forests, parks, and other federally managed public lands are places where all people are welcomed to recreate, relax and recharge, a 2019 study found that people of color accounted for only 5 – 12% of visits to our Public Lands. In February 2022, the Ocala National Forest partnered with Get Black Outside (GBO) – an organization which seeks to increase participation by people of color in outdoor activities by hosting culturally tailored events on public lands – to host a major GBO event focused on attracting black youth, youth leaders, and families to participate in snorkeling, hiking, biking, and sharing stories around the campfire. The CATT participated in planning meetings, sent 4 snorkeling educators to the event, and outfitted each participant with a wetsuit, mask, and snorkel. The GBO concept inspired others to partner with Ocala National Forest to host similar snorkeling events in 2022, attracting another 75 participants to explore our national forest waters through snorkeling.
National Forests in Florida
Apalachicola Ranger District

**Project Type**
Road-stream crossing inventory

**Goal**
Provide information needed to prioritize crossing improvement projects

**Objective**
Complete road-stream crossing inventories in high-priority watersheds in December 2021

**Approach**
Forest selects high-priority watersheds for inventory  
CATT hires, trains, and deploys field teams to complete standardized crossing assessments  
CATT submits data to SARP for inclusion in the regional fish passage barrier database  
The Forest, partners, and CATT apply decision support tools to prioritize crossings for replacement

**Accomplishments**
Assessed 182 crossings  
Entered field data into project database  
Worked with national forest staff and partners to apply decision support tools

**Partners and Contacts**
Partner: Southeast Aquatic Resources Partnership (SARP)  
USFS Contact: Jordan Nickle Vernon, GIS Analyst

**Project Summary**
The Forest Service and its partners are engaged in a multi-year effort to identify, assess, prioritize, and remediate road stream crossings in areas of mutual interest. Road-stream crossings that provide for a safe and efficient transportation system, provide resilience to a changing climate, and maximize benefits for aquatic and riparian species are a key component in reaching shared goals. The information collected by CATT field teams will be incorporated into an online prioritization tool to allow resource managers on the Apalachicola National Forest and their partners to identify problematic crossings and prioritize among potential remediation projects. The online tool is available at: [https://connectivity.sarpdata.com/](https://connectivity.sarpdata.com/)
Ozark St. Francis National Forest
Big Piney Ranger District

Project Type
Stream fish and habitat inventory

Goal
Provide stream biota and habitat information needed for project-level and forest-level planning

Objective
Complete stream fish and habitat inventory in July and August 2022

Approach
Forest identifies streams with gaps in fish or habitat information
The CATT trains and deploys field teams to complete inventories
The CATT provides project database for incorporation into forest datasets

Accomplishments
Completed stream habitat, fish, and riffle stability index inventories on 14 streams (18 sample sites)
Collected macroinvertebrates in 9 streams (10 sample sites)
Entered data into project database and provided to project partner

Partners and Contacts
USFS Contact: Matthew Anderson, Forest Fish and Wildlife Biologist

Project Summary
Periodic aquatic resource assessments provide the information national forest managers need to effectively identify current status and trends, management options and impacts, and threats and impacts of fire, insects, disease, and other natural processes on aquatic resources. However, many national forests lack the capacity to complete regular inventory or monitoring activities. The CATT can fill these gaps, by providing access to scientists, biologists, and technicians that can design and execute inventory and monitoring projects. In 2022, Ozark St. Francis National Forest partnered with the CATT to assess stream habitat and fish in high-priority management areas, the latest effort in a long history of inventory and monitoring partnerships on the forest. Our current effort is intended to fill data gaps and update aquatic resource information needed for forest- and project-level analyses.
Ozark St. Francis National Forest
Big Piney, Boston Mountain, Magazine, and Pleasant Hill Ranger Districts

**Project Type**
Road-stream crossing inventory

**Goal**
Provide information needed to prioritize crossing improvement projects

**Objective**
Complete road-stream crossing inventories in July 2022

**Approach**
Forest selects high-priority crossings for inventory
CATT hires, trains, and deploys field teams to complete standardized crossing assessments
CATT submits data to SARP for inclusion in the regional fish passage barrier database
The Forest, partners, and CATT apply decision support tools to prioritize crossings for replacement

**Accomplishments**
Assessed 39 crossings
Entered field data into project database
Worked with national forest staff and partners to apply decision support tools

**Partners and Contacts**
Partner: Southeast Aquatic Resources Partnership (SARP)
USFS Contact: Matthew Anderson, Forest Fish and Wildlife Biologist

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**Project Summary**
The Forest Service and its partners are engaged in a multi-year effort to identify, assess, prioritize, and remEDIATE road stream crossings in areas of mutual interest. Road-stream crossings that provide for a safe and efficient transportation system, provide resilience to a changing climate, and maximize benefits for aquatic and riparian species are a key component in reaching shared goals. The information collected by CATT field teams will be incorporated into an online prioritization tool to allow resource managers on the Ozark St. Francis National Forest and their partners to identify problematic crossings and prioritize among potential remediation projects. The online tool is available at: [https://connectivity.sarpdata.com/](https://connectivity.sarpdata.com/)
Southern Research Station  
Research Work Unit 4353, Blacksburg, VA

Project Type  
Brook Trout population monitoring

Goal  
Use long-term population monitoring to better inform Brook Trout management

Objective  
Complete 29th year of annual May and October sampling on 2 long-term study streams

Approach  
Southern Research Station established long-term monitoring study in 1993. Shenandoah National Park supplies research and sampling permits, CATT provides personnel and organizes volunteers to support annual sampling efforts. Southern Research Station produces presentations, reports, papers based on results

Accomplishments  
Completed sampling on 2 long-term study streams  
Data are incorporated into project database

Partners  
Partner: Shenandoah National Park  
USFS Contact: Dr. Andy Dolloff, Southern Research Station

Project Summary  
Long term studies allow researchers to describe trends that may not be evident from shorter studies.  
Since 1993, the Southern Research Station has conducted annual surveys using a combination of diver counts, backpack electrofishing, and fish tagging to estimate the distribution, abundance, and growth of Brook Trout and other coldwater fishes in two Shenandoah National Park streams. The CATT has provided field support for the project since 1995 and maintains the project database. We are examining the role that environmental factors such as acid precipitation, floods, droughts, water temperature, and invasive species may have on Brook Trout populations. Understanding such effects allows resource specialists to more effectively manage Brook Trout and other coldwater fish populations.

Snorkeling to count fish  
Measuring a Brook Trout
Southern Research Station
Research Work Unit 4353, Blacksburg, VA

Project Type
American Eel growth and movement

Goal
Use long-term monitoring to better inform American Eel conservation and management efforts

Objective
Complete 22nd year of annual July eel sampling at long-term study site

Approach
Southern Research Station established long-term monitoring study on Tye River in 2000. The George Washington and Jefferson National Forests provides research permits and personnel, VA Dept. of Wildlife Resources supplies sampling permits and personnel, CATT provides personnel and organizes volunteers to support annual sampling efforts. Southern Research Station produces presentation, reports, and papers based on results

Accomplishments
Completed sampling on a 1.2-mile study section of Tye River, Incorporated data into long-term dataset

Partners and Contacts
Partner: Virginia Department of Wildlife Resources
USFS Contacts: Dr. Andy Dolloff, Southern Research Station; Dawn Kirk, Forest Fisheries Biologist

Project Summary
American Eels may live for 20 – 30 years in freshwater streams before swimming out to the Sargasso Sea to reproduce and die, yet little is known of their biology or behavior in headwater mountain streams. The Southern Research Station began a long-term study in 1999 to monitor the growth, movement, and longevity of eels in several George Washington & Jefferson NF streams. The CATT has worked with Southern Research Station scientists annually since 2000 to collect and tag eels in 2 streams. We are still collecting American Eels that were originally tagged in 2000 demonstrating that adult eels reside for long periods of time in short reaches of mountain streams. In addition to providing information needed for the management of eels in headwater mountain streams, the project also often attracts the attention of local residents and media, providing the opportunity to for outreach about eels and forest management.
Southern Research Station
Research Work Unit 4353, Blacksburg, VA

Project Type
Movement of wood in streams

Goal
Monitor long-term movement of wood in small trout streams to better inform watershed management

Objective
Complete 28th year of annual log sampling in May 2022

Approach
Southern Research Station designs and implements log movement study in 1993
Jefferson National Forest provides personnel to place logs into streams in 1993
CATT provides personnel annually to document changes in log location

Accomplishments
Located 150 study logs in 2 long-term study stream reaches; Incorporated data into long-term dataset

Partners and Contacts
USFS Contacts: Dr. Andy Dolloff, Southern Research Station; Dawn Kirk, Forest Fisheries Biologist

Project Summary
Trees that fall in streams increase the amount of food and shelter available to animals living in and near the water, but also can cause damage to roads and other structures if they move during floods. Resource managers may be asked to remove wood from streams as a preemptive measure against property damage. A better understanding of the mobility of wood in mountain streams is needed to inform managers faced with the decision between retaining wood to improve stream quality or removing wood from streams to protect nearby infrastructure. In 1993, the Southern Research Station began to study wood movement in two mountain streams. Large logs were purposely added to streams and their location was recorded. The CATT has surveyed the logs for movement each year since 1994 and maintains the project database. Log movement information is updated annually and incorporated into presentations to resource managers tasked with managing wood in streams.