

CATT



Fiscal Year 2012 Report

USDA Forest Service
Southern Research Station
Center for Aquatic Technology Transfer (CATT)

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Visit our website at <http://www.srs.fs.usda.gov/catt>

FAQs

What is the CATT?

The Center for Aquatic Technology Transfer (CATT) is a science delivery program. CATT biologists and technicians are Southern Research Station (SRS) employees funded by the National Forest System (NFS). Our project partners are primarily NFS managers and resource specialists. We collaborate with SRS scientists to develop custom solutions for our project partners.

When was the 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 problems. The number of research personnel was, and still is, too small relative to the number of NFS managers to satisfy specific needs. Our goal is to provide an increased level of support to our NFS partners.

Where does the CATT work?

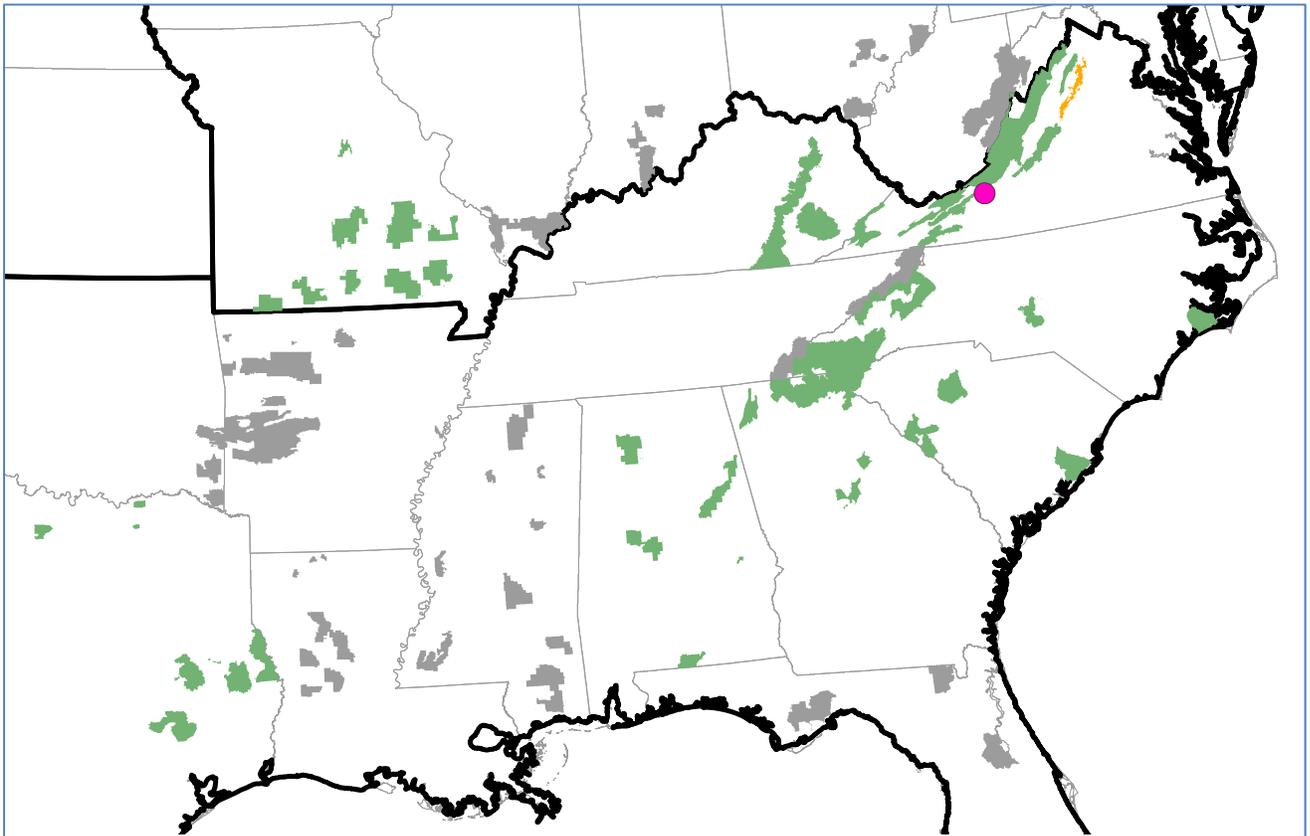
Full-time CATT personnel are stationed in Blacksburg, VA. We work primarily on NFS managed lands in the Southern and Eastern Regions. We also provide support to SRS research projects on other Federal, State, and private lands.

What services does the CATT provide?

Our primary focus is on aquatics related management challenges. Our flexible organizational structure allows us to provide whatever levels and types of services our partners request. 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 find out more about the CATT?

Contact Craig Roghair 540 231-0078 (croghair@fs.fed.us), or visit our website: <http://www.srs.fs.usda.gov/catt>



National Forests (green) and Parks (orange) where CATT participated in projects during FY 2012. CATT is headquartered in Blacksburg, VA (pink circle).

CATT project schedule, FY 2012.

Location	Project	Date Start	Date End	Crew Size
NF in Texas	Database and GIS	10/1/2011	9/30/2013	1-2
Shenandoah National Park	BVET support	10/4/2011	10/5/2011	6
Shenandoah National Park	BVET support	10/13/2011	10/14/2011	6
NF in Alabama	Lewis Smith Reservoir	1/9/2012	1/13/2012	2
Daniel Boone NF	Aquatic organism passage	3/26/2012	11/30/2012	4-6
NF in Alabama	Lewis Smith Reservoir	5/7/2012	5/11/2012	1
Shenandoah National Park	Mark-recapture support	5/29/2012	5/31/2012	12
George-Washington Jefferson NF	Outreach - Glen Alton	6/2/2012	6/2/2012	3
Chattahoochee-Oconee NF	Aquatic organism passage	6/6/2012	6/9/2012	8
Daniel Boone NF	Stream monitoring	6/18/2012	10/1/2012	4-5
SRS Blacksburg	Outreach - Fish Lab	6/21/2012	6/21/2012	2
George-Washington Jefferson NF	American eel	7/10/2012	7/11/2012	17
Mark Twain NF	Aquatic organism passage	7/17/2012	8/17/2012	7-8
Francis Marion-Sumter	Large wood	8/28/2012	8/30/2012	14
NF in Alabama	Lewis Smith Reservoir	9/17/2012	9/20/2012	2
NF in Alabama	Lewis Smith Reservoir	9/23/2012	9/27/2012	16 - 18

Daniel Boone National Forest, KY

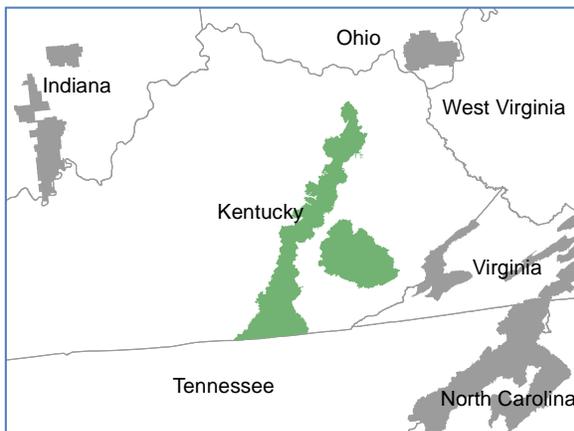
Project: Searching for cost-effective fish passage monitoring approaches

Partners: Mark Hudy, National Fish Program Coordinator, WO
Pam Martin, Forest Fishery Biologist, DBNF
Jon Walker, Forest Hydrologist, DBNF
Keith Nislow, Research Fishery Biologist, Northern Research Station

Dates of Fieldwork: Mar. 26 – Nov. 30, 2012 **Field Crew Size:** 4

Objective:
Examine fish passage at crossings with a range of passage difficulty using a mix of traditional techniques and emerging technologies to determine cost-effective fish passage monitoring techniques.

Summary:
Beginning in 2010 we used a combination of mark-recapture, RFID tagging, and genetic techniques to examine fish passage at 19 crossings across the Daniel Boone National Forest, KY. Results indicated that traditional mark-recapture approaches were not effective, and RFID and genetic approaches needed refinement. In 2012, we returned to several crossings for further examination of genetic and RFID tagging approaches. Our results will be used to assess current crossing improvement projects on the Daniel Boone National Forest and to recommend standardized nation-wide passage monitoring methods.



Districts visited



Capturing fish for marking



Creek chub receiving RFID tag



Installing monitoring antenna

Daniel Boone National Forest, KY

Project: Forest-wide stream monitoring

Partners: Jon Walker, Forest Hydrologist, DBNF
Pam Martin, Forest Fishery Biologist, DBNF

Dates of Fieldwork: May. 30 – Nov. 30, 2012

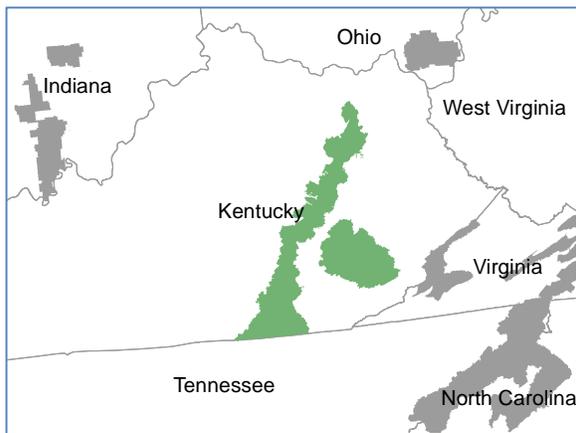
Field Crew Size: 4

Objective:

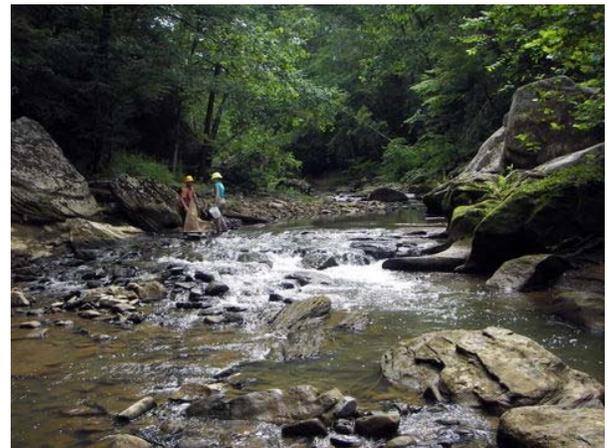
Collect stream habitat, fish, macroinvertebrate, and sediment data in support of the DBNF long-term Forest stream monitoring program.

Summary:

We have collected a variety of stream habitat and biotic data on randomly selected third order streams within the Daniel Boone National Forest annually since 2005. Each year the Forest provides us with a list of prioritized list of sample sites within a given watershed. We provide crews to sample fish, macroinvertebrate, sediment, and stream habitat information at each sample site. The data are stored in a database and returned to the Forest along with a summary report for each year. Repeated sampling within watersheds will allow the Forest to detect trends in physical and biotic data.



Districts visited



Investigating a DBNF stream



Macroinvertebrate collection



Identifying stream fish

National Forests in Alabama

Project: Examination of Lewis Smith Reservoir transition zone

Partners: John Moran, Forest Fishery Biologist, NFAL
Allison Cochran, District Biologist, Bankhead District, NFAL
Mel Warren, Team Leader, SRS, Oxford, MS
Stuart McGregor, Aquatic Biologist, Geological Survey of Alabama

Dates of Fieldwork: Jan 9 – 13; May 7 – 11;
Sep 17 – 20; Sep 23 – 27, 2012

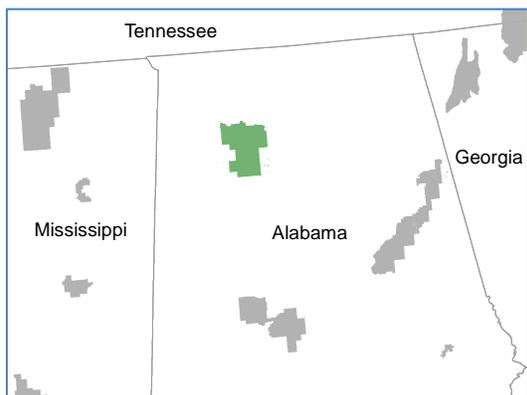
Field Crew Size: varied from 1 to 18

Objective: Investigate effects of annual lake level fluctuations on the biological resources in the 'transition zone' upstream of Lewis Smith Reservoir. The transition zone is the approximately 10 mile stream reach alternately flooded and exposed during dam operations.

Summary:

The National Forests in Alabama (NFAL) recently entered an agreement with Alabama Power via the FERC relicensing process for Lewis Smith Reservoir. Alabama Power is providing funds to the NFAL for investigating effects of dam operation on biological resources in the transition zone upstream of the reservoir, an area of high biological diversity known to contain several rare and federally listed species.

Fiscal year 2012 was the first year of this multi-year effort. Through a series of site visits we were able to establish the extent of the transition zone, and sample several streams for fish, crayfish, and mussels. Ultimately we will provide the Forest with species lists for streams impacted by lake operations, and a plan for long-term monitoring of aquatic resources in the streams.



District visited



Lake levels, 2012



Mussels collected in Sipsey Fork



Sampling fish in Sipsey Fork

George Washington-Jefferson NF, VA

Project: American eels in headwater mountain streams

Partners: Andy Dolloff, Team Leader, SRS, Blacksburg, VA
Dawn Kirk, Forest Fishery Biologist, GWJNF
Scott Smith, Fishery Biologist, VA Dept. Game & Inland Fisheries

Dates of Fieldwork: July 10-11, 2012

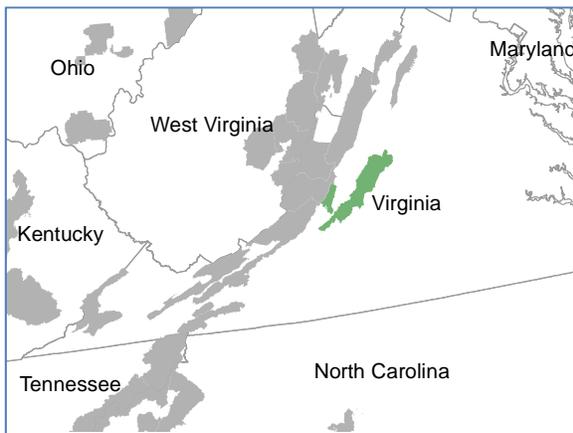
Field Crew Size: 17

Objective:

Describe growth and movement of American eels in headwater mountain streams

Summary:

Though American eels can live in streams for 20 - 30 years, little is known of their biology or behavior in headwater mountain streams. The SRS began a long-term study in 1999 to monitor the growth, movement, and longevity of eels in several GWJNF streams. The CATT has worked with SRS scientists annually since 2000 to collect and tag eels in 2 streams. In 2012, we recaptured over 150 eels originally marked between 2 and 12 years ago. In addition to providing information needed for the management of eels in headwater mountain streams, the project also provides the opportunity for outreach, attracting the attention of local newspapers, and residents.



District visited



Collecting American eels



Scanning a recapture for its tag number



Collecting weight and length data

George Washington-Jefferson National Forest, VA

Project: Glen Alton “Come Outside and Play”

Partner: Sheryl Lyles, GWJNF

Dates of Fieldwork: June 2, 2012

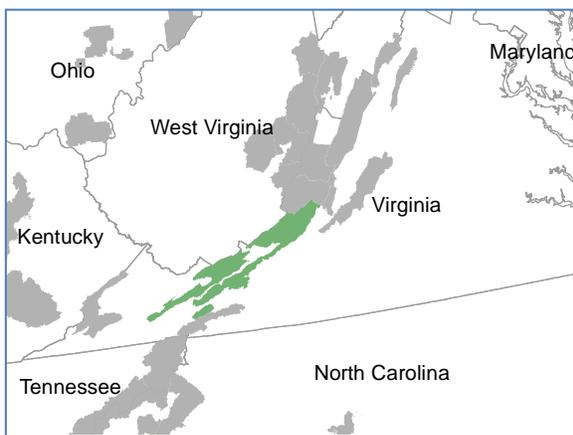
Field Crew Size: 3

Objective:

Introduce visitors to local aquatic biota at the annual GWJNF Glen Alton ‘Come Outside and Play’ event

Summary:

For the past two years the CATT has created a display on local aquatic biota at the annual ‘Come Outside and Play’ event, hosted by the GWJNF at the Glen Alton recreation area. We provide a variety of activities, including an aquarium stocked with local fishes, a crayfish petting zoo, and buckets and nets for those wanting to brave the cold waters for a little collecting of their own. CATT biologists interact with visitors, providing information on stream biota and sampling techniques used by fisheries biologists.



District visited



Aquatic biota in aquarium



A visitor explores our display



The crayfish petting zoo

Chattahoochee-Oconee National Forest, GA

Project: Aquatic organism passage surveys

Partner: Mike Joyce, Forest Fish Biologist, CONF

Dates of Fieldwork: June 6-9, 2012

Field Crew Size: 8

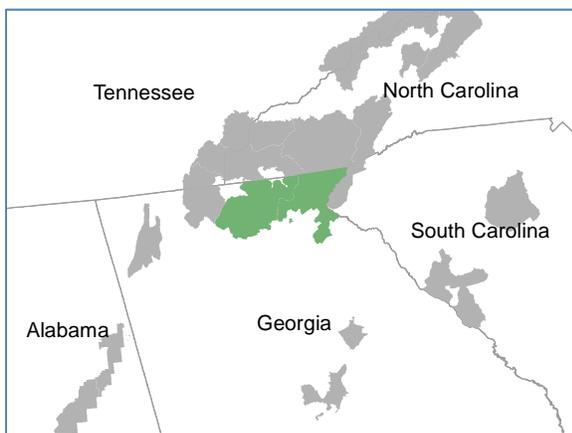
Objective:

Survey road stream crossings (e.g. culverts) to determine difficulty of upstream passage for fish of varying swimming and leaping abilities.

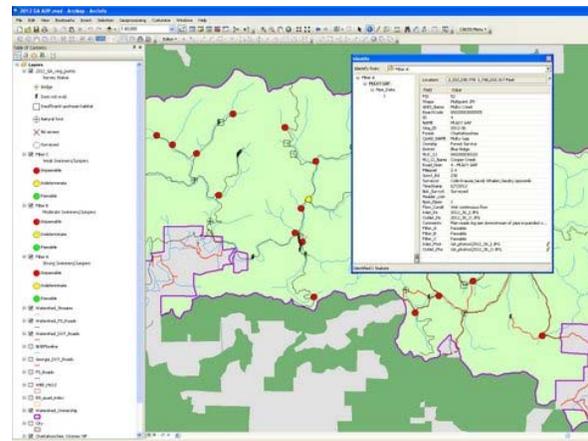
Summary:

We visited 99 road-stream crossing sites and found crossing structures such as culverts or fords at 35 crossings. We were able to classify the upstream passage difficulty by analyzing field measurements with a set of regional fish passage models for each of the 35 crossing structures.

We provided a database and GIS product that summarize results for crossings in two Districts. The database contains location information for all 99 crossings we visited, and detailed measurement data for the 35 sites with crossing structures. The GIS displays the location, site characteristics, and where applicable, the passage results for each road-stream crossing visited. In addition, the GIS contains hyperlinks to site photos for quick visual reference. In combination the products can be used by the Forest to prioritize passage improvement projects on the two Districts.



Districts visited



ArcMap GIS

Dist	County	Stream Name	Segment	Structure	Structure ID	Structure Type	Structure Length	Structure Material	Structure Status
1	Chattahoochee	Blue Ridge	North Gap	RC020000102	0000	Unimproved Gap Rd	1.9		
2	Chattahoochee	Blue Ridge	Conasa Falls	RC020000102	0000	Unimproved Gap Rd	3.0		
3	Chattahoochee	Blue Ridge	Mulky Gap	RC020000102	0000	Unimproved Gap Rd	2.3		
4	Chattahoochee	Blue Ridge	North Gap	RC020000102	0000	Unimproved Gap Rd	1.9		
5	Chattahoochee	Blue Ridge	North Gap	RC020000102	0000	Unimproved Gap Rd	1.9		
6	Chattahoochee	Blue Ridge	North Gap	RC020000102	0000	Unimproved Gap Rd	1.9		
7	Chattahoochee	Blue Ridge	North Gap	RC020000102	0000	Unimproved Gap Rd	1.9		
8	Chattahoochee	Blue Ridge	North Gap	RC020000102	0000	Unimproved Gap Rd	1.9		
9	Chattahoochee	Blue Ridge	North Gap	RC020000102	0000	Unimproved Gap Rd	1.9		
10	Chattahoochee	Blue Ridge	North Gap	RC020000102	0000	Unimproved Gap Rd	1.9		

MS Access database



Surveying a crossing

National Forests in Texas

Project: Database preparation

Partner: Dave Peterson, Forest Fish Biologist, NFTX

Dates of Fieldwork: 2012 - 2013

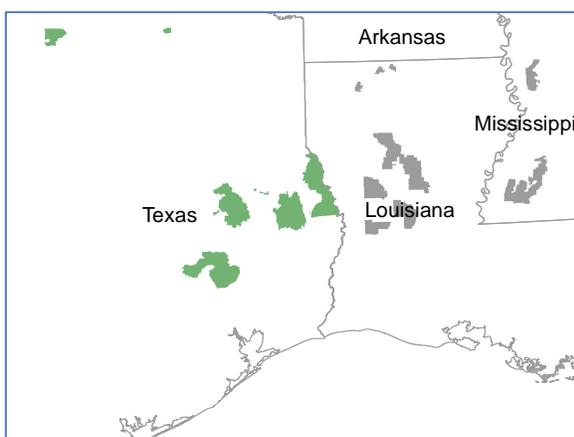
Field Crew Size: 1

Objective:

Develop database and GIS products for storing and displaying historic data, and for accepting future data.

Summary:

Sometimes our field site is the CATT office. The National Forests in Texas have an abundance of historic fish collection records stored in various formats. The CATT is working with NFTX to prepare a database that will store all historic and future data in a consistent format, and a GIS product to display the data.



Districts visited

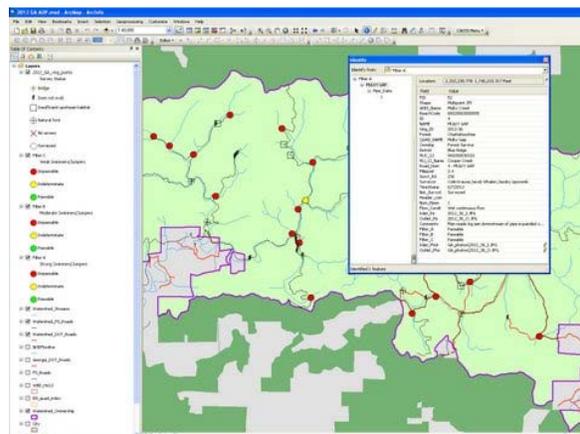


Reviewing fish records

A screenshot of a database table containing fish collection records. The table has columns for Date, Stream Name, Forest, District, and various identifiers. The records list specific dates and locations where fish were collected, such as "Bryant Creek" and "Turkey Branch".

Date	Stream Name	Forest	District	Other Info
79-2012-09	Slaughter Creek	Chattahoochee	Blue Ridge	Neville Gap
80-2012-03	Jensen Creek	Chattahoochee	Blue Ridge	Crossa Bend
50-2012-02	Unnamed	Chattahoochee	Blue Ridge	Mulley Gap
80-2012-03	Unnamed	Chattahoochee	Blue Ridge	Neville Gap
80-2012-04	Unnamed	Chattahoochee	Blue Ridge	Crossa Bend
80-2012-05	Burnett Creek	Chattahoochee	Blue Ridge	Neville Gap
80-2012-05	Burnett Creek	Chattahoochee	Blue Ridge	Neville Gap

Fish records will be stored in a database



Database records will be displayed in GIS

Francis Marion-Sumter National Forest, SC

Project: Large wood inventories in the Chattooga river and tributaries.

Partner: Jeanne Riley, Forest Aquatic Biologist

Dates of Fieldwork: Aug. 28-30, 2012

Field Crew Size: 14

Objective:

Count the total amount of large wood in the upper Chattooga River watershed, and compare with previous counts

Summary:

The upper Chattooga River watershed is a prime example of the challenges of managing for multiple uses, and the impact of invasive species. The watershed is a popular area for fishing, whitewater rafting, and extreme kayaking. While anglers and biologists view large wood as quality fish habitat, rafters and kayakers view it as a potential safety hazard. The recent invasion of forest stands by hemlock wooly adelgid complicates matters, potentially adding hundreds of pieces of wood to the stream over a short time period. In 2007 we counted large wood in 32 km of upper Chattooga watershed streams. In 2012, we began to re-inventory the same reaches. When complete we will be able to examine for changes in distribution and abundance of large wood in the watershed.



Districts visited



Counting wood in a debris jam



Root wad attached to large wood



Signs of large wood removal

Shenandoah National Park, VA

Project: Annual brook trout population monitoring.

Partners: Andy Dolloff, Team Leader, SRS, Blacksburg, VA
Jeb Wofford, Fishery Biologist, Shenandoah National Park

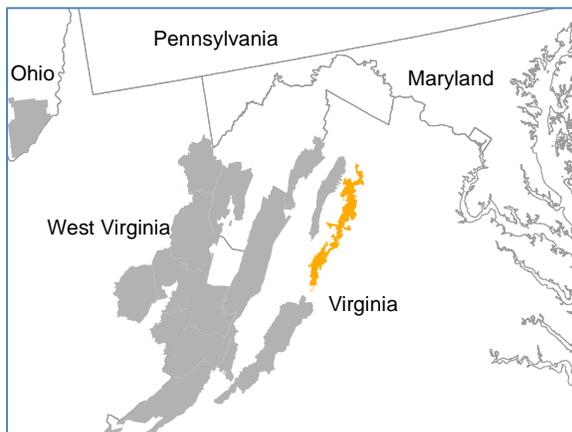
Dates of Fieldwork: October 4-5 & 13-14, 2011; **Field Crew Size:** 6 - 12
May 29 – 31, 2012

Objective:

Provide support for Southern Research Station’s long-term brook trout population monitoring projects in Shenandoah National Park.

Summary:

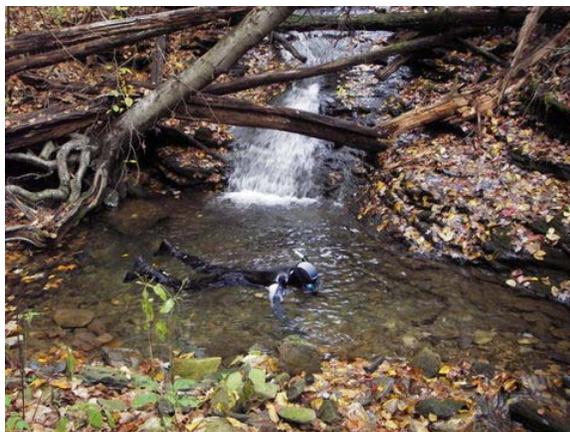
CATT participates in two long-term SRS monitoring projects annually. Since 1998, we’ve provided assistance with a spring mark-recapture study, monitoring the effects of a large flood and associated debris flow on the growth and movement of brook trout in Staunton River. In addition to providing important data on the response of brook trout to large, natural disturbances, it is also a great opportunity to provide are summer temporary employees with some electrofishing and fish handling training. We have also provided assistance since 1995 with a fall population estimate on two acid sensitive streams. The population data allow us to track the relative success of populations in moderately to highly acid sensitive streams.



Shenandoah National Park (orange)



Electrofishing to capture fish



Snorkeling to count fish



Brook trout

Southern Research Station, Blacksburg, VA

Project: Preschooler 'Fish Fun' day

Partner: Rainbow Riders Preschool, Green Room

Dates of Fieldwork: June 21, 2012

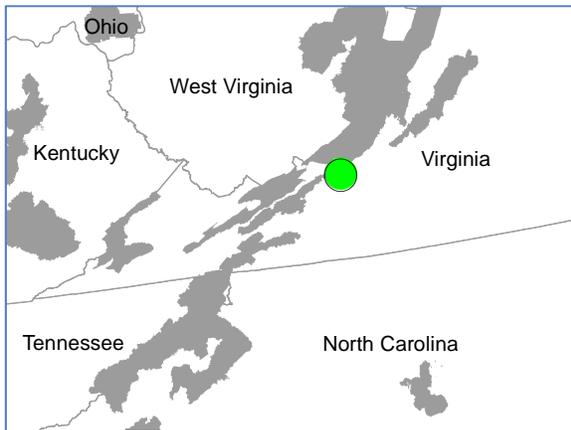
Field Crew Size: 2

Objective:

Introduce local preschool children to their local freshwater fishes.

Summary:

The Fisheries and Aquatics Lab is located adjacent to a local preschool. For the past two years we have hosted visitors from the preschool for a 'fish fun' day. Preschoolers interact with SRS staff, explore fish sampling equipment, and feed fish in our aquarium. We presented each child with SRS bookmarks, coloring pages, and a greenside darter picture for their classroom. CATT biologists frequently take advantage of opportunities to interact with children, whether through planned activities, or during field projects.



SRS Fish Lab, Blacksburg, VA



Meeting an American eel



Future fish biologist?



Watching a CATT demonstration