Tennessee Chapter
American Fisheries Society
Winter 2021-2022 Newsletter

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Dates to Remember

Jan 28	Award Nominations due
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Feb 11	Registration due
March 1	TN AFS Chapter meeting begins

Officers

President— Cole Harty
President-Elect—Justin Wolbert
Treasurer/Secretary—Shawna Fix
Past President— Mark Rogers

https://units.fisheries.org/tn/

PRESIDENTS MESSAGE

Greetings fellow FishHeads!

Seldom does a year go by that I don't look back and wonder where the time went…and as different as the past year has been, I find myself wondering once again. By this point, most of us have adapted to the challenges of work and life during a pandemic. Professionally, we have pressed forward while dealing with supply shortages, high material cost, and delayed timelines. Personally, we have seen various aspects of life return to "normal", whereas other aspects are far from it and may be changed forever.

Despite the difficulties and challenges presented over the past year, there are many achievements to celebrate and things to look forward to! In February, we held our first ever virtual meeting. The meeting was well attended, and the membership enjoyed 17 presentations and 3 posters. Eight students presented their work, with Aaron Coons taking home the award for best student presentation. During our second annual symposium, 5 speakers highlighted emerging issues in fisheries and lessons learned from past work. The duo of Michael Jones and Trent Jett took home the award for best professional presentation. We also held a fantastic online auction that generated over $4,000 in funds raised for the Chapter; hopefully we can keep that momentum up as we approach our opportunity to host the Southern Division meeting in 2024! A big thank you goes to all who donated items to the auction. In addition to outstanding presentations and a successful auction, the TN Chapter was honored to present Bernie Kuhajda with the Lifetime Achievement Award and Jeff Wright with the Friends of Fisheries Award. Congrats and thank you, Bernie and Jeff!

Looking forward to 2022, we are excited about the next TN Chapter Annual Meeting in Gatlinburg. Once again, many thanks to the Edgewater Hotel and Conference Center for working with us after having to cancel the 2020 meeting and go virtual in 2021. I feel confident that I speak for the majority when I say it will be a pleasure and a relief to see everyone in person again! Planning is currently underway, and everything is pointing toward what will undoubtedly be another great meeting.

To close, I'd like to revisit the theme presented by Mark Rogers in last year's presidents message – predicting the future. None of us know what tomorrow will bring. However, we certainly do know, and are frequently reminded, just how fast things can change. I hope you all have the chance this holiday season and in the coming year to share some love with the people in your life and do a few more of the things you enjoy!

--Cole Harty

Annual Chapter Meeting:

March 1-3, 2022 –Gatlinburg, TN

Edgewater at the Aquarium Hotel and Conference Center

The Tennessee Chapter of the American Fisheries Society will hold its 2022 annual meeting March 1-3rd 2022 at the Edgewater at the Aquarium Hotel and Conference Center in Gatlinburg, TN. More information about the lodging, workshops, and how to get registered will be posted on the Tennessee Chapter website https://units.fisheries.org/tn/ .

CALL FOR ABSTRACTS Abstract deadline – January 28, 2022

The Tennessee Chapter of the American Fisheries Society will be hosting a special symposium session with select talks focusing on "Habitat – The good, the bad, and the ugly". The 2022 symposium talks will focus on fish habitat from improvements to degradation in Tennessee (or nearby states). Presentations highlighting topics such as restoration, connectivity, poor land use, development, or other similar habitat related projects are encouraged. We hope for a diversity of submissions from agency, NGO, and university members.

We strongly encourage submissions to be included in this symposium, but the meeting will also feature presentations outside the scope of the topic.

Oral presentations should be no more than 15 minutes with 5 minutes for questions. Please see website or e-mail for more information and submission instructions. Those who wish to give an oral or poster presentation at the 2022 TN AFS meeting are required to submit abstracts by January 28, 2022. Questions about the meeting and abstract submissions should be sent to Justin Wolbert jrwolbert@tva.gov. See e-mail or website for more information/instructions on submissions. Student presenters are invited to compete for the Best Student Paper and Poster Awards. Professional presenters are invited to compete for Best Symposium Paper and Poster Awards.

REGISTRATION

Please visit our Square Store to purchase your registration. The new store works best when you copy and paste the link into Google Chrome https://tnafs.square.site/. If you are paying by check please send check and registration from to:

Shawna Fix
175 Baylor School Rd
Chattanooga, TN 37405

Registration rates:

Professional:	$70 through February 11, $85 thereafter
Student and Retiree:	$40 through February 11, $45 thereafter

Registration forms are now only required for those paying by check.

T-Shirts can be ordered in advance and picked up at the registration booth. Make sure to select "pick-up" in the checkout for Square Store online.

Issues registering or paying through the square store? E-mail tennesseeafs@gmail.com

LODGING

A rate of $96 per room (the per diem rate for Gatlinburg) has been negotiated with The Edgewater at the Aquarium Hotel and Conference Center. You must make a ***phone reservation***, please call the following number:

Phone: 1-800-423-9582
Reference: TN Chapter of the American Fisheries Society 2022
Address: 402 River Road Gatlinburg, TN 37738

HOTEL RESERVATION CUTOFF is Saturday, January 29th, 2022

CONTINUING EDUCATION (CE)

We are excited to again offer optional Continuing Education Workshops to attendees! Courses offered will be held on Tuesday, March 1st and Wednesday morning, March 2nd at the Edgewater Hotel & Conference Center in Gatlinburg, TN. There will be a free student professional development workshop Wednesday morning, March 2nd from 8am-12pm. The rest of the continuing education courses are being finalized and will be announced after January 1st, 2022.

Award Nominations!

Our membership is full of dedicated professionals, and it's time to recognize them for their efforts. Please review the award criteria below and send nominations to Meredith Harris mhh@tnaqua.org by January 28th. Applications should be limited to one page.

Lifetime Achievement Award

Nominee should either be retired or within five years of retirement and have had a long history of significant contributions.

Distinguished Service Award

To be bestowed on individuals that served as a Chapter officer for more than five years or served the chapter as chair of a long-standing Chapter committee for more than five years.

Outstanding Fisheries Scientist

To be bestowed on the biologist in their early to mid-career for making significant contributions in the past year or over several years.

Friends of Fisheries Award

This award shall be made to non-Chapter member(s) who have distinguished themselves by service or commitment to the Chapter or the fisheries resources of Tennessee.

The Tennessee Chapter of the American Fisheries Society is soliciting nominations for the following Chapter officer positions:

President-elect

Send nominations to President, Cole Harty
cole.r.harty@tn.gov

by January 28, 2022

Student Updates

University of Tennessee-Knoxville Student Sub-Unit

By: Gus McAnally, UTK AFS Student Subunit President

The **University of Tennessee, Knoxville (UTK) AFS student subunit** is in a joint organization with the UTK Wildlife Society student chapter. Together, this organization is referred to as the UTK Wildlife and Fisheries Society (UTKWFS). Despite the challenges posed by COVID-19, our organization was able to safely provide students with engaging educational opportunities in both virtual and in-person settings. We are extremely grateful for the professionals who donated their time and shared their invaluable insight and advice with us. We look forward to carrying the momentum we have built this spring into a safe return to campus and full in-person meetings this fall.

Our members (President) Gus McAnally, (Former President) Andrew Julian and Raven Schuman (Former Treasurer) at the 2021 National AFS meeting in Baltimore, Maryland. Awarded Most Outstanding Student Subunit Award.

In late February, several members attended the Tennessee American Fisheries Society (TNAFS) virtual conference. Our members took this conference as an opportunity to learn about relevant research that is happening across the state. Several of our members presented their research. We would like to congratulate members Zach Clark and Robby Cogburn for taking home first and second place, respectively, for Best Student Poster.

In March our members volunteered with Jeff Wright, the Southeast coordinator for Trout Unlimited, to learn Brook Trout habitat assessment techniques in the Cherokee National Forest. Our subunit also had the opportunity to hear from outside guests who work with different agencies and organizations in the career field. One of the first was Tennessee Valley Authority (TVA) biologist Jon Michael Mollish. In his seminar, he discussed with members about his career path and what his job entails with TVA.

Our guest speaker for the month of April was USFWS Fisheries Biologist Emily Judson. Emily works out of Ketchikan Misty Fjords Ranger District of the Tongass National Forest in Alaska. She shared great career advice and plenty of insight into the challenging and rewarding aspects of her job.

Later in April we were able to send members to the Southern Division American Fisheries Society (SDAFS) virtual conference. Our subunit was honored with the award for Best Student Subunit. Members Kyler Hecke, Robby Cogburn, and Zach Clark presented research at the conference. Students were able to attend numerous workshops and seminars regarding the most pressing conservation topics in the southeast.

Several members participated in the ongoing Pigeon River Recovery Project in May. This effort included backpack electrofishing in the French Broad River for ~200 Mountain Madtoms, which were then successfully translocated into the Pigeon River. This event provided students with a great opportunity to collaborate and network with professionals from Tennessee Department of Environmental Conservation (TDEC), TVA, and Tennessee Wildlife and Resources Agency (TWRA).

Our society also had the chance to have our own graduate student Kyler Hecke present a workshop titled "Snorkeling for Science." In this presentation, which was attended by 11 members, Kyler shared an introduction to the basics of snorkeling as a sampling method for fishes and mussels. Students who attended had the chance to attend the in-person field portion of the workshop and put these learned skills into practice.

UTK WFS members participating in the Mountain Madtom translocation (2021).

In early October several of our society members joined students from Tennessee Tech and TWRA to sample for Rainbow Trout on the Clinch River. Students learned how to sample using backpack electroshocking, assess good trout habitat, taking biometrics, and the insertion and activation of PIT tags used in fish.

Our student members also had the opportunity to begin volunteering with our fisheries PhD candidate, Jeronimo Silva, doing mussel sampling along the Clinch River. Students worked with Jeronimo and USFWS personnel working with mussel silos and monitoring the health/ growth of small Pheasantshell mussels being researched.

Additionally, students also had the chance in early November to assist Tennessee Tech graduate students working with the natural reproduction and distribution of Rainbow Trout in the Clinch River. Students learned proper boat electrofishing techniques and rainbow trout sampling operations.

UTK WFS members sampling trout on the Clinch River, (2021).

Later in November a few members attended the AFS National in-person meeting in Baltimore. Here the students were able to meet professionals and talk to current graduate students and learn more on current research across the country. While attending, our society was given the Most Outstanding Student Subunit award and were recognized among others at the annual business meeting.

Towards the end of November, some of our student members also had the opportunity to help in harvesting Asian carp. Working with Tennessee Tech graduate student members learned how to properly set and pull gill nets, and how to take necessary biometric data from Asian carp such as measuring the fish, weighing out egg masses, and taking otolith samples.

In December, students will work with TWRA and USFWS to help conduct Lake Sturgeon sampling along Ft. Loudon reservoir. Members will help over the course of 4 days in baiting and setting trot lines as well as pulling lines and working up any sturgeon caught.

Our club would like to congratulate member Kyler Hecke for successfully defending his PhD dissertation. Kyler has made a big impact here at UTK and we will certainly miss him as he forges his path forward at Arkansas Tech University. Thank you Kyler!

Tennessee Tech University Student Sub-Unit

By: Jack Fetters; TN Tech University Representative

2021 has been a year of getting back into the swing of in-person events, conferences, and student projects. The Student Fisheries Association at Tennessee Technological University has been working diligently with our members and collaborators to host events like a fish fry, scavenger hunt, and an in-person talks. With the help of on campus activities and our previous executive board, we have been able to increase our memberships and student involvement with the club. With much excitement, numerous members have been able to attend conferences, get opportunities to network and grow.

In April, we had a few of our members attend the Southern Division meeting virtually. Also, two of our members were able to give seminars at Tennessee Tech on their thesis work. Mack White presented on *Salmon of the south: suckers in Citico Creek* and Aaron Coons presented on *Multi-Scale Habitat Associations of Longnose Darters (Percina nasuta) in the St. Francis River, Missouri.*

Throughout the summer, a few of our members completed internships with Tennessee State Parks and the Tennessee Wildlife Resources Agency. The graduate students continued to work on their field research, which spans from endangered species, game fish, and nutrient composition throughout Tennessee. In June, we were able to co-host with the Tennessee Wildlife Resources Agency a hybrid version of our annual Fishing Derby by creating a youth fishing scavenger hunt at Cane Creek Park, Cookeville, TN. Kids that attended were given a card with several species of fish to check off as they caught them!

Set up for the 2021 Youth Fishing Scavenger Hunt with the Tennessee Wildlife Resources Agency at Cane Creek Park Cookeville, TN. (Photo by Jack Fetters)

In October, we hosted a Fish Fry on Tennessee Tech's campus to raise money for our subunit. With the help of the Tennessee Wildlife Resources Agency providing fish, we were able to sell over 100 plates and around 25 pounds of fish! We intend to use the raised funds on workshops, social events, and bring back our annual fishing derby this coming summer.

Left: *SFA set up for our fish fry on Tennessee Tech's campus in October 2021.* ***Right:*** *From left to right; Brittany Bajo, Hannah Leftwich, Connor Gardner, and Josh Cary prepping fish and fries at SFA's Fish Fry October 2021. (Photos by Jack Fetters)*

November was a busy month for SFA and our members. We had multiple students attend and present at AFS Nationals in Baltimore. Brittany Bajo presented a poster on *Field Validating a Suitable Habitat Model for Freshwater Mussels of the Gasconade River, MO*. Josh Cary gave a presentation on his thesis work entitled, *Habitat associations of Blotchside Logperch (Percina burtoni) in the Little River, Tennessee and the suitability of Abrams Creek for a Potential Reintroduction*. Our Vice President Adam Walker presented his thesis project on *Development of an environmental DNA (eDNA) assay to delineate the distribution of the imperiled Striated Darter in the Duck River, Tennessee*. Additionally, we had a joint event with TN Tech's Wildlife Society Chapter and Katie Wisniewski from Tennessee State Parks came to discuss potential seasonal and permanent positions for our undergraduate members. Finally, we had several members attend the Southeastern Fishes Council meeting in Columbus, Georgia. Adam Walker gave his thesis presentation on developing eDNA for the Striated Darter again. Mack White received second place for best oral presentation on *Salmon of the south: suckers in Citico Creek*. Also, Jack Fetters gave a poster presentation on a portion of his thesis, *The Distribution and Status of Freshwater Mussels in the Wolf River, TN*. Lastly, Abbey Holsopple presented her thesis work on *Distribution, abundance, and occupancy of the Striated Darter (Etheostoma striatulum) in the Duck River and* won the student travel award.

From left to right; Brittany Bajo, Fritz Hoogakker, Adam Walker, Josh Carey, Connor Ballard, and Wes Victor attended the National AFS meeting in Baltimore to give presentations on their graduate research projects!

From left to right; Dr. Kit Wheeler, Abbey Holsopple, Ryan Hudson, Jack Fetters, Adam Walker, and Joelle Ciriacy attended the Southeastern Fisheries Council meeting in Columbus, Georgia to present on the various research projects they are conducting!

Moving forward into the new year, SFA has a few other conferences that several of our members will be attending, such as AFS Southern Division in Charleston, SC and the Joint Aquatic Sciences Meeting in Grand Rapid, MI. Additionally, our members are gearing up for a busy spring of field work, social events, and workshops. SFA looks forward to continuing to grow, collaborate, and staying an active subunit.

Professional Updates

Conservation Fisheries, Inc. (CFI)

By: Shannon Murphy; Conservation Biologist and Volunteer Coordinator

2021 has been a big year for Conservation Fisheries, Inc! We've propagated over 400 fish each of Carolina Madtoms, Buck Darters, Duskytail Darters, and Boulder Darters, all having been released as reintroductions into their respective ranges. We've returned almost 1,000 Okaloosa Darters to their recovering habitats in the Panhandle of Florida, helping the species to repopulate two genetically distinct populations. This summer yielded a record 700+ Spring Pygmy Sunfish juveniles for our ark population as we continue our efforts in getting funded for this species that we've worked with for over 10 years. Another successful ark population is our Pygmy Sculpin as we currently have over 350 juveniles (left, photograph by Joel Sartore). CFI has continued to produce Yellowfin Madtoms, Smoky Madtoms, Citico Darters, and Spotfin Chubs to stock into the Tellico River, expanding each species' range in Tennessee. This year has also brought back Crystal Darters to the CFI hatchery as a surrogate species to develop protocols for the eventual production of Diamond Darters for reintroduction into formerly occupied habitats.

CFI has also been working with a local architecture firm to develop plans for a facility expansion. Our current plans include upgrading and modernizing our current hatchery space to have it working at maximum efficiency by the time construction on the building begins. We're most focused on upgrading our recirculating systems with new plumbing (right, photograph by CFI) and more efficient sumps and filtration. The building addition will also include improved office space where we can more comfortably and functionally host visitors, give tours, and do other outreach related activities.

Tennessee Aquarium Conservation Institute (TNACI)

By: Shawna Fix; Recovery Biologist

The Tennessee Aquarium Conservation Institute has partnered with the Cumberland River Aquatic Center (CRAC) on their endangered mussel propagation endeavors. They propagated common logperch as naïve hosts for Cracking Pearlymussel and other endangered species. Larval mussels (also known as glochidia) attach to the gills of a fish for several weeks before they transform into juvenile mussels and fall off onto the river (or tank) bottom. Mussels are not really known for long-distance movement, so this helps young mussels move to parts of the river away from their parents. However, fish that have been previously "infected" by mussel larvae become resistant to other mussels attaching to their gills, so the Aquatic Center needs Logperch that have never encountered a mussel before so that their mussel larvae can successfully attach to a fish. Next year, TNACI will be providing Tangerine Darters to CRAC. They recently collected adult Tangerine Darters in September and will overwinter them before spawning in the spring. The best way to collect Tangerine Darters is by snorkeling for them and herding them into a seine.

Common Logperch (Percina caprodes) spawning at TNACI.

Snorkeling for Tangerine Darters (Percina aurantiaca) in Tellico River, TN.

Laurel Dace (Chrosomus saylori) in Bumbee Creek, TN.

TNACI has continued to work with their partners on the conservation of the Laurel Dace. They were awarded a NFWF grant that allowed them to buy two crimper crop rollers that will assist farmers with establishing cover crops on their properties. They were also able to hire a contractor to increase the capacity of the NRCS in the region. All these efforts are to help reduce sedimentation in Laurel Dace streams. In April, Shawna attended a SARP (Southeast Aquatic Resource Partnership) workshop to learn how to assess culverts for fish passage. Since then, TNACI has begun assessing culverts within the watersheds of Laurel Dace and prioritizing them for replacement.

Trutta Environmental Solutions LLC

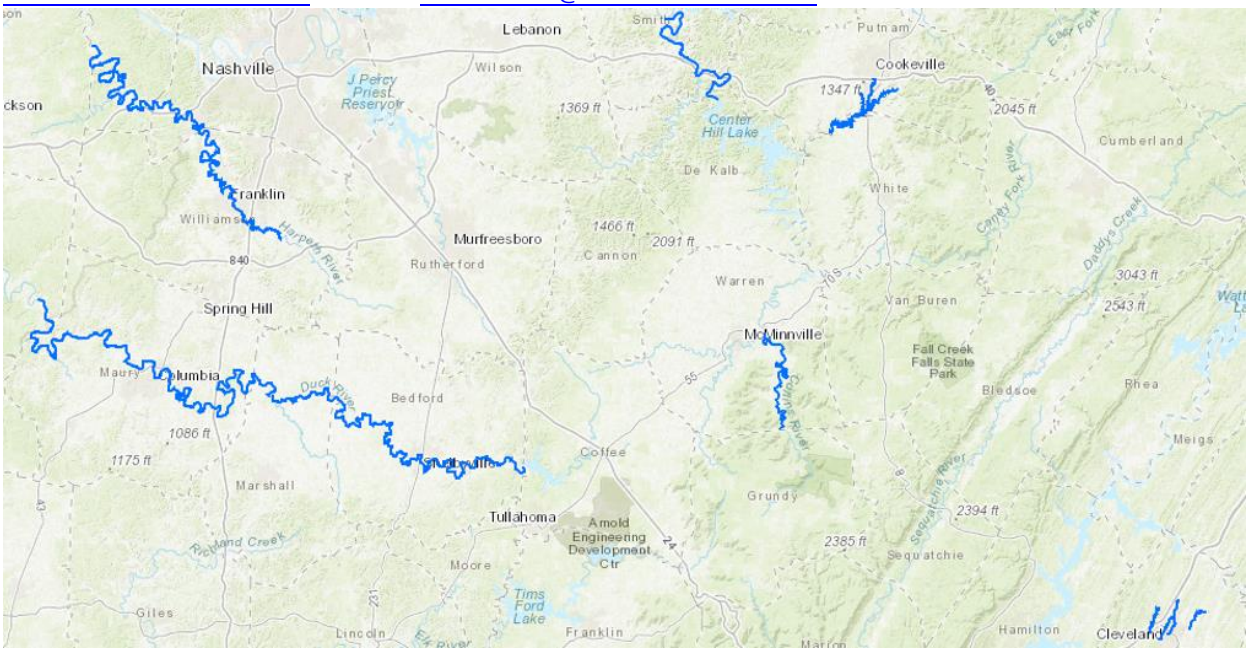
By: Brett Connell; Hydrologist/Director of Sales

RIVER	# of MILES SURVEYED
Duck River	155
Harpeth River	82
Caney Fork	37
Falling Water River	31
Collins River	29
Oostanaula Creek	10.5
Roaring River	7

We are excited to announce that Trutta Environmental Solutions, LLC has recently been certified as an Economically Disadvantaged Woman Owned Small Business (EDWOSB) through the Small Business Administration. This designation should help us provide our cutting edge High Definition Stream Surveys (HDSS) and suite of other water resource management services to even more partners and organizations.

We continue adding to the total mileage of High Definition Stream Surveys (800+ miles) and developing new equipment options to the platform. Most recently, we delivered Topo-Bathymetric LiDAR data to a municipality interested in building a new drinking water intake on the Duck River. This project was featured in our latest newsletter. Click here for more details https://truttasolutions.com/newsletters/ Research and development are currently happening with the HDSS/LiDAR data to automate BEHI, SCA, and other assessment metrics.

We are also currently in the process of hosting HDSS data on our website to help showcase our projects and make more available for use. Completed Tennessee HDSS projects include the Duck River, Harpeth River, Caney Fork, Falling Water River, Collins River, Oostanaula Creek and the Roaring River. An HDSS for MS4 Stormwater purposes was completed for the City of Cleveland on 28 miles of South Mouse Creek and tributaries. For more specifics on any projects, please visit our website at www.TruttaSolutions.com or email Jim.Parham@truttasolutions.com



DJH Environmental Services, LLC

By: Don Hubbs

There is life after retirement! I along with my wife Julie who is a P.E. licensed environmental engineer have started a consulting business DJH Environmental Services, LLC. We specialize in terrestrial and aquatic biological surveys, environmental permitting, and wildlife and fisheries management plans and property development for private landowners. Since opening for business in August 2021, we have completed mussel survey work for three different clients and one project for TWRA and have two future projects under development for 2022. Contact us at tnmusssels@aol.com or 731-441-1941.

US. Fish and Wildlife Service

By: Warren Stiles; Listing and recovery Biologist

In the past year, we proposed to delist the Snail Darter. After nearly 50 years and the help from many partners, the species has been recovered and no longer meets the definition of an endangered or threatened species. This is the first fish to be recovered in the Eastern US.

On the other hand, at the end of last year, we proposed to list the Sickle Darter as a threatened species. A final listing rule is expected in the next few months.

Going forward, we will be conducting species status assessments on the Smallscale Darter and Lake Sturgeon to determine if they warrant being listed as endangered or threatened. The Lake Sturgeon SSA is being conducted by the Midwest region of USFWS, but we are making sure that the work of those here in TN is being included.

Tennessee Valley Authority (TVA)

By: Dennis Baxter; Manager of River and Reservoir Compliance Monitoring Program

- Overall, in 2021, TVA's River & Reservoir Compliance Monitoring Team collected ecological health information at over 3,000 sites throughout the Tennessee and Cumberland River Valleys.
- TVA Partnered with Tennessee, Kentucky, Alabama and Mississippi Fish and Wildlife Agencies to survey the Tennessee River at Pickwick Dam for a Congressional Staff demonstration of Asian carp monitoring.
- Conducted FluEgg Modeling on the Tennessee and Cumberland Rivers to evaluate potential successful Asian carp reproduction areas.
- Prepared a draft programmatic environmental assessment to evaluate fish barrier deterrent systems at TVA locks and dams for Asian carp. The PEA is scheduled to be released December 15, 2021.
- In the Spring 2021, TVA assessed the sportfish populations and the presences of Asian Carp at 24 sites in nine TVA Reservoirs.

  Note: No Asian carp were observed from Wheeler Dam to Ft. Loudoun Reservoir. Only two silver carp were found in Wilson Reservoir. Silver carp were collected in Pickwick and Kentucky Reservoirs.

Reservoir and Site	Reservoir and Site
Chickamauga	**Watts Bar**
Harrison Bay	Blue Springs
Skull Island	Caney Creek
Sale Creek	Watts Bar Dam
Ft Loudoun	**Wheeler**
Carl Cowan	Elk River
Tellico Canal	First Creek
Louisville	Second Creek
Guntersville	**Wilson**
Honeycomb Creek	Wilson Forebay
Waterfront	Shoals Creek
Short Creek	Bear Embayment
Kentucky	Yellow Creek
Barge Island	**Nickajack**
Blood River	**Pickwick**
Jonathan Creek	Pickwick Dam

River, Stream, Tailwater Hydrologic Unit Monitoring

- Collected fish and benthic macroinvertebrate community samples in rivers and streams at 70 sites throughout the Tennessee Valley.

Reservoir Ecological Health's Reservoir Fish Assemblage and Benthic Macroinvertebrate Assessments

- TVA's long term Reservoir Ecological Health monitoring program evaluates ecological conditions at 69 sites on 31 reservoirs across the Tennessee Valley.
- In fall 2021, TVA assessed fish and benthic communities at 39 sites in 13 reservoirs (including QC samples; See table below).

Alabama Run of the River Reservoirs		Tennessee Run of the River Reservoirs		Georgia Tributary Reservoirs		North Carolina Tributary Reservoirs	
Kentucky	TRM 23	Chickamauga	TRM 472.3	Chatuge	HiRM 122	Apalachia	HiRM 67
	TRM 85		TRM 490.5			Chatuge	HiRM 122
	TRM 206		TRM 529				Shoointg Cr 1.5
	Big Sandy 7.4		TRM 482.0			Hiwassee	HiRM 77.5
Wheeler	TRM 350		Hiwassee 8.5				HiRM 85
	TRM 375.2	Fort Loudoun	TRM 605.5				
	TRM 420		TRM 624.6				
	Elk Embayment 6.0		TRM 652				
	TRM 292.5	Tributary Reservoirs					
	TRM 295.9	Beech	BRM 36				
		Boone	SFHRM 19.0				
			SFHRM 27.0				
			WRM 6.5				
		Cherokee	SFHRM 53				
			SFHRM 76				
		South Holston	SFHRM 51				
			SFHRM 62.5				
		Tellico	LTRM 1				
			LTRM 15				
		Watauga	WRM 37.4				
			WRM 45				

The River & Reservoir Compliance Monitoring program's deliverables are listed below:

- Reservoir Ecological Health
  - 69 sites on 31 reservoirs monitored
  - Includes fish, benthos & sediments: 2-year rotation
  - Water Quality, Dissolved Oxygen, & chlorophyll: 2-year rotation
  - Supports Tennessee Valley Authority (TVA) operational decisions, compliance activities, economic development, and stewardship responsibilities
- River Water Quality & Ecological Health
  - 18 major tributary sites monitored on 2-year cycle
  - Includes Water Quality, fish, benthos & habitat assessment
  - Measures quality of inflows to reservoir system
- Fish Contaminants
  - 70 reservoir & 18 river sites monitored on 4-year rotation
  - Coordinated with state agencies
  - Supports fish consumption advisories
- Tailwater Assessments
  - 37 sites on 14 tailwaters monitored on 5-year rotation
  - Index of Biotic Integrity (fish and benthic macroinvertebrate community assessments)
- Stream Assessments
  - 528 stream sites of Index of Biotic Integrity monitoring stream ecological health for fish, benthic macroinvertebrates, and habitat assessments on a 5-year rotation

Program Benefits

- Public demonstration of commitment to water and ecological resources in the Valley
- Trending water quality and biological monitoring data provide essential information on TVA's Integrated River System and potential operational impacts
- TVA Reservoir and River Compliance Monitoring data support, Valley States [303(d) and 305(b) reporting], USFWS programs and NPDES Permit Compliance for TVA's Operating Facilities
- Supports the timely or expedited permitting/licensing of new or existing facilities
- Supports TVA's Natural Resources Plan objectives.
- Ensures mitigation of River Operation System and Record of Decision Operation Compliance Commitments are maintained

Tennessee Wildlife Resources Agency—Region I

By: Tim Broadbent; Region I Fisheries Manager

Region I continued maintenance of deep-water fish attractors lake wide and established additional shallow water fish attractors throughout the year. Although work continued with wooden stakes, plastic structures (shown right) were being tested in various designs. These plastic structures required less maintenance and allowed the habitat crew to expand outside traditional sites and reservoirs.

Spawning structures (shown below) were also placed in Reelfoot Lake to improve spawning habitat for largemouth bass. These structures will be evaluated using underwater cameras during March – May.

Region I Fisheries also partnered with the USACE and KDFWR in a grant program to establish over 500 shallow water fish attractors and over 200 spawning structures throughout Barkley Reservoir to satisfy grant requirements.

Over 1.2 million FLMB fingerlings have been stocked from 2015 – 2021 in Harmon Creek, Blue Creek, and Eagle Creek. Future sampling efforts in these embayments will focus on growth rates within each stocked embayment and percent FLMB collected compared to baseline data.

Due to continued low sauger population numbers and low catch by anglers, walleye stocking was initiated in 2020 and continued into 2021. Region III has had good success with stocking walleye below Watts Bar Reservoir.

Commercial take of over 10,000 pounds of Silver Carp through ACHIP.

Silver carp have been collected in all Mississippi River tributaries, at Reelfoot Lake, and below Cheatham Dam. Silver carp have also been collected below Pickwick Dam and commercial fishers have continued to harvest bighead/silver carp throughout the reservoir. Although both Kentucky and Barkley reservoirs continue to get bad press related to the fishery, data collected since 2018 has shown increased recruitment of both bass and crappie, increased densities of crappie and largemouth bass greater than 10- and 15-inches, respectively, and good densities of shad and other prey fish. The Region is working to provide media releases throughout the state that both reservoirs provide quality fishing experiences.

The ACHIP program that contributed to the price/pound of invasive carp harvested by commercial fishers continued to be funded providing increased incentives for commercial fishers to harvest invasive carp. The total harvest of invasive carp from Kentucky and Barkley reservoirs in the states of Tennessee and Kentucky has exceeded 25 million pounds.

Although densities have remained low in Pickwick Reservoir, one silver carp was recently reported collected in Guntersville Reservoir. Federal grants have also been obtained to assist the wholesale fish markets with improvements including

building walk-in freezers, storage buildings, improved road surfaces and loading docks for delivery trucks, and purchasing large ice machines, storage totes, forklifts, and pallet jacks.

Region I obtained funding from the USFWS to hire two interns to conduct larval light trap surveys, larval egg tows, and mini-fyke net sampling on Kentucky and Barkley reservoirs in 2017 - 2021. These sampling efforts have not documented invasive carp reproduction in either reservoir. UT-Martin will be contacting universities in 2021-22 advertising the intern positions for 2022.

Three new full time TWRA positions were hired in Region I and the crew has conducted gill net surveys, electrofishing surveys, and dozer trawl collections to gather data related to recruitment, growth, and mortality of invasive carp in Kentucky and Barkley reservoirs. In addition to the standardized sport fish sampling in Region I waters, the Region I invasive carp crew has developed standardized sampling surveys to determine how Asian carp densities may change over time. Since the management of Kentucky and Barkley reservoirs was shared by the states of Tennessee and Kentucky, similar standardized sampling protocols were developed by each state. Silver carp from the 2015 year class have continued to dominate the population. The locks at Kentucky and Barkley dams were heavily used for commercial navigation, resulting in over 6,500 lock openings per year. During these lock cycles carp swim upstream into Kentucky and Barkley reservoirs, thus a low percentage of fish collected during surveys have been from younger year classes. Invasive carp continued to be our biggest management issue.

The Biological Acoustic Fish Fence (BAFF) has been installed at Barkley Lock since November 2019. The BAFF utilized sound, light, and bubbles as a barrier and results have been promising in restricting invasive carp movement through the lock chambers into Barkley Reservoir. Fish tagging and receiver deployment continued throughout both Kentucky and Barkley reservoirs (main lake and tailwater) to determine movements of invasive carp.

The stream crews completed assigned surveys (sampled 30 streams and small rivers) and have established the “leading edge” of silver carp distribution in the major rivers, creeks, and streams feeding Kentucky Reservoir. The stream survey crew has also collected skipjack herring the last two years to determine length at age and abundance estimates and partnered with NRCS to conduct surveys to evaluate the success of stream and riparian restoration efforts.

The state lakes and hatchery crews have worked to improve state lake facilities and evaluate fish populations. The Humboldt Hatchery is the largest in Tennessee and has produced over one million Florida LMB fry in both 2020 and 2021. Walleye, catfish, blacknose crappie, sunfish, and Florida LMB were the primary species raised at Humboldt and trout were also received and stocked from the hatchery. The small impoundments crew has been conducting surveys related to catfish abundance to evaluate catfish stocking rates in several small lakes in west Tennessee. New stocking strategies may allow the hatchery to raise fewer catfish which will clear pond space for other fish species. The state lakes crew also stocked over 12,500 catfish for the 27 fishing rodeos held during 2021.

The winter trout program has also been a success in Region I and the Agency stocked approximately 12 small ponds throughout Region I with over 12,000 trout. Stocking strategies and fishing pressure have been monitored utilizing trail cameras to evaluate usage.

TWRA Region II

By: Ted Alfermann; Region 2 Wildlife Manager 3

The Region 2 north reservoir fisheries crew consisting of Phillip Parsley, Wade Byford, Tommy McCormac, and Ted Alfermann recently felled 10 large trees in Hamilton Creek embayment on J. Percy Priest Reservoir to improve fish habitat and give anglers more places to fish. They are located throughout the embayment and were anchored to the stump using steel cable to prevent movement. When J. Percy Priest Reservoir returns to full pool elevation next spring the trees will be mostly submerged with just the tops visible to alert anglers where to cast. The crew will be monitoring fish use of the trees using sonar once they are submerged. More tree felling will occur in other embayments this winter through February.

Future work for the reservoir crew includes creating and installing more pipe structure and reef ball attractors, refurbishing stake beds, planting cypress trees, replacing/cleaning attractor buoys, continuing an ongoing smallmouth bass project in Cheatham Reservoir, and collecting sauger broodfish for Springfield Hatchery.

Left to right is Tommy McCormac, Wade Byford, and Phillip Parsley next to a fell tree in Hamilton Creek embayment on J. Percy Priest Reservoir

TWRA Region III Reservoir Crew Accomplishments 2021

By: Mike Jolley; Region III Reservoir Manager

Data surveys:

We completed spring black bass electrofishing surveys on the Cumberland River reservoirs (Center Hill, Cordell Hull, Dale Hollow, and Great Falls). All black bass populations looked satisfactory regarding individual assessments (WRs') as well as community assessments (CPUE, year class strength, etc.). Black bass from these electrofishing data collections were also used for age and growth studies by otolith analysis. Forage bases, consisting of shad, looked to be abundant. However, spotted bass abundance continues to decrease within these Cumberland River reservoirs. This decrease in spotted bass is even more notable within the TN River reservoirs in Region 3. On a positive note, Center Hill Reservoir is returning to full pool status after years of a draw-down for dam maintenance. The exposed banks have accumulated lots of vegetative and woody growth that will be advantageous to spawning and juvenile fish.

Multiple species of fish were collected from Center Hill, Cordell Hull, and Dale Hollow reservoirs to aid Tennessee Department of Environment and Conservation (TDEC) for contaminant studies.

Largemouth bass were collected for genetic studies for the Florida largemouth bass (FLMB) stocking projects on Nickajack and Watts Bar reservoirs. FLMB stocking projects were initiated on these two reservoirs in 2015 and FLMB fingerlings have been stocked annually since inception.

Annual roving creel surveys have been conducted on Center Hill, Dale Hollow, and Chickamauga reservoirs in 2021.

Trapnetting was completed on Chickamauga Reservoir which showed an average year for YOY black crappie in most places. White crappie were also represented, but at a lower level. YOY bluegill and redear caught in these surveys pointed to a favorable spawn for those species this year. Trapnetting efforts on Watts Bar Reservoir are not concluded yet due to a delayed winter drawdown.

Two electrofishing boats shows our methodology for electrofishing below our dams (Watts Bar dam in photo) as we search for invasive carp. These efforts were led by our new ANS manager, Kristen Chestnut-Faull.

Invasive Carp Surveillance took place on the TN River system during the months of May - September. This involved two electrofishing boats in tandem electrofishing the areas (ascending and descending banks, adjacent areas to dam) below several dams (Melton Hill, Ft. Loudon, Watts Bar, Chickamauga, and Nickajack dams). NO invasive carp were realized during these surveys. Bycatch was also recorded. TWRA also received no confirmations of invasive carp in any Region 3 reservoirs from other sources (ex. public, creel surveys, commercial fishing reports, etc.).

There is ongoing work to document and research the advancement of Alabama bass in our reservoirs as well as the impacts within regarding impacts to other black bass species, especially smallmouth bass. Several genetic tests of "spotted bass" have been collected in recent years to document the advancement and hybridization of Alabama bass in our reservoirs. Also, we are currently part of a multi-state effort to showcase this information to other fisheries biologists nationally through scientific papers. Since Parksville Reservoir is the epicenter for Alabama bass in Tennessee, information documented there will be invaluable regarding this research. Alabama bass were first discovered in Parksville in 2001 and now make up the largest composition of black bass there according to electrofishing surveys.

Largemouth Bass (top), Smallmouth Bass (middle), and Alabama Bass (bottom) caught in Watts Bar Reservoir. Note the similarity of Alabama Bass to our native Northern Spotted Bass. Unfortunately, Alabama Bass are confirmed in Watts Bar most likely through illegal introductions. Photos by Joey Root.

Stocking:

TWRA continues to stock several species of fish into Region 3 reservoirs:

- Black and blacknose crappie were stocked into Center Hill, Dale Hollow and Watts Bar reservoirs.
- Walleye were stocked into Center Hill, Chickamauga, Dale Hollow, Nickajack, and Watts Bar reservoirs.
- Striped bass were stocked into Chickamauga, Cordell Hull, and Watts Bar reservoirs.
- 300 muskie were stocked into Parksville Reservoir this year. This is the 3rd stocking of muskie in Parksville since 2017 when this stocking project was initiated with the stocking of 603 juvenile muskie. An additional 1,000 fish were stocked in 2019. Several reports and photos submitted by anglers show that these muskie are doing well in Parksville and exhibiting favorable growth rates.
- Trout were stocked into Dale Hollow and Parksville reservoirs.
- Bluegill and redear sunfish were stocked into Parksville Reservoir for ongoing efforts to enhance forage bases and provide fishing opportunities.
- Florida largemouth bass (FLMB) were stocked into Chickamauga, Nickajack, and Watts Bar reservoirs.

Hatchery (Hiwassee & Sugar Creek facilities):

Several species of fish were reared at these two facilities this year, including: black crappie, bluegill, redear, FLMB, and walleye. Additionally, brood walleye were collected and spawned at the Sugar Creek facility, which is a relatively new endeavor. These brood were collected from Chickamauga and Watts Bar headwaters thanks to successful walleye stocking projects there by TWRA which were initiated in 2011 at Watts Bar and 2013 at Chickamauga. Annual stockings of walleye fingerlings have been stocked into these reservoirs since inception of the respective projects.

Habitat projects:

- Over 800 fish attractor units (ex. corrugated pipe in concrete blocks, wooden stakes secured in buckets of concrete) were installed at 18 fish attractor sites on Chickamauga Reservoir. This information (buoy locations) is available on the TWRA website.
- Wolftever fishing pier, on Chickamauga Reservoir, received fish attractor units.
- Fish attractor units were installed at Watt Bar Reservoir as part of a joint effort with Major League Fishing (MLF), Mossback Habitat, and Rhea County high school anglers. This event was also televised on an MLF televised event.

Public Outreach:

- Spring City kid's fishing rodeo
- School programs (education and career days)
- ANS awareness at Bass Pro Shops, community events, and kiosk updates at access areas.
- Social media posts on TWRA's Facebook regarding fisheries projects and ANS awareness.
- Video of FLMB pond harvest on MLF social outlets and television.
- Reservoir descriptions were created for the TWRA website to aid anglers in species opportunities at each reservoir as well as methods and areas to focus on.

TWRA Region III Rivers and Streams

By: Will Collier, Region III Fisheries Biologist

Brook Trout

Brook Trout restoration continued as a priority for Region 3 in 2021. Several years of preliminary work culminated in the restoration of over two miles of streams in the Cherokee National Forest with Southern Appalachian Brook Trout. Brood Brook Trout from Brookshire Creek were collected in the fall of 2020 and sent to the Tennessee Aquarium Conservation Institute. Brookshire was selected as a brood source based on genetics data collected in previous years. TNACI was able to produce over 700 fingerlings to use in our restoration efforts. Upper North Fork Citico Creek and Ike Camp Branch in the Citico Creek Wilderness and Sugar Cove Branch; a tributary to North River, were selected for restoration. All three streams had acceptable water quality and barriers to reduce or eliminate impacts from rainbow trout. Each of these streams previously had populations of northern Brook Trout but survey efforts indicated that these populations had been extirpated, possibly during the drought of 2016. These stockings increased distribution of Southern Appalachian Brook Trout by over 2 miles and created the only populations of SABT in Citico Creek and North River. More fingerlings are planned to be stocked in each of these streams in 2022 and TWRA will continue to monitor these new populations.

TWRA partnered with the US Forest Service and Trout Unlimited to evaluate the effectiveness of a potential barrier on Rough Ridge Creek in the Cherokee National Forest. Genetics data indicated Rough Ridge as one of the South Cherokee's healthier Southern Appalachian Brook trout populations. This population is mixed with wild Rainbow Trout. Wild Rainbow and Brook Trout were collected above the potential barrier, adipose fin clipped and PIT tagged, then stocked below the potential barrier. Future surveys will help us determine if any tagged trout make it back above the potential barrier. If indeed it is an effective barrier, this barrier would allow for Rainbow Trout removal above the barrier to benefit the native Brook Trout population.

Wild Trout

TWRA staff from multiple regions, the US Forest Service, Great Smoky Mountains National Park, and Trout Unlimited partnered to complete 3 pass distribution surveys on North River, Bald River, Sycamore Creek, and Meadow Branch. TWRA continued to partner with Trout Unlimited to monitor water temperatures on multiple wild trout streams. Trout distribution work was completed on 3 streams within the Cherokee National Forest.

Hatchery Supported Trout

Angler surveys were conducted on 10 seasonal hatchery supported trout fisheries. This data allowed TWRA to adjust seasonal trout stockings to better meet the needs of anglers and make more efficient use of hatchery trout. One result of the surveys was the creation of a new hatchery supported stream at Big Soddy Creek in Soddy Daisy, TN. TWRA will partner with the City of Soddy Daisy to provide a hatchery supported trout fishery on over a mile of Big Soddy Creek in the Big Soddy Creek Gulf Park. This new fishery will include a delayed harvest season to extend the fishery over multiple months. TWRA also partnered with the Tennessee Valley Railroad to stock a three-mile section of the delayed harvest area of the Hiwassee River that does not have road access. TWRA tanks were loaded into TVRR vehicles equipped to drive on the railroad tracks and transported by rail to multiple stocking locations in this reach of river.

Small Impoundments

The Region 3 Streams and Rivers Crew has been busy this past year implementing some new and exciting management strategies on several state park and municipal lakes. Projects across the area were part of the new Tennessee Fishing Trail, Community Fishing Program, and regional small impoundment management.

Fall Creek Falls Lake and Kelly Lake (Standing Stone State Park) received some serious fish management as part of the Tennessee Fishing Trail in 2021 including habitat improvements, supplemental feeding, bathymetry mapping, stocking, regulation changes, age and growth analysis, and routine electrofishing. With help from Tennessee Tech's Student Fisheries Association 165 habitat structures (from Mossback, Pond King, and American Fish Tree) were installed. Eight solar-powered fish feeders from Texas Hunter Products were placed along the shoreline of these two lakes, and a mix of floating and slow-sinking pellets of various sizes were dispensed at dawn and dusk during spring and fall months. The crew also employed side-scanning sonar to create bathymetric maps for angler use and to aid managers with habitat structure placement. Both lakes received stockings of Coppernose Bluegill and Threadfin shad from American Sportfish in fall 2021. The 15-inch minimum length limit of Largemouth bass on Kelly Lake will be removed, and a 20 fish per day creel of Bluegill and Redear sunfish will be added March 2022. No regulations changes were made on Fall Creek Falls Lake. Supplemental feeding on both lakes will continue in 2022 along with additional habitat installation and monitoring of management strategies.

Jack Dickert Pond (Hamilton County) was added to the Community Fishing Program. The lake is stocked seasonally with rainbow trout and channel catfish, and special fishing regulations under the new program apply. Additions to the Community Fishing Program in the region are currently under consideration.

Sportfish population assessments via electrofishing surveys were conducted on Barren Fork Reservoir, Meadow Park Lake, Grundy Lakes, Cane Creek Park Lake, and Indian Boundary Lake in fall 2021. Largemouth bass otoliths were collected from Cane Creek Park Lake for age and growth analysis, and bathymetry mapping was performed on Indian Boundary Lake. Regulation changes were made on most Region 3 State Park Lakes to reflect management goals and simplify fishing laws. These changes will go into effect March 2022 and include removal of minimum length limits of largemouth bass and combining the creel limit of Bluegill and Redear sunfish to 20 fish per day. Habitat improvements, mapping, fish stockings, and age and growth analysis are planned for 2022.

TWRA Region IV Streams and Rivers

By: Sally Petre; Streams and Rivers Biologist

This year was all about partnerships for the Region IV streams and rivers crew. We stocked Brook Trout into two new creeks this year Trail Fork of Big Creek and Norton Creek. Trail Fork of Big Creek (Cocke County, TN) Brook Trout restoration has been ongoing since 2018 and is a partnership between TWRA, the Cherokee National Forest (USFS), Trout Unlimted, the Tennessee Wildlife Foundation, USFWS, University of Tennessee, two separate land owners, and other partners. This year, in conjunction with USFS, the landowner, and Region 3 Tellico Hatchery staff and biologists, and Region IV biologists stocked Brook Trout into the upper portion of Trail Fork. We also helped our partners replace a failing and perched double culvert on a USFS road with a bottomless span structure so Brook Trout can move freely throughout the stream and vehicles and humans can more freely across the stream without impacting it.

Before (top) and after (bottom) pictures of a culvert replacement on Trail Fork of Big Creek. Photo credit Trout Unlimited

The second Brook Trout restoration project to be nearly completed was on Norton Creek, which is on private land in Sevier County, TN. TWRA regional staff partnered with the National Park Service, Trout Unlmited, USFWS and other volunteers to remove non-native Brook Trout (previously stocked from hatchery source) and stock native Brook Trout from streams within the Great Smoky Mountain National Park.

Stocking crew on Norton Creek after native Brook Trout were stocked! Photo credit: Matt Kulp, NPS

Other projects regional staff are working on include but are not limited to: Brook Trout genetics journal articles in partnship with biologists within Brook Trout native range, distribution and population status of federally theartened Blackside Dace in partnerhsip with USFWS, and off-highway vehicle management planning with many state, NGO, and other partners.

Tributes to Tom Swor and Dr. Tom Kwak

TRIBUTE TO TOM SWOR

By: Joe Cathey

Congressman Bevill, Cathey, Tom Swor, Dr. Merriman aboard Motor Vessel Mississippi at Guntersville, AL

On September 6, 2021, the Tennessee Chapter of the American Fisheries Society lost a long time member. A Certified Fisheries Scientist, Tom Swor rarely missed the Chapter's annual meetings and served as the chapter's Treasurer for several years. He really enjoyed seeing his old friends with TVA, TWRA and others at these meetings. Tom began his career in fisheries at Tennessee Tech under the guidance of Dr. Frank Bulow. He went on to serve at TVA as a Team Leader for their fish sampling program associated with coal fired and nuclear plant compliance. In the late 1980's, Tom was recruited by the Nashville Engineer District to fill the vacated Environmental Section Chief position. It was an easy selection, Mr. Swor oversaw several environmental initiatives while in this supervisory position including Dale Hollow Lake American Bald Eagle Hacking Program, Guntersville Lake Aquatic Weed Master Plan, environmental compliance for the Kentucky Lock Addition and flood control and navigation projects within the Cumberland River Basin. He was the recipient of several Commander's Awards for his Public Service that recognized his skills and abilities in managing these studies. Tom's most significant award came from his extraordinary leadership in the Ohio River Mainstem Study when he was recognized as Planner of the year in the Lakes & River Division headquartered in Cincinnati, quite an accomplishment for a Biologist in an Engineering organization. After Mr. Swor's retirement from the Corps of Engineers, he went on to further his career as a consultant assisting with several environmental planning projects along the Ohio River. Tom was a good and loyal friend who will be missed by many.

https://www.lynchburgfuneralhome.com/obituaries/Carl-Swor/#!/Obituary

From the American Fisheries Society: AFS MOURNS LOSS OF LONGTIME MEMBER TOM KWAK

The AFS family is very saddened about the untimely loss of Dr. Tom Kwak, Leader of the North Carolina Cooperative Fish and Wildlife Research Unit. Tom passed away suddenly and unexpectedly on Friday, November 19, 2021, at Riverside Medical Center in Kankakee, Illinois. Tom was Past President of the AFS Southern Division and previously served as president of the Education Section and the North Carolina Chapter. He left behind his wife, Danielle Pender (who is also an AFS member), and two children, Jacob & Alexandra (Alex).

His obituary can be found at the link below.

https://www.daily-journal.com/obituaries/thomas-kwak/article_1b6ea66a-4adc-11ec-8ec7-07acdc9f55d6.html

Additional information is available on the North Carolina chapter website at: https://nc.fisheries.org/kwak-memorial/

Education funds have been established for the Kwak children, Jacob, and Alex, through the College Foundation of North Carolina, 529 Plan. To make a donation in Tom's memory, click on the link to the CFNC gift page at the link below. Enter the following information: Participant's Name: Danielle Pender, Beneficiary's Name: Jacob Kwak, Account Number 540665185-001, and Beneficiary's Name: Alexandra Kwak, Account Number 540665185-002, and then print the page and mail it in with your contribution.

https://www.cfnc.org/media/3egb3h3n/c428e.pdf?fbclid=IwAR3ktnKl6zbgfTIo_KLq6pbR4HyQqYK5QmXyAOUioYK6Ih0q7wouPnOsQWc

If you are interested in sharing tributes with Tom's family about his wide impact in the world, you can leave remembrances through the online guestbook at the link below. We are sure his wife and children would appreciate comments and stories.

https://www.cotterfh.com

THE TOM KWAK MODEL OF MENTORSHIP IN SCIENCE

By: Gus Engman

To anyone who serves as a mentor, supervisor, or any sort of a leader in science, Tom Kwak was a model of how it is done right. My best summary of Tom's mentorship philosophy is:

Put people first and great science will follow. Build friendship, trust, and mutual respect with a person, teach them to believe in themselves, and give them the freedom to excel in their own way. If your mentee knows that you value them as a person and not just for the work that they do then they will produce to their maximum potential.

Every single meeting that I had with Tom as his PhD student, post-doc, and eventually, faculty collaborator started with a check-in on personal life. Whether it was "how is your deer season going?", "are your parents healthy?", or "how is your partner doing?", we often spent more time talking about these 'real life' questions than science in his office. By starting, and often ending, every 'work' meeting

with a chat about our lives Tom was helping remind me to keep my priorities straight; things like health, family, and happiness are paramount to scientific production.

You might think that a professor who tells his PhD students things like: “When you’re old you are going to care more about the number of days you spent hunting than the number of journal articles you wrote” would not be very productive. However, Tom’s publication record–over 100 articles that have been cited over 4,000 times–says the opposite.

Tom’s loss has left a giant void in the realm of fisheries science and the lives of everyone who knew him. However, his model of mentorship can endure. If we all adopt it in our relationships with students, employees, colleagues, and friends and family can produce to our maximum potential and live full, satisfying lives.