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President's Message

As we near our nation's independence, I am thankful we live in a country where natural resource conservation and preservation are a priority. We may bicker and have different beliefs as Americans but all of us value our natural landscapes, wildlife, and resources at some level. Our country has national parks, endangered species acts, and systems to preserve and conserve our natural resources. As natural resource managers and citizens let us not take that for granted. We need to do our part as well. I challenge all of you to take time out of your busy summer to take a kid fishing, teach about environmental stewardship, or introduce a child to the cool things we see and touch daily. We need to instill in our youth the importance of our natural resources and why we need to continue to protect them.

Our environmental concerns committee has been busy over the past few months writing letters to demonstrate our support for aquatic wildlife around the state. In May, both the environmental concerns and executive committee in cooperation with the NC Wildlife Federation wrote a letter to the NC General Assembly concerning Senate Bill 434 "An Act to Amend Certain Environmental and Natural Resource Laws". Jennifer Archambault clearly stated our support for continued protection of riparian buffers statewide. The letter is included in this newsletter. I want to personally thank the Environmental Concerns committee for all their hard work this spring.

Finally, I want to remind you of the upcoming parent society meeting in Tampa, FL from August 20-24, 2017. I hope many of you can take advantage of the close

proximity of the meeting to be able to attend. I also want to congratulate both Stephen Parker and Steven Lombardo for being awarded the NCAFS Student Travel Award.

I hope all of you have a great summer and stay cool!



Submitted by Corey Oakley, NCAFS President

NCAFS Member Receives US Fish & Wildlife Service Recovery Champion Award

The US Fish and Wildlife Service recognized NCWRC biologist Rachael Hoch with its Recovery Champion Award, recognizing her significant contribution to the recovery of federally threatened or endangered animals.

Rachael coordinates the Conservation Aquaculture Center at NCWRC's Marion Fish Hatchery and she was a co-instructor of the 2017 NCAFS Continuing Education workshop at this year's Chapter meeting, teaching fellow members about freshwater mussel biology and identification.

Read the full NC Wildlife Resources Commission press release here: <http://www.ncwildlife.org/News-Archives/north-carolina-biologist-recognized-for-work-to-recover-endangered-species>



Rachael Hoch with native mussels. Photo by Gary Peeples, USFWS.

NCAFS Treasury Report as of 6/1/2017

1. Robust Redhorse Conservation Committee –\$8,409.43
2. NCAFS checking –\$5,015.18
3. NCAFS PayPal –\$309.98
4. NCAFS Edward D. Jones Account 1 (Ichthus Fund) – \$32,473.02
5. NCAFS Edward D. Jones Account 2 –\$44,791.11

The EXCOM approved a \$500.00 donation to sponsor the 2017 AFS meeting in Tampa, FL. Our donation was sent to the Florida AFS Chapter, a planning partner for the meeting. NCAFS also received a \$679.00 rebate from AFS from annual dues.



Submitted by Kelsey Lincoln, NCAFS Secretary/Treasurer

Update from the Environmental Concerns Committee

The Environmental Concerns Committee (ECC) has been active in coordinating with the EXCOM to respond to several environmental issues this spring. Thanks goes to current ECC members – Marla Chambers, Reid Garrett, Kyle Rachels, and Ben Ricks – for their efforts in helping take action. In April, the NC Senate passed [Senate Bill 434](#), “An Act to Amend Certain Environmental and Natural Resource Laws.” Among other issues, S434 repeals Catawba River Basin riparian buffer rules. The bill also limits the authority of local municipalities to establish riparian buffer rules that exceed those of the state. In mid-May, the EXCOM learned of this legislation and contacted the ECC to respond. Together, the ECC and EXCOM drafted a [letter](#), and on 24 May, it was sent to NC Senate President Pro Tempore Phil Berger and House Speaker Tim Moore (and copied to all House members). The letter highlighted the benefits of riparian buffers and our Chapter’s concerns with S434 and any impending companion House bill. Two NC House members replied to me directly with thanks for providing our input (one specifically stated he was opposed to removal of buffer protections). We were informed in mid-June that our voice was influential, and that S434 was sent to the House Rules committee to die. While we have represented NCAFS as a whole, I would encourage members to review bills that impact aquatic resources and [contact your representatives](#) personally if you have concerns about provisions therein becoming law.

The EXCOM has also asked the ECC to provide a letter of support for [updated state species listings](#), on which commissioners of the North Carolina Wildlife Resources Commission will vote in July. We have drafted the letter and provided it to the EXCOM for comment; it will be ready to send ahead of the scheduled vote.

As always, Chapter members are encouraged to contact me with issues that may benefit from the voice of NCAFS – and we may call on you for expertise in response to issues when needed! If you are interested in participating on the Environmental Concerns Committee, please contact me at jennifer.m.archambault@gmail.com.

Submitted by Jennifer Archambault, NCAFS Environmental Concerns Committee Chair

Family Fishing Fiesta Event a Huge Success - Thank you NCAFS!!!!

For the second year in a row, the North Carolina Chapter of the American Fisheries Society (NCAFS) donated \$1000 towards the [Family Fishing Fiesta](#) - a free Family Fishing event provided in partnership with Jordan Lake State Recreational Area.

On April 8, 2017, at the opening of the event, Jordan Lake State Park counted 395 vehicles full of families ready to fish at the Fiesta! With an estimated average of 3 people per vehicle, uncounted attendance neared 900. A total of 345 families registered to participate in the Fiesta Quest challenge, and most of them visited all 25 exhibitors' stations, collecting tackle boxes when they finished.

Putting together the Fiesta is a bit like putting together a puzzle. A large part of the success of this event is due to the grant from NCAFS. Success requires that key pieces are in place months in advance. We need the grant monies so we can begin to make promises to the press for the giveaway items: a lifetime license, rods and reels, PFDs, a taste of freshly cooked fish,

and the knowledge of how to clean their catch. These key pieces must be in place before the marketing team can accurately write press releases, begin promotional material layout and initiate website work. And, most importantly, those pieces are required to successfully recruit our target audience and partners. In short, without these funds, the Fiesta planning committee would be hard-pressed to commit to many of the critical pieces of the event. Knowing we have the funds makes it possible to proceed. Thank you for this freedom and flexibility as we pull together the many pieces of the puzzle.

There are so many wonderful partners contributing to this event. The community in Pittsboro has stepped forward with resources and staff. Chatham Parks and Recreation sent tents for stations. Shannon Culpepper of Chatham Waste Management came again this year to manage the recycling of the event, run her interactive recycling station, and completely handle the food trucks. She did all this, and served on the

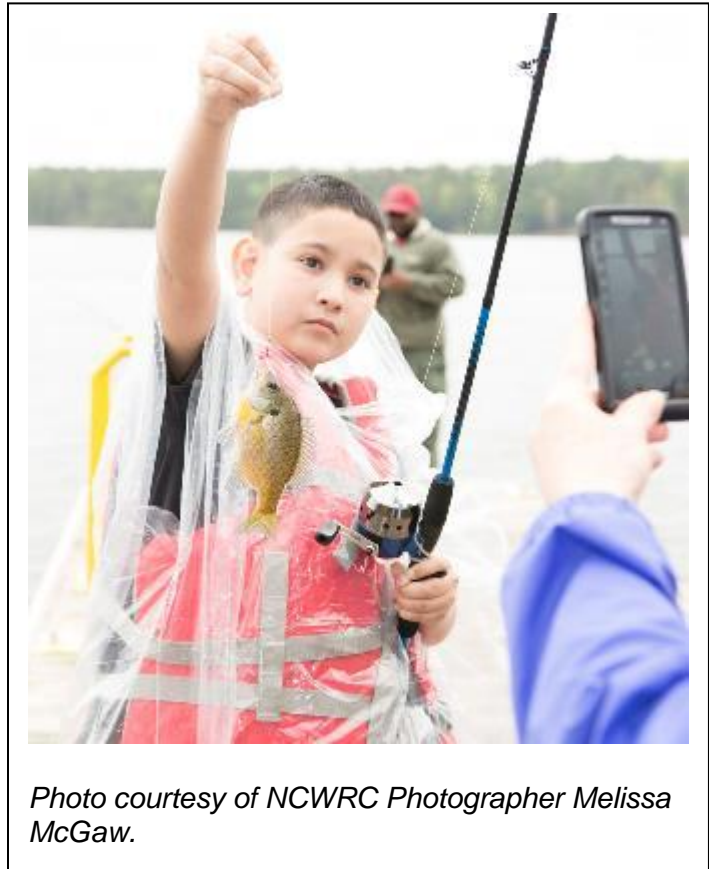


Photo courtesy of NCWRC Photographer Melissa McGaw.

planning committee. Chatham County Sheriff's office once again sent a large contingent of their staff to meet and greet the public, and this year they brought their new boat!

Three large boats made quite an eye-catching display! Parked in a semi-circle above the fishing area were the Wildlife Law Enforcement boat, the Chatham Sheriff's new boat and the NCWRC District Fisheries Biologist's



Photo courtesy of NCWRC Photographer Melissa McGaw.

electrofishing boat, with staff available answering questions. Flanking them were the 4-H Alamance Anglers and the NCSU Bass Pack handing out bait and helping folks fish.

Each year the donation from NCAFS purchases fish from Locals Seafood for fileting and grilling. Teresa Colon, a native Spanish speaker from the Division of Air Quality at EPA cooked up some of those catfish in plantain boats with her special combination of spices. NC State Parks deep-fried the rest in their

special recipe. This cooked up a stiff competition between State Park's deep-fried versus EPA's grilled that went on all-day. No one is sure who won, but there was plenty of laughter and at the end of the day the fish were gone!

One lucky and thrilled winner walked away with a lifetime fishing license thanks to NCAFS, and lots of kids left with new fishing poles or life jackets thanks to NCAFS as well as Cabela's and Bass Pro. As the winner of the lifetime license walked up, we announced this was a gift from NCAFS. His young adult face just beamed as he said, "This is going to get a lot of use!".

Welcoming everyone, the Family Fishing Fiesta specifically provides a bilingual experience to include Latino



Photo courtesy of NCWRC Photographer Melissa McGaw.

and Hispanic families and friends. A myriad of goals are reached through this event, each of which reflects the critical partner messages for the target audience: family, health, education, safety, enjoyment and conservation.

This year offered possibly the highest number of stations we will ever attempt and eager participants wanted to get to them all! The stations each shared part of the overall messaging. The list (shown below) of participating organizations shows an impressive array of community involvement and indicates the commitment through all types of organizations (federal, state and local government, non-profits, large and small businesses) to ensure inclusive programming for the public.

NC American Fisheries Society (Sponsor)
NC State Parks
NC Wildlife Resources Commission (Backyard Bass, Cool Hand Luke)
NC Student Fisheries Society: lure demonstration and fish identification
Cabela's: PFDs, fishing equipment demonstration and pole donations
Bass Pro: donations of PFDs and fishing equipment
Locals Seafood: delivered yummy catfish
Frog Hollow Outdoors: free kayak fishing/paddling on the water
US Fish and Wildlife Service: Endangered Species Cape Fear Shiner game
US Army Corps of Engineers: PFD photo booth
US Coast Guard Auxiliary: PFD fittings, boater safety education
NC Division of Air Quality: Grilled fish
Chatham County Sheriff: boater safety and community outreach
Chatham County Solid Waste and Recycling: recycling station and food trucks
NCSU Bass Pack: Backyard Bass, casting practice, fishing assistance.
Immersion Spanish Language Academy: recruitment and translation
El Centro Hispano: recruitment
El Vinculo Hispano: translation and cultural awareness
River Guardian Foundation: make and take containers for stashing monofilament
Clean Jordan Lake: Trash Treasure Hunt
American Wildlife Refuge: Live raptors with handlers; wildlife of the lake
Haw River Assembly: magnetic fishing challenge
Environmental Educators of NC: welcome table, magnetic fishing
Alamance Anglers 4H: bait station
Alamance 4-H Environmental Science Club: bait station, parking, fishing
Homeschool group: first aid tent, fishing assistance, snacks for volunteers.

Families started at the beginning of the Quest. As they moved through the stations, they advanced in skills. They began by trying their hands at casting to catch a Backyard Bass, and identifying the real species on the back, then tying a Palomar knot with the fun and engaging Gerald Klauss, fisheries biologist and educator with NCWRC. For those who wanted to learn about the management of our fisheries, three stations covered fish identification, angling for specific species and management of the habitat. Participants tried dragging a lure through the water to learn about lure types with the

Student Fisheries Society, visited the Land and Water Access information station to learn about NCWRC's Gamelands at Jordan Lake, and learned how to search with binoculars for yard and songbirds with the help of an NCWRC biologist.

With basic skills in hand, they moved on to learn about safety in and around the water. Guided by Ann May and her team of NCWRC educators, brave and daring youth and adults attempted to pick out the most pennies from a bucket of ice water before signs of "hypothermia" set in. A very popular stop in the safety stations was the Coast Guard Auxiliary's offering of PFD fittings. Youth were correctly fitted for a life jacket, and later had their photo taken with their PFD by the Army Corps of Engineers. We're pretty sure everyone got the message: wear a PFD!

Ready with new skills and safety knowledge, they headed to the water to bait their hook and try their hand at catching. Down on the beach, Frog Hollow Outdoors offered kayak paddling on the water with safety and skill training, while Cabela's representatives demonstrated the different types of life-jackets and fishing gear available. Everyone had a chance to talk with the biologists, sheriff's department and hunter education representatives about all aspect of outdoor life and careers as they waited for the 2:00 p.m. drawing. If they were lucky, they may have spotted the State Park's Jennifer Fenwick disguised as Jenny Fishpatrick, moving among the crowd, and dancing with children at the raffle.



Photo courtesy of NCWRC Photographer Melissa McGaw.

Back at the pavilion, food trucks welcomed customers for another toss up competition between excellent Hispanic fare and darn good BBQ. Those interested in care of the catch attended the filet and cooking stations, as the traditional band warmed up to play for the crowd that gathered to see who would win the lifetime license!

Thank you NCAFS for making this day such a smashing success, and for being the power behind a multi-agency initiative to successfully outreach to diverse populations. Your gift is a critical piece. You get the credit for making this event possible.

Truly, a thousand thanks!

Respectfully submitted by CC King, NCWRC Southern Piedmont Education Specialist

Volunteers needed for Lake Gaston Aquatic Habitat Enhancement Project

Please see the link below for more information how you can volunteer at Lake Gaston to help build vegetation enclosures that enhance native vegetation. Volunteers are needed the week of July 24-28. This is a great opportunity to not only see and learn about how enclosures are being used by biologists in reservoir habitat conservation, but to be a part of the team of community members that help build them!



Photo courtesy of Mark Fowlkes, NCWRC Piedmont Aquatic Habitat Coordinator

<http://www.ncwildlife.org/News-Archives/volunteers-needed-for-lake-gaston-aquatic-habitat-enhancement-project-2>

Anyone interested in volunteering can email Wally Sayko at wasay1943@gmail.com or call 434-636-5393.

Submitted by NCWRC staff Kelsey Lincoln and Mark Fowlkes.

Current Distribution of the Warpaint Shiner in the Yadkin-Pee Dee River Drainage

The Warpaint Shiner, *Luxilus coccogenis* (Cope 1868), was described from the upper Holston River in Virginia and is indigenous to the middle and upper Tennessee River system in Virginia, Tennessee, North Carolina, Georgia, and Alabama, and the upper Savannah River drainage in South Carolina (Jenkins and Burkhead 1994; Fuller, et al. 1999). The Warpaint Shiner is commonly found in usually clear, cold to cool water streams inhabiting flowing pools, runs, and along the edges of riffles. It is insectivorous, with a large eye, large, protrusible, obliquely terminal mouth, and sharp-pointed, raptorial pharyngeal teeth, feeding primarily on mayflies and terrestrial insects in the middle of the water column and at the surface (Outten 1957). Evolutionarily, it is an obligate spawning associate of the nest building River Chub, *Nocomis micropogon*. However, since its introduction into other river systems, it has adapted to spawning over the nests of other species of *Nocomis* (i.e., Bigmouth Chub, *N. platyrhynchus*, and Bluehead Chub, *N. leptocephalus*).

The Warpaint Shiner was not known to occur in the Yadkin-Pee Dee River drainage until 1996 when 10 specimens were collected by DWR staff from the Yadkin River at NC 268 in Caldwell County (NCSM 50121; Tracy 2007). Since then, Warpaint Shiners have been found in 5 sub-watersheds at 10 sites, representing 25 collections all upstream of Kerr Scott Reservoir in Wilkes, Caldwell, and Watauga counties (Figure 1). The number of specimens found in any particular collection ranged from 1-61 fish per sample. It was believed that the lot from 1996 (NCSM 50121) represented the first known occurrence of its introduction in the drainage. However, on November 30, 2005, Dr. Wayne C. Starnes re-identified a lot of seven specimens collected eight years earlier at a site just upstream from the 1996 site which had been identified as Telescope Shiner, *Notropis telescopus* (NCSM 15273). Five of the specimens turned out to be Redlip Shiner, *N. chiliticus* (NCSM 42739) and two specimens were re-identified as Warpaint Shiner (NCSM 15273).

It is thought that Warpaint Shiner was introduced, probably through bait bucket introductions, sometime between 1979 (following surveys in the late 1970s by Mickey (1981) and (1988)). Prior surveys (e.g., Bailey (1949); Tatum, et al. (1963); Philips (1980); Mickey (1981); and Bonner (1983a, 1983b)) all failed to detect the species' presence in this drainage. It was also not reported as occurring in the drainage by Gilbert (1964), Ramsey (1965), Gilbert (1980), Hocutt, et al. (1986), or by Menhinick (1991).

Its expansion gives credence that since its original introduction it has spread naturally, but there have also been other separate introductions. For example, the Warpaint Shiner is now found above and below Omni Supply Dam (36.001667°, -81.564444°) near Patterson, NC and above the abandoned Buffalo Creek Dam (36.029722°, -81.513333°) near Ledgerwood, NC. Source populations might have included the Watauga or French Broad River subsystems where the species is indigenous, or from the New and Catawba River subsystems where the species is nonindigenous. Genetic studies could shed light on where these introduced populations originated.

Currently, it is found in every watershed upstream from the backwaters of Kerr Scott Reservoir, except Stony Fork. The Warpaint Shiner may continue to disperse downstream migrating into the Stony Fork watershed. But it can go no further downstream because the Yadkin River near the West Yadkin Trail and Canoe Access area transitions from a lotic to a lentic environment. Warpaint Shiner, being a strictly lotic species and obligate spawning associate of nest building *Nocomis*, would find Kerr Scott Reservoir an inhospitable environment for colonization, inhabitation, and further downstream migrations. If by some chance, the Warpaint Shiner does survive and colonize all tributaries draining into the reservoir (e.g., Lewis Fork and Warrior Fork) further downstream expansion would hopefully be prevented by the presence of the Kerr Scott Dam.

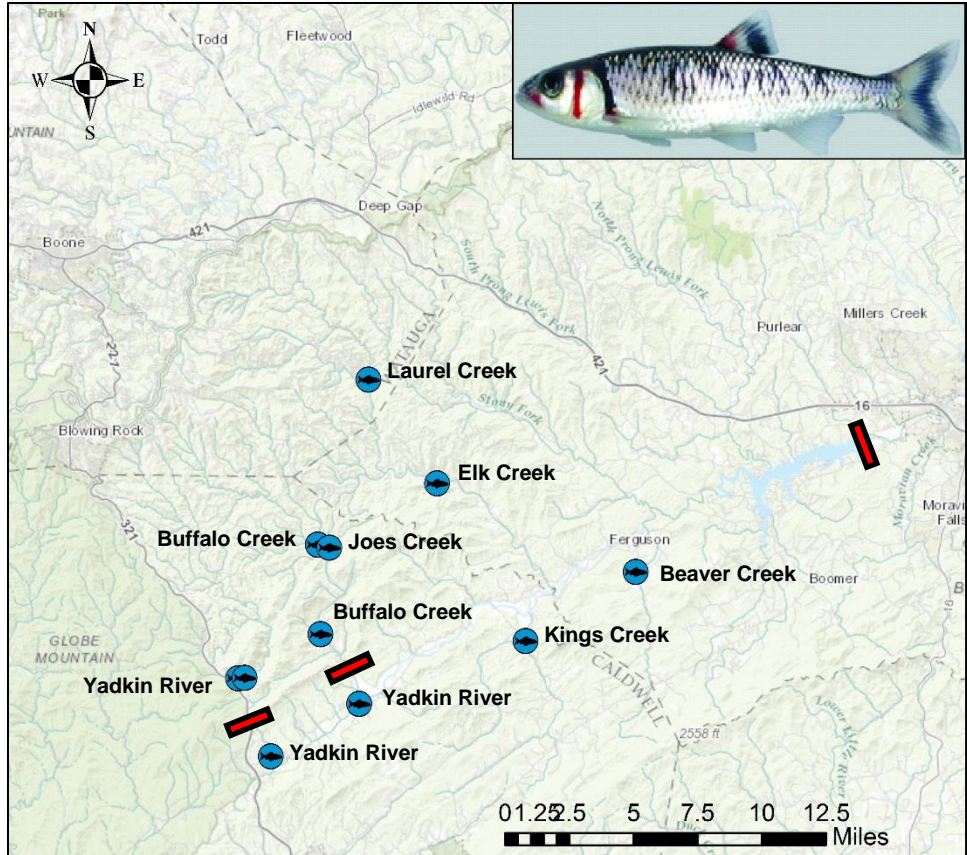


Figure 1. Known distribution of the Warpaint Shiner, *Luxilus coccogenis*, in the upper Yadkin-Pee Dee River drainage. Red bars denote dams. Photo courtesy of Fritz Rohde, NOAA; <http://www.sefishescouncil.org>.

Other non-indigenous species sympatric with the Warpaint Shiner in these streams include Central Stoneroller, *Camptostoma anomalum*, Striped Jumprock, *Scartomyzon rupiscartes*, Brown Trout, *Salmo trutta*, Rainbow Trout, *Oncorhynchus mykiss*, Smallmouth Bass, *Micropterus dolomieu*, Rock Bass, *Ambloplites rupestris*, and Redear Sunfish, *Lepomis microlophus*. Other insectivorous cyprinids co-occurring in these streams with whom Warpaint Shiners might compete include Rosyside Dace, *Clinostomus funduloides*, Redlip Shiner, *N. chiliticus*, Sandbar Shiner, *N. scepticus*, Fieryblack Shiner, *Cyprinella pyrrhomelas*, Satinfin Shiner, *C. analostana*, Thicklip Chub, *C. labrosa*, Creek Chub, *Semotilus atromaculatus*, Highback Chub, *Hybopsis hypsinotus*, and Blacknose Dace, *Rhinichthys obtusus*. Interspecific interactions and ecological impacts to the native fish communities in the upper Yadkin-Pee Dee River drainage from this recent inhabitant are unknown and warrant further study.

Literature Cited and Additional Resources

Databases queried for this article were those of the North Carolina Division of Water Resources, the North Carolina Wildlife Resources Commission, the North Carolina

State Museum of Natural Sciences

(<http://collections.naturalsciences.org/searchFishes.aspx>), Global Biodiversity Information Facility (<http://www.gbif.org/>); and the USGS Nonindigenous Aquatic Species (<https://nas.er.usgs.gov/>).

USGS Nonindigenous Aquatic Species web pages pertaining to the Warpaint Shiner:

1. Fact Sheet - <https://nas.er.usgs.gov/queries/FactSheet.aspx?SpeciesID=562>
2. Map - <https://nas.er.usgs.gov/queries/SpeciesAnimatedMap.aspx?SpeciesID=562>
3. USGS Point map - <https://nas.er.usgs.gov/viewer/omap.aspx?SpeciesID=562>
4. Collection info - <https://nas.er.usgs.gov/queries/CollectionInfo.aspx?SpeciesID=562>

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Submitted by Bryn H. Tracy, NC Division of Water Resources (retired)

Good Work! – Recent Publications by NCAFS Members

The “Good Work!” newsletter section is designed to promote and share the great work that you do! The goal is to provide a way for members to share recent publications that they are involved in; including peer-reviewed articles, agency gray literature, dissertations and theses.

To get us caught up to speed on the great work that our members are doing, we asked members to send in citations for any publications they have helped author between 2014 and 2016. We have included those below. For the fall newsletter, we plan to ask for anything put out in 2017, and then leave it as a regular section in future newsletters.

- Archambault J. M. and W. G. Cope. 2016. Life stage sensitivity of a freshwater snail to herbicides widely used in invasive aquatic weed control. *Freshwater Mollusk Biology and Conservation* 19(2): 69-79.
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Call to Action!

If you want to contribute, have a story idea or would like us to include something in next quarter's newsletter, e-mail Kevin Hining kevin.hining@ncwildlife.org or give him a call at 336-213-9692. Also, if you want to become more involved with one of the many great NCAFS committees then please check the link below for information about each one, contacts, etc., <https://nc.fisheries.org/who-we-are/committees/>

Valuable Links

The [American Fisheries Society Home Page](#) offers a wealth of links to assist you in your fishy endeavors. Information on ordering AFS books, annual meetings, chapter links and joining the AFS can be found there.

This and [archived NCAFS newsletters](#), along with links, [chapter information](#), and [upcoming meetings](#), can be found on the [NCAFS website](#).

[Click to view dates & deadlines](#)

UPCOMING MEETINGS
In Fisheries & Ecology