AMERICAN FISHERIES SOCIETY

SEPTEMBER 2012 NEWSLETTER

INSIDE THIS ISSUE

President's Message

Summer field season is winding down and fall is in the air. It's almost time for reservoir work, data crunching, report writing, catching up on fisheries literature, and attending meetings. Reports from St. Paul indicate the 2012 AFS National Meeting was a great success. Congratulations to travel award recipients and the NCSU Student Subunit for once again showing the country how special and dedicated our students are. Thanks to all Chapter members who attended, participated in committees, and presented in St. Paul for representing the novel work NCAFS members are doing across our great State. Several Chapter members and I also recently attended the SDAFS East Coast Trout Management and Culture Workshop in Frostburg, MD. The SDAFS Trout Committee did a fantastic job hosting the event at Frostburg University. It was a wonderful meeting and it's exciting to see the various State agencies and Universities discussing collaborative efforts to resolve common conservation and management issues. While attending the meeting I also had the pleasure of exploring several native brook trout streams with a Maryland Fisheries Biologist and a fly rod. What a beautiful part of the country!

The SDAFS and NCAFS Annual Meetings are fast approaching. The 2013 SDAFS Spring meeting is scheduled for February 7-12th in Nashville, Tn. (http://www.sdafs.org/meetings/2013/default.htm). Since the meeting location is nearby, I hope to see many of you there. President Elect Greg Cope has been working hard to organize the 2013 NCAFS Annual Meeting in Burlington, NC. Last year we almost set a record for

President's Message (continued)

attendance and had to decline a few abstracts due to time constraints. Please register and submit abstracts early to give our team plenty of time to organize sessions, talks, moderators, etc. If you would like to assist with the meeting, please contact Greg as I'm sure he would love to hear from you. The Education and Outreach Committee is also organizing a wonderful continuing education course that will explore contemporary approaches to conservation genetics. Please sign up early since openings will go fast for this informative workshop.

Lastly, Web Master Kim Sparks and the Education and Outreach Committee have been working diligently on updating the NCAFS website. It should be live within a few weeks, so please take a look and let us know if you have any comments or suggestions. We welcome pictures, reports/publications, interesting links, or whatever you have that may contribute to the site.

Enjoy the final days of summer and remember to stay safe on the water.

Chris Wood

Secretary-Treasurer's Report

September 2012 Treasury Report

Submitted by Julie Harris, Secretary-Treasurer

Awards Committee

News from the North Carolina Chapter American Fisheries Society Awards Committee

2012 Student Travel Awards Presented

The N.C. AFS Chapter established a Student Travel Award Program in 2005 for the specific purpose of encouraging professional growth of students and maximal participation of undergraduate and graduate students at the annual meeting of the American Fisheries Society. Monetary support is provided to qualifying students via a travel award of $200 to $400 to help defer the cost of meeting travel, registration, and accommodations. The 2012 awards were presented to four students for the 142nd Annual American Fisheries Society meeting held August 19-23, 2012 in St. Paul, Minnesota.

The 2012 award winners were all students from N.C. State University. Each student received a cash award of $400 from the Chapter's Ichthus Fund account, which was

established specifically to foster student involvement. The winners were Jennifer Archambault, Gus Engman, and Tamara Pandolfo, advised by Dr. Tom Kwak, and Jared Flowers, advised by Dr. Joe Hightower.

The 2011 N.C. AFS Student Travel Award winners pictured at the meeting in St. Paul, Minnesota. Shown from left to right are Gus Engman, Tamara Pandolfo, Jared Flowers, and Jennifer Archambault.

These students represented the Chapter admirably at the Seattle meeting and expressed their sincere gratitude to the Chapter for helping to make their attendance and participation possible.

Submitted by Greg Cope and John Crutchfield

Environmental Concerns Committee

In spring, 2012, I became Chair of the Environmental Concerns Committee after many years of great leadership by Dave McHenry. We look forward to working with the Chapter to keep members informed about important environmental issues that affect water resources in our state. Please contact me (ddaday@ncsu.edu or 919-513-7568) with suggestions, ideas, or pressing issues and I'll make sure they are communicated to the committee.

Thank you

Derek Aday, Chair ECC

Education and Outreach Committee

Hello Everyone! We are excited to announce that the 2013 continuing education workshop will be taught by Dr. Tim King of the U.S. Geological Survey. Dr. King will be speaking to us about different genetics techniques and how they are applied to the fisheries world, but we wanted to give the chapter a chance to identify any specific genetics topics that are of interest to the fisheries field in NC. If you have any topics that you would like discussed during the workshop please email Jessica Baumann (jessica.baumann@ncwildlife.org) and sometime before the end of the year we will send out a survey to the chapter containing possible topics. Looking forward to another great meeting! (Please see the **Meetings of Interest** section for additional information on the 2013 NCAFS annual meeting)

Jessica Baumann Education and Outreach Committee Chair

NCSU Student Subunit Report

Summer has come and gone for the North Carolina State University Student Fisheries Society (SFS), signifying the start of another great school year. As always, SFS was active in the community, field, and at professional meetings.

The entire Student Fisheries Society contributed to a full assessment of Rockingham Lake, in Reidsville, NC. This assessment included electrofishing, baited hoop netting, trap netting, water quality analysis, and side scan sonar deployment, which all went into a written report on the state of Rockingham Lake's fish populations and habitats. Outreach activities like these provide real world application of the skills learned in the lab and classroom at NCSU, with opportunities for students from different labs and backgrounds to share in a common goal.

Matt Stillwell and Jared Flowers on Rockingham Lake

Over a four-week period, Student Fisheries Society members volunteered with the Junior Curators Program from the Museum of Natural Sciences out at Yates Mill Pond to discuss pond ecosystems. We followed this up with cane pole fishing, with 100% success. It was the first fishing experience for many of these children and provided a rewarding experience not only for them, but for us as well.

*SFS volunteers assist children with Fishing at Yates Mill Pon*d.

We at SFS are fortunate to have tremendous support from NCSU and the Professional Community and Societies, directly leading to our ability to conduct research as well as outreach activities in the community. With this dedication, we have been fortunate to receive awards. SFS truly understands that these awards are a reflection of the support and dedication from folks like you, and we appreciate your help and generosity.

Just recently, a large portion of the Student Fisheries Society attended the 142nd Annual Meeting of the American Fisheries Society in St. Paul, Minnesota, where SFS student research projects from both North Carolina and Puerto Rico were presented as oral presentations and posters. As representatives of the University and the State of North Carolina, we thank the American Fisheries Society for recognizing our dedication not

only to our research but also to outreach within the community.

NCSU students and faculty attending annual AFS meeting in St. Paul, Minnesota

Four students, including Gus Engman, Jennifer Archambault, Tamara Pandolfo, and Jared Flowers, were honored to be provided with **Travel Awards** from the North Carolina Chapter of the American Fisheries Society. Further, Will Smith was honored to represent the Chapter with funding from **The Rich Noble Outstanding Student Presentation Award** he received in February.

At the meeting, 4 SFS members, including Tamara Pandolfo, Jennifer Archambault, Will Smith, and Marybeth Brey, were selected through a rigorous process as the top 20 students to present at the Best Student Presentation Symposium (20% represented by NCSU!). We are incredibly proud to announce that Tamara Pandolfo was rewarded with the **Honorable Mention Award** (2nd Place!) for all student research presentations for her talk titled "Thermal Tolerances of Freshwater Mussels and Fishes". Congratulations to Tamara and the other three SFS students for this incredible honor!

At the business meeting, John Boreman, a state Chapter member and regular attendee of monthly Student Fisheries Society meetings, was installed as President of the American Fisheries Society. Congratulations to President Boreman, and we look forward to having the Head Honcho provide reports to SFS at our monthly meetings with regards to the Parent Society.

Immediately preceding his installment, President Boreman announced to the 1,400 people in attendance that the North Carolina State University Student Fisheries Society

was selected as the **Outstanding Student Subunit of the American Fisheries Society** for the second year in a row. Congratulations to all past and present members on this most prestigious award!


American Fisheries Society

AF
SF

Organized 1870

presents its

Outstanding Student Subunit Award

to the

North Carolina State University, Student Fisheries Society

in recognition of its outstanding professionalism, active resource protection and enhancement programs, and commitment to the mission of the American Fisheries Society

2012

Executive Director, American Fisheries Society

William R. Taylor

President, 2011-2012

Several other prestigious recognitions were given to SFS students at the annual AFS meeting. Patrick Cooney was awarded the **Best Paper Award** in the annual Student Writing Contest for his paper titled "Climbing the Slippery Slope" that will be published in an upcoming Fisheries Magazine. Additionally, Gus Engman received a generous **Travel Award** from the Estuaries Section for his work dedicated to understanding the role of estuaries in Puerto Rico.

Dr. Dana Sackett and Dr. Julie Harris, both former NCSU students and still active members of the Student Fisheries Society, came in **First and Second Place** in the three mile "Spawning Run" that took place at the meeting along the banks of the Mississippi River. As you can see, our drive is not limited to our research projects!

Back in North Carolina, Patrick Cooney was recently awarded with a **Scholarship Grant** by the North Carolina Wildlife Federation, with specific funding provided by the Rocky River Chapter of Trout Unlimited to complete research on trout in the mountains of North Carolina. One of our very own NCSU alumni, John Crutchfield, serves as the President of this incredible Federation.

We look forward to a busy upcoming semester, with many outreach activities planned, along with speakers Bryn Tracy with the Department of Environmental and Natural Resources at our September meeting and Tyler Black with the North Carolina Wildlife Resources Commission at our October meeting. If you are interested in attending or

speaking to our group at a future meeting about your expertise in aquatic environments, we would love to hear from you!

Submitted by Patrick Cooney and Gus Engman, SFS co-presidents

News from Around North Carolina

North Carolina's Imperiled Fish Fauna, Part IX
Submitted by Bryn H. Tracy, Fred C. (Fritz) Rohde, Wayne C. Starnes, and Ryan J. Heise
on behalf of the NCWRC's Scientific Council of Fishes

As mentioned in the Chapter's 2010-2012 newsletters, there are approximately 215 indigenous, described, and undescribed species of strictly freshwater fishes in North Carolina. Of these, 26% are considered imperiled as state or federally listed: Endangered (17), Threatened (17), or Special Concern (22) (Harris et al. 2010). It is the responsibility of the 15 member Scientific Council on Freshwater Fishes to submit its recommendations to the Nongame Advisory Committee of the North Carolina Wildlife Resources Commission (NCWRC) if changes in imperilment classifications for any species are warranted. To communicate our findings with the chapter membership, this is the 9th of 16 planned articles on the species that the Council believes have become more imperiled since the last listing in 2006. Thus acquainted, it is hoped that chapter members can serve as additional "eyes and ears" to expand our vigilance for these rare or highly localized fishes.

"Broadtail" Madtom, *Noturus* sp. cf. *leptacanthus* (an undescribed taxon)
Current Status: Special Concern, Proposed Status: Threatened

“Broadtail” Madtom from Lake Waccamaw (top) and South River (bottom). Photographs courtesy of Fritz Rohde.

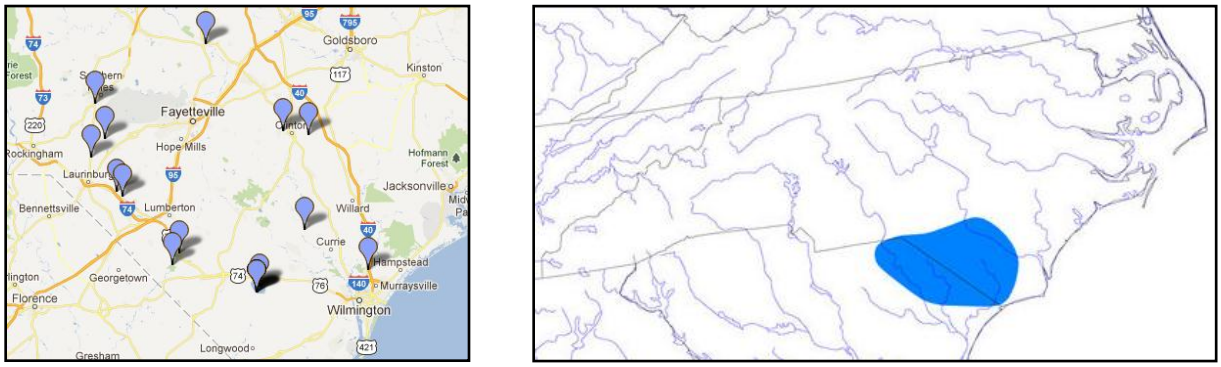
Type Specimen and Type Locality – This species of madtom has not been formally described, but has been known to researchers since the mid-1970s (Jenkins and Palmer 1978). Upon scientific description, a type specimen and type locality will be so designated. The earliest known vouchered records for the “Broadtail” Madtom go back to 1960 and 1962 when specimens were collected from the Lumber River, Cape Fear River at Lillington, the Northeast Cape Fear River at Castle Hayne, and Great Coharie Creek as part of the NCWRC’s state-wide survey of fishes (Starnes and Hogue 2011). Menhinick et al. (1974), based upon communications with Bill Palmer (NCSM) and Robert Jenkins (Roanoke College), reported specimens from Bladen, Columbus, and Brunswick counties.

Description - This small humped-back madtom of the southeastern Coastal Plain differs from other North Carolina madtoms by having small serrae present only on the distal part of the pectoral spine; the fins are usually clear with dark streaks near the base; there are 13 to 16 anal rays, and the nasal barbel does not extend beyond the eye. The head is exceptionally broad. The body is light with dark spots in the river form and uniform gray in the Lake Waccamaw form. Adults reach 33 to 65 mm total length (Rohde et al. 2009).

The “Broadtail” Madtom may be separated from the Margined Madtom, *Noturus insignis*, by the specks on the body and the blotch on the caudal fin. In adjacent South Carolina, the “Broadtail” Madtom may be distinguished from the Speckled Madtom, *Noturus leptacanthus*, by the presence of the caudal fin blotch, a rounded caudal fin (square in *N. leptacanthus*) and a banjo-shaped body when viewed from above (versus tapered gradually in *N. leptacanthus*) (Rohde, et al. 2009).

Range - This undescribed species is endemic to North Carolina and South Carolina at widely scattered localities in the Sand Hills and southeastern Coastal Plain from the Cape Fear River system to the Edisto River system. Historical and recent records of the “Broadtail” Madtom in North Carolina include those from the Cape Fear River system (Northeast Cape Fear River, Black River, Coharie Creek, Six Runs Creek, and South River), Lumber River system (Drowning Creek, Big Swamp Creek, Juniper Creek, Aberdeen Creek, and Lumber River), and the Waccamaw River system (Lake

Waccamaw, Waccamaw River, and Cawcaw Swamp) (F. C. Rohde, pers. com. and vouchered specimens at the North Carolina State Museum of Natural Sciences). Distinct populations may occur in Lake Waccamaw and the Waccamaw River (Menhinick 1986, 1991; Shute, et al. 1981). Two genetic studies have been completed with the results of one of the studies published in the peer-reviewed literature (Bennetts, et al. (1999); F. C. Rohde, pers. com.). In both studies, results were not clear and did not correspond to river and lake forms. Bennetts, et al. (1999) concluded that the "Broadtail" Madtom is polyphyletic, with two genetically divergent lineages that do not correspond to lake and river designations. However, more recent interpretation of the data showed that "Broadtail" Madtom is monophyletic and the Lake Waccamaw population appears to be an old hybrid with the Margined Madtom and somewhat distinct (F. C. Rohde, pers. com.).



Distribution of the Broadtail Madtom in North Carolina (left) and in the Carolinas (right). Maps are based upon data at the North Carolina State Museum of Natural Sciences, queried May 30, 2012, and from the Tree of Life Web project (http://tolweb.org/noturus_species/69895).

Habitat - During the day the "Broadtail" Madtom lies partially buried on the bottom of small to medium-sized streams, in areas about 0.5 m deep with a good flow, generally over gravel or coarse sand, often associated with pondweed, *Potamogeton* spp. and patches of submerged woody debris. In Lake Waccamaw it is most commonly collected near the shore in discarded beverage cans and bottles (Shute et al. 1981); it prefers sandy vegetated areas (F. C. Rohde and W. C. Starnes, pers. obs.).

Life History and Ecology – Very little has been published on the life history and ecology of the "Broadtail" Madtom, but is probably similar to that of other, closely related madtom species. It probably feeds on benthic insect larvae at night. Based upon the occurrence of gravid females, the "Broadtail" Madtom probably spawns from late May to June and deposits eggs in clusters under logs or in tin cans and bottles, or on the underside of flat tiles tilted on the bottom in Lake Waccamaw (Rohde et al. 2009). The eggs are probably guarded by one of the parents. Individuals probably mature in 1 year and live 2 to 3 years. Status surveys are currently being conducted by Ryan Heise, Brena Jones (NCWRC), NC State Parks, and Fritz Rohde. Small artificial reefs or "Madtom hotels" have been placed in Lake Waccamaw to help assess populations levels (NCWRC 2012).

Rationale for Designation - Between 1979 and 1981, “Broadtail” Madtom seemed to be relatively common in Lake Waccamaw and were thought to outnumber Tadpole Madtom, *N. gyrinus* (Shute et al. 1981). However, recent monthly surveys of Lake Waccamaw by Heise and Jones have only collected Tadpole Madtoms in their traps. If Broadtail Madtom is still in the lake, they are extremely rare (R. Heise, pers. obs.). In fact, the Broadtail Madtom has not been collected from Lake Waccamaw since June 2002 (NCSM 31929); causes for its decline are unknown. Recent surveys in the South River indicate a decreasing trend in population sizes, possibly associated with increasing numbers of Flathead Catfish, *Pylodictis olivaris.* Because of its restricted distribution and decreasing population size, especially in Lake Waccamaw, this small, undescribed species is assigned State Threatened status.

Recommendations - Studies of its life history and behavior are needed. Its occurrence in streams affected by increasing developmental pressure and runoff from confined animal operations, necessitates special steps be taken to control pollution in the South and Lumber rivers.

Literature Cited and Recommended Readings

Bennetts, R. Q., Grady, J. M., Rohde, F. C., and and J. M. Quattro. 1999. Discordant patterns of morphological and molecular change in Broadtail Madtoms (genus *Noturus*). Molecular Ecology 8:1563-1569.

Jenkins, R. E. and W. M. Palmer. 1978. A new species of madtom catfish (Ictaluridae) from the Coastal Plain of the Carolinas. Abstract. Association of Southeastern Biologists Bulletin. 25:57.

Menhinick, E. F., Burton, T. M. and J. R. Bailey. 1974. An annotated checklist of the freshwater fishes of North Carolina. The Journal of the Elisha Mitchell Society. 90:24-50.

Menhinick, E. F. 1986. A numerical method for ranking of endangered species and its application to North Carolina freshwater fishes. Journal of the Elisha Mitchell Scientific Society 102:54–86.

_____. 1991. The freshwater fishes of North Carolina. North Carolina Wildlife Resources Commission. Raleigh, NC. 227 pp.

NCWRC. 2012. Biologists hope tiny catfish check in to madtom hotel in Lake Waccamaw. North Carolina Wildlife Resources Commission. March 02, 2012. http://www.ncwildlife.org/News/NewsArticle/tabid/416/IndexId/7864/Default.aspx.

Rohde, F. C., Arndt, R. G., Foltz, J. W., and J. M. Quattro. 2009. Freshwater fishes of South Carolina. University of South Carolina Press, Columbia, SC. 430 pp.

Shute, J. R., Shute, P. W., and D. G. Lindquist. 1981. Fishes of the Waccamaw River drainage. Brimleyana. 6:1-24.

Starnes, W. C. and and G. M. Hogue. 2011. Curation and databasing of voucher collections from the North Carolina Wildlife Resources Commission 1960s statewide survey of fishes. Final report. Federal Aid in Sport Fish Restoration Project F-91: Curate Fish Collection. July 2008-December 2010. Prepared for North Carolina Wildlife Resources Commission, Raleigh, NC. 1,035 pp.

Spotlight on Students and Young Professionals

We are looking for candidates to feature in future issues. Have a candidate?.... Please forward information to the Newsletter Committee.

Kim Baker (Barry.Baker@Duke-Energy.com)

2013 NCAFS Annual Meeting

2013 NORTH CAROLINA CHAPTER AMERICAN FISHERIES SOCIETY MEETING
JOINT WITH THE NORTH CAROLINA FRESHWATER MOLLUSK WORKGROUP
BEST WESTERN PLUS HOTEL
Burlington, NC – February 26-27, 2013

FIRST CALL FOR ABSTRACTS – DUE JANUARY 18, 2013

The 2013 NC AFS Chapter Meeting will be held jointly with the NC Freshwater Mollusk Workgroup on February 26-27, 2013 in Burlington, North Carolina. The meeting location will be the Best Western Plus Hotel located at 770 Huffman Mill Road in Burlington, NC 27215. Please mark your calendars now and plan to participate. Contact Greg Cope at greg_cope@ncsu.edu or at 919-515-5296, if you have questions about the meeting or if you are interested in assisting with meeting planning and organization.

First Call for Abstracts:

Student and professional members are invited to submit abstracts for oral presentation at the Annual Meeting. Topics addressing any aspect of fisheries and related aquatic sciences are welcomed, including, but not limited to, management, research, conservation, outreach and education. Oral presentations will be limited to 20 minutes (including the question and answer period). Abstract format is similar to previous meetings; an example abstract follows. The abstract submission deadline for the 2013

Meeting is January 18, 2013. Submit your abstract by e-mail attachment to Greg Cope at greg_cope@ncsu.edu.

Abstracts are limited to 300 words. Abstract title should appear in all caps and bold, and be followed by the author name(s), and affiliation(s). Please underline the name of the presenter. Abstracts should be written in Word utilizing Arial 11 point font. Abstracts should include clearly stated objectives, brief methods, general results, and the basic conclusion.

Example abstract from a previous NC AFS Meeting:

ENHANCING RELEVANCE TO CLIMATE CHANGE IN FRESHWATER MUSSEL THERMAL TOLERANCE TESTS. Jennifer M. Archambault*[1], W. Gregory Cope[2], and Thomas J. Kwak[3]. [1] North Carolina Cooperative Fish and Wildlife Research Unit, Department of Biology, Box 7617, NC State University, Raleigh, NC 27695; [2] Department of Environmental and Molecular Toxicology, Box 7633, NC State University, Raleigh, NC 27695; [3] U.S. Geological Survey, North Carolina Cooperative Fish and Wildlife Research Unit, Department of Biology, Box 7617, NC State University, Raleigh, NC 27695.

Because the global climate is warming, and available lethal temperature (LT) data on early life stages of freshwater mussels suggest they may already be living near their upper thermal tolerances in some systems, we expanded mussel LT research to include ecological factors that affect mussels in natural systems, such as sediment and flow regimes. We developed a method for assessing the thermal sensitivity of juvenile freshwater mussels in sediment, thus incorporating their benthic ecology into the tests. Using these sediment testing protocols, we evaluated the relative sensitivity of juveniles of four species of mussels to a range of common and extreme temperatures during summer in streams with low flow and dewatered (e.g., drought) conditions in the southeastern and central United States, using two temperature exposure regimes. We also conducted water-only LT tests with glochidia and juveniles of four previously untested mussel species and tested adult *Lampsilis fasciola* to determine thresholds of sublethal effects with biomarkers of thermal stress and tissue damage. The median lethal temperatures (LT_{50}s) for all tests ranged from 33.3 to 37.2 °C, indicating a narrow range of upper thermal sensitivity, regardless of life stage, test type, species, or conservation status. Preliminary analysis of biomarker data indicates that mussels may become stressed at temperatures as low as 31° C, well below the lethal temperature. Future tests will incorporate a vertical temperature gradient into sediment testing protocols, providing additional realism and relevance to the benthic ecology of freshwater mussels. Finally, our data will be incorporated into regional mussel occupancy models to predict the response of imperiled mussels to changes in water temperature, as related to flow and climate change scenarios.

At the bottom of the page, please type:

1. The name, address, telephone, fax, and e-mail of the presenting author;

2. Professional or Student* attendee

*Note: All students submitting abstracts will be judged for the best student oral presentation, unless otherwise requested.

Lodging and Reservations:
Sleeping room rates are $79.00 plus 9.75% sales tax per night for a standard double room (2 double beds) or one king bed room. Up to 4 people may stay in one double room for the $79.00 plus tax rate. A block of double and king rooms has been reserved for the nights of February 25 and 26. **To receive the special group rate, please reserve your room by Monday, February 11, 2013** and be sure to mention that you are with the NC Chapter American Fisheries Society Meeting. Reservations at the Best Western Plus Hotel located at 770 Huffman Mill Road in Burlington, NC 27215 can be made directly by telephone at 336-584-0151.

Continuing Education Course:
The 2013 continuing education course will be taught by Dr. Tim King of the U.S. Geological Survey's Leetown Science Center in Kearneysville, West Virginia. The broad topic of the course will be on some aspect of applied conservation genetics, and Education and Outreach Committee Co-Chair and course organizer, Jessica Baumann is requesting input from Chapter members on specific ideas, needs, and coverage for the course (see separate article in this newsletter). Please contact Jessica directly at 919-304-2720 or Jessica.baumann@ncwildlife.org to offer suggestions.

Meeting Registration:
Registration for the meeting and Continuing Education Course are still being planned, but will be accomplished through the Chapter web site and registration portal as in past years. Registration information will be included in the December Newsletter and on the Chapter Web site.

I look forward to seeing you in Burlington this coming February!

Greg Cope President Elect

Meetings of Interest

2012 NCSU Student Fisheries Society– First Tuesday of each month, Raleigh, NC. http://clubs.ncsu.edu/sfs/

143rd Annual Meeting of the American Fisheries Society– September 9-12, 2013, Little Rock, AR.

2013 Southern Division of the American Fisheries Society Annual Meeting–
February 7-10, Nashville, TN. http://www.sdafs.org/meetings/2013/default.htm

Valuable Links

The American Fisheries Society Home Page offers a wealth of links to assist you in your fishery endeavors. Information on ordering AFS books, public outreach, annual meetings, chapter links and joining the AFS can be found at http://www.fisheries.org/. You can subscribe to the NCAFS list serve at ncafs@lists.fisheries.org. .