



INSIDE THIS ISSUE

[President's Message](#)

[Secretary-Treasurer's Report](#)

[Awards Committee](#)

[News from around North Carolina](#)

[Spotlight on Students and Young Professionals](#)

[Meetings of Interest](#)

[Valuable Links](#)

We would appreciate your comments on this electronic version of the NC Chapter Newsletter. Please send all responses to Jerry Finke (jerry.finke@ncwildlife.org).

President's Message

Although I returned from the Seattle AFS meeting two weeks ago I still revel in the meeting's success. There were over 4,300 attendees, 2,000 presentations, and 110 trade show booths! Think about how much hard work and how many volunteers were needed to pull that off. We may not have that many attendees at the 2012 North Carolina AFS meeting in Raleigh February 28-29, but Chris Wood will still need volunteers to make it a success. See Chris's meeting notice for more information or contact him (chris.wood@ncwildlife.org, (828) 659-3324 x 222) to offer your assistance. Also, continue to think about prizes and donations for the student raffle. You can contact Katie Pierson or Jake Hughes with ideas and questions.

That brings me to another point of success, our student subunits. The NCSU subunit won the Outstanding Student Subunit Award again for 2011 (NCSU also won in 2005)! Note that the East Carolina subunit won in 2006 and 2007! NCSU members also received numerous individual awards mentioned in the subunit report. If you want to stay abreast of subunit activities visit:

<http://clubs.ncsu.edu/sfs/home.html>

<http://www.ecu.edu/org/afs/ECU-AFS/Homepage.html>

<http://student.uncw.edu/org/AFS/>

President's Message (continued)

More information is available on the 2012 Southern Division AFS meeting in Biloxi, MS, January 26-29 (<http://www.sdafs.org/meetings/2012/default.htm>). It is being held at the Imperial Palace, a 4-diamond resort/casino. As mentioned on the meeting website, the Mississippi Gulf Coast also offers charter fishing opportunities, a thriving eco-tourism business, award winning golf courses, and art and historical sites, including Beauvoir, the last home of Jefferson Davis.

On behalf of your Executive Committee (myself, Kevin Dockendorf, Chris Wood, and Kevin Hining) thanks for your continued support!

Mike

Secretary-Treasurer's Report

[Fall 2011 Treasury Report](#)

Submitted by Kevin Hining, Secretary-Treasurer

Awards Committee

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 2011 awards were presented to five students for the annual American Fisheries Society meeting held September 4-8, 2011 in Seattle, Washington.

The 2011 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 Tim Ellis, advised by Dr. Jeff Buckel, Jacob Hughes, advised by Dr. Joe Hightower, Marybeth Brey and Lindsay Glass Campbell, both advised by Dr. Jim Rice, and Katherine Pierson, advised by Dr. Dave Eggleston.



The 2011 N.C. AFS Student Travel Award winners pictured at the meeting in Seattle. Shown from left to right are Jacob Hughes, Tim Ellis (in back), Marybeth Brey, Lindsay Glass Campbell, and Katherine Pierson.

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

News from Around North Carolina

Sustainable Fisheries License Plate (from the CMAST newsletter)

Submitted by Mike Abney



In the 2011 session, the North Carolina General Assembly ratified a bill that authorizes the Division of Motor Vehicles to issue several types of special registration plates, including a Sustainable Fisheries license plate. Funds allotted from the sale of these plates will be used to support CMAST research, undergraduate and graduate student training, and education outreach in support of sustainable fisheries in NC.

Three hundred paid orders must be placed before the plates can be produced. To pre-order your specialty license plate, contact CMAST at 252-222-6302 for an application or visit www.cmast.ncsu.edu for details.

AFS Fisheries Management Section (FMS)
Submitted by Lawrence Dorsey



I am currently the Southern Division AFS Representative to the AFS Fisheries Management Section (FMS). The mission of the FMS can be found at <http://www.sdafs.org/fmsafs/about/> but the focus is on the science and management of fisheries across North America. If you are interested in joining a group focused on fisheries management, I would ask you to consider joining FMS. Likewise, we are always in need of current news items relating to fisheries management for our newsletter. If you have a project you'd like to share with FMS members across the Society, please let me know and I will make sure it is included in our newsletter. I can be reached at lawrence.dorsey@ncwildlife.org with news items or questions about FMS in general.

North Carolina's Imperiled Fish Fauna, Part V
Submitted by Bryn H. Tracy and Wayne C. Starnes
on behalf of the NCWRC's Scientific Council of Fishes

As mentioned in the Chapter's 2010 and 2011 newsletters, there are approximately 215 indigenous, described and undescribed species of freshwater fish in North Carolina. Of these, 26% are considered imperiled as either 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 fifth of several 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.

Banded Sculpin, *Cottus carolinae* (Gill 1861)
Current Status: Threatened, Proposed Status: Endangered



Photo courtesy of N. Burkhead and R. Jenkins, courtesy Virginia Division of Game and Inland Fisheries and Southeastern Fishes Council.

Description Banded Sculpin range in size up to 175 mm total length. The ground color is most often rusty brown with four dark dorsal saddles, at least the posterior three of which are typically distinct. The color of the body is variable depending on substrate and water clarity. Banded Sculpins can easily be confused with North Carolina forms of the *C. bairdii* (Mottled Sculpin) species complex, which occur widely in mountain streams of North Carolina; they differ in that the Banded Sculpin has modally 16 or 17 pectoral fin rays (15 in *C. bairdii*) and does not have a contrasting red marginal and black basal band in the spinous dorsal fin (Etnier and Starnes 1993). The upper preopercular spine is prominent and “sickle” shaped versus a simple, broadly pointed spine in Mottled Sculpin.

Range The Banded Sculpin complex is widespread and common throughout the Ozark region; the Tennessee and Cumberland river drainages; the Mobile Basin both above and, less commonly, below the Fall Line; and the Ohio River drainage from its mouth to its southern headwaters (New River system), but is absent from much of the northern portion of the Ohio drainage. The Banded Sculpin occurs throughout eastern Tennessee (Lee 1980; Etnier and Starnes 1993). Harned (1979) collected it very close to North Carolina in the French Broad River in Tennessee.

Historical North Carolina records are from the French Broad River system, Madison County (Cope 1870; Robins 1954). The 12 specimens collected by Cope in 1869 from the French Broad River at the Town of Hot Springs in Madison County and vouchered at the Academy of Natural Sciences of Philadelphia (Catalogue Nos. ANSP Catalogue Nos. 11838-11849) bear Cope’s original label: “French Broad River, N.C” (Figure 1). However, another label says: “*Cottus carolinae*, confirmed by D. A. Neely, 2006, from North Carolina: Henderson Co.: French Broad River: E. D. Cope” (M. Sabaj Perez, ANSP pers. com., June 2009).

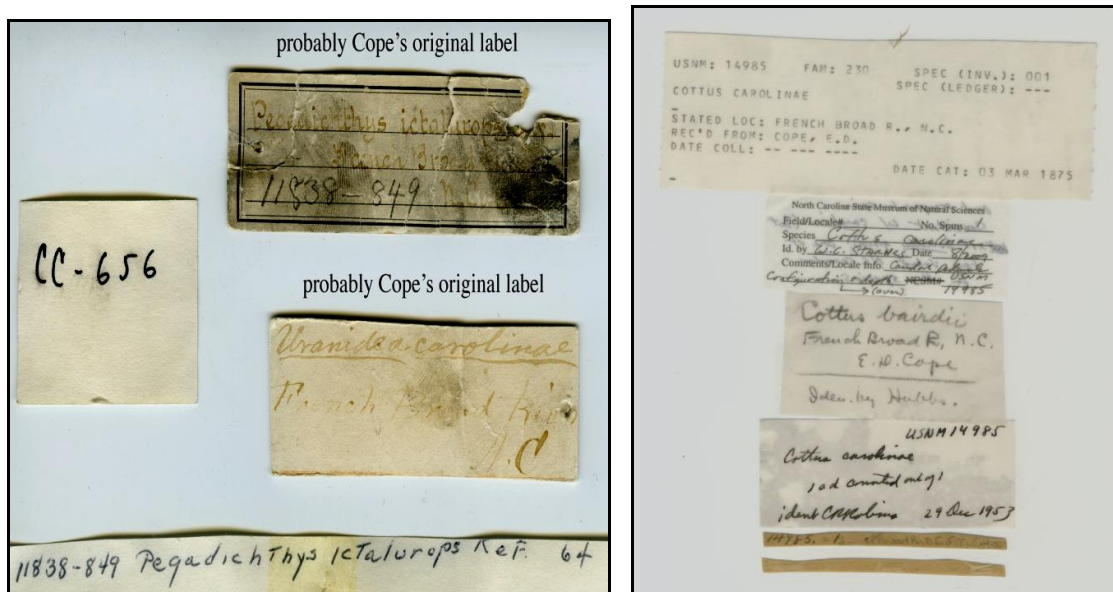


Figure 1. Labels of *Cottus carolinae* specimens at the Academy of Natural Sciences of Philadelphia (left) and at the National Museum of Natural History (right). Photographs courtesy of Mark Sabaj-Perez (ANSP) and Lisa Palmer (USNM).

There is a single specimen of *Cottus carolinae* collected by Cope from the French Broad River, North Carolina and vouchered at the National Museum of Natural History (catalogued [Figure 1] on March 03, 1875, USNM Catalogue No. 14985), but no precise date of collection prior to 1875 or more precise locality information are known. The specimen is likely an exchange specimen from Cope's original lot at ANSP, a common practice in those days. Since then, the specimen has been identified as *C. bairdii* by Hubbs (date unknown), as *C. carolinae* by Robins in 1953 and correctly plotted in Robins (1954), and as *C. carolinae* by Starnes in 2009 (Figure 1). Cope (1870) stated that the species was abundant in the French Broad River, Madison County, North Carolina, but nowhere did he mention the species as occurring upstream in Henderson County, even though Cope collected in Henderson County in the fall of 1869. In the fall of 2009, W. C. Starnes and B. H. Tracy concluded that a sorting or mislabeling error of Cope's specimens had subsequently occurred, creating the misleading distributional picture. Despite extensive collections being made in the French Broad River basin in North Carolina since 1869, there is no evidence that Banded Sculpin were ever found far upstream from the Town of Hot Springs.

Lee (1980) shows records from the Nolichucky River and Watauga River systems, but those records are unverifiable. Other records from Big Laurel and Spring creeks in Madison County were incorrectly attributed to Robins (1954) by Menhinick (1987), Menhinick (1991), Menhinick and Braswell (1997), and Rohde et al. (1998).

Menhinick reported collecting 10 specimens in 1994 (confirmed by W. C. Starnes, August 2009) from Shut-in Creek near Hot Springs (Rohde et al. 1998). In August 2009, a re-examination by North Carolina State Museum (NCSM) staff of two specimens collected and vouchered as part of NCWRC's 1963 survey of the Pigeon River and tributaries (Messer 1964) confirmed the presence of Banded Sculpin in Big Creek in Haywood County (NCSM Catalogue No. 55213) (Starnes and Hogue 2011). In August 2009, Starnes and Tracy collected Banded Sculpin from two sites on Shut-in Creek and from the French Broad River near the mouth of Shut-in Creek downstream from the Town of Hot Springs (NCSM 55216, 55220, and 55218, respectively). Unbeknownst to them, biologists with TVA had previously collected 27 specimens of Banded Sculpin from a site further upstream on Shut-in Creek in March 1999, May 2004, and June 2009 (NCWRC database, S. Fraley, pers. com.). In October 2009 and 2010, Tracy also collected Banded Sculpin again from Big Creek, just upstream from its confluence with the Pigeon River in Haywood County (NCSM 55097; NCSM 62237) and in October 2010 from the Pigeon River just upstream of Progress Energy's powerhouse in the bypass reach (NCSM 62241). A collection in 1988 of the Mottled Sculpin, *C. bairdii* species complex, by Progress Energy biologists from the Pigeon River bypass near Big Creek at the state line was reported in Starnes and Hogue (2011). However, based upon a recent examination of the eight specimens by Starnes and Tracy, the specimens were re-identified as Banded Sculpin and were collected in 1987 not in 1988. Another eight specimens collected by Progress Energy biologists from Big Creek in 1989 were also re-identified as Banded Sculpin.

Habitat This species occurs in riffle areas from tiny spring runs to large rivers (Figure 2). Where *C. carolinae* and *C. bairdii* occur in the same stream, *C. carolinae* typically occurs in the more downstream areas, but broad areas of sympatry (overlapping ranges) often occur. In Big Creek, a medium-size turbulent and clear creek that drains the northeast corner of the Great Smoky Mountains National Park, the species is found amongst

boulders and cobbles in swift riffles and chutes (Figure 2). Similarly in Shut-in Creek, the species is found in riffles and runs.



Figure 2. Habitats of the Banded Sculpin: Big Creek at SR 1332 (left) (October 2010) and the Pigeon River off I-40, just upstream of Progress Energy’s Walters Hydroelectric Plant (October 2004), Haywood County, NC. The Pigeon River photograph is courtesy of Rick Smith, Progress Energy.

Life History and Ecology Banded Sculpins breed during winter and early spring, with the male defending a nest site under a stone or other object. In Kentucky, females produced about 475 eggs per year, and in these populations total lengths of 50 to 80, 100 to 130, and over 160 mm were reached at ages 1, 2, and 3, respectively; maximum life span is probably four years (Craddock 1965). They are voracious predators, feeding as adults on large aquatic insects, small fishes (especially darters), salamanders, and crayfish (Small 1975, Starnes 1977).

Rationale for Designation Intensive collections in 2007 as part of the French Broad River basinwide assessment for priority species identified in the NCWRC’s Wildlife Action Plan did not detect the species in Big Laurel or Spring creeks (S. Fraley, pers. com.). Mottled Sculpin are found in the Big Laurel Creek watershed (e.g., Shelton Laurel and Little Laurel creeks), but surprisingly, no species of sculpin are found in the Spring Creek watershed, despite having habitats, flows, and a temperature regime ideally suited to these cold-cool water species. In the Pigeon River watershed in Haywood County, sculpins are found upstream of Canton, but, for reasons unknown, are seemingly absent from the major tributaries downstream (e.g., Richland, Jonathans, Crabtree, Fines, Cataloochee, and Cold Springs creeks). Because of a reduction of its distribution, coupled with two small and disjunct populations in Madison and Haywood counties, suggests a high protection status, State Endangered, should be assigned for this species.

Recommendations North Carolina water quality classifications and standards in the lower French Broad River and Nolichucky River systems should be strengthened and enforced. Coincidentally, the Big Laurel and Spring Creek watersheds were afforded supplemental water quality classifications by the NC Division of Water Quality as High Quality Waters and Outstanding Resource Waters (ORW), respectively in 2009; Shut-in Creek was also recommended for reclassification to ORW in 2010. Continued field survey efforts should concentrate on appropriate habitats in the mainstem lower French

Broad River and its larger tributaries in Madison County and in tributaries to the lower Pigeon River within the Pigeon River gorge (e.g., Cataloochee Creek) in Haywood County.

Literature Cited and Recommended Readings

- Cope, E. D. 1870. A partial synopsis of the fishes of the fresh waters of North Carolina. *Proceedings of the American Philosophical Society*. 11:448-495.
- Craddock, J. R. 1965. Some aspects of the life history of the Banded Sculpin, *Cottus carolinae* in Doe Run, Meade County, Kentucky. Ph.D. dissertation, University of Louisville, Louisville, KY.
- Etnier, D. A. and W. C. Starnes. 1993. *The fishes of Tennessee*. University of Tennessee Press. Knoxville, TN. 681 pp.
- Harned, D. W. 1979. A qualitative survey of fish and macroinvertebrates of the French Broad River and selected tributaries, June–August 1977. Technical Note B35, Office of Natural Resources, Tennessee Valley Authority, Norris, TN.
- Harris, F. A., and 14 authors. 2010. 2010 reevaluation of status listings for jeopardized freshwater fishes in North Carolina. Report of the scientific council on freshwater fishes. Submitted to the Nongame Advisory Committee to the North Carolina Wildlife Resources Commission. November 2010. North Carolina Wildlife Resources Commission, Raleigh, NC.
- Jenkins, R. E. and N. M. Burkhead. 1993. *Freshwater fishes of Virginia*. American Fisheries Society, Bethesda, MD. 1080 pp.
- Lee, D. S. 1980. *Cottus carolinae* (Gill), Banded Sculpin. Page 807. Lee, D. S., Gilbert, C. R., Hocutt, C. H., Jenkins, R. E., McAllister, D. E., and J. R. Stauffer, Jr. eds. *Atlas of North American freshwater fishes*. North Carolina State Museum of Natural History. Raleigh, NC. i-x + 854 pp.
- Menhinick, E. F. 1987. 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.
- _____ and A. L. Braswell, editors. 1997. *Endangered, threatened, and rare fauna of North Carolina. Part IV. A reevaluation of the freshwater fishes*. Occasional Papers of the North Carolina Museum of Natural Sciences and the North Carolina Biological Survey. No. 11. Raleigh, NC.
- Messer, J. B. 1964. *Survey and classification of the Pigeon River and tributaries, North Carolina*. Final Report. Federal Aid in Fish Restoration. Job I-N, Project F-14-R. North Carolina Wildlife Resources Commission, Raleigh, NC.
- Robins, C. R. 1954. A taxonomic revision of the *Cottus carolinae* species group in eastern North America (Pisces: Cottidae). Ph.D. dissertation, Cornell University, Ithaca, NY.
- Rohde, F. C., Moser, M. L., and R. G. Arndt. 1998. Distribution and status of selected fishes in North Carolina with a new state record. *Brimleyana* 25: 43-68.
- Small, J. W., Jr. 1975. Energy dynamics of benthic fishes in a small Kentucky stream. *Ecology* 56:827–840.
- Starnes, W. C. 1977. The ecology and life history of the endangered Snail darter, *Percina tanasi* Etnier. Tennessee Wildlife Resources Agency Technical Report. 77-52.
- _____ 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

Katie Pierson, MS Student, NCSU/MEAS - Katie hails from the New England area of the US, spending her summers playing in the Atlantic Ocean or Cape Cod Bay, and becoming a naturalist by exploring the extensive habitats of the Wellfleet Bay Wildlife Sanctuary. There's a little fresh water in her blood as well, since her family's cottage was on a kettle pond on Cape Cod and she grew up catching painted turtles and green frogs, as well as fishing for pickerel and pumpkinseeds.



*Oyster Restoration and Estuarine
Finfish with New England Flair*

Throughout her youth, Katie embraced her natural world by becoming a member of the local 4-H club where she embraced her terrestrial animals by showing llamas and rabbits at the local fair. Upon completion of high school, she spent time on the shores of Nova Scotia where she attended Acadia University. During her undergraduate program in Biology, Katie was known as one of the “fish people”, and always looked for an

opportunity to work with a graduate student or professors on their projects. During her summers off, she would go home to Cape Cod and teach at the Natural History day camp where she taught lessons and provided activities to kids of all ages about 33 different habitats. She also spent one summer on the West coast working at the Long Beach Aquarium of the Pacific. After graduating in 2008 and before going to graduate school in NC, Katie returned home to Massachusetts, where she enjoyed playing and teaching “Kids” of all ages about marine life, and working with the local community on an oyster restoration effort lead by a collaborative effort between the MA Audubon Society and The Nature Conservancy. She also volunteered at the Harwich Shellfish department, learning to love those mollusks almost as much as she loved their finned friends.

In August of 2009, Katie moved the farthest South she has ever lived to pursue her Master’s in Marine Science with Dr. David Eggleston and his lab. Katie’s MS research is focused on examining oyster reefs as essential fish habitat by focusing on the response of finfish to large-scale oyster restoration. She’s looking into comparing finfish abundance and species richness on restored oyster reserves and unstructured bottom in Pamlico Sound. Upon the completion of her degree, she hopes to move back to a coast and continue her fisheries work in a cooperative extension capacity working with the community and doing research.

You may have seen her, but more likely you will have heard her in the past two years out and about at the Student Fisheries Society outreach events. Her co-president Jake has been known to say that he needn’t be animated at their meetings because Katie is animated enough for the both of them.

Meetings of Interest

2011 NCSU Student Fisheries Society– First Wednesday of each month, Raleigh, NC.
<http://clubs.ncsu.edu/sfs/>

142nd Annual Meeting of the American Fisheries Society– August 19-23, 2012, St. Paul, MN.

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

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. You can also follow current discussions on the SDAFS blog at <http://www.sdafs.org/blogs/>.