
**AMERICAN FISHERIES SOCIETY**

**MARCH 2009 NEWSLETTER**

**INSIDE THIS ISSUE**



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*

Impressive. That is the best word I can find to describe the quality of the 18 presentations given at last month's annual Chapter meeting. Coupled with a hugely popular climate change workshop (60 attendees must be a new record!), I can't remember a meeting with a more diverse range of aquatic resource topics for discussion. One final note of thanks to all who contributed their time and talent to make the meeting a tremendous success.

With our Chapter meeting behind us, we have already hit the ground running in preparation for the 2010 Southern Division meeting in Asheville. Lawrence Dorsey (General Chair) has assembled a strong group of Chapter members to help with the effort and tremendous progress has already been made. Please consider contacting Lawrence and volunteering your services on one of the meeting committees. We are also looking for help on our Chapter standing committees. The Education and Outreach Committee will soon embark on an exciting new Chapter project (see details later in the newsletter), and the Environmental Concerns Committee continues to address important issues. If you have ideas for either of these committees and want to assume an active role, please let me know.

Can our Chapter rise to the challenge in 2009? At the end of last year, Past-President Christian Waters encouraged all of us as Chapter members to consider joining the Parent Society. He referred to a membership challenge initiated last year by the Southern Division AFS that recognizes the chapter having the highest percentage of its members aligned with the Parent Society. The winning chapter receives a $250 gift to be donated to the AFS award or scholarship program of its choice. In 2008, the Texas Chapter was crowned the champ as 69% of its members were also members of the Parent Society. Good

## *President's Message (continued)*

for them. Can't mess with Texas, right? But wait a minute. Our Chapter currently has 111 members, including students, with 76 of us paid members of the Parent Society. A bit of quick math puts our current 2009 percentage at 68.46%. Just ONE more paid member raises our contribution to the level of last year's winner. Don't think you make a difference? Think again! If you are not a Parent Society member, will you be "all in" in 2009 and support the programs and policies that AFS represents? Also consider that a portion of your Parent Society dues comes directly back to our Chapter in the form of a rebate. And if you need a little more encouragement ~~pressure~~, consider that we know who you are! Come join us today and let's take the trophy!

*Chad Thomas, NC AFS President*

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## *Awards Committee*

Awards presentations are one of the highlights of our annual Chapter meeting. Several awards were presented during the annual NCAFS meeting held on February 23-25, 2009, in Burlington, North Carolina. The meeting was well attended and the host facility and program were outstanding. Thanks to Chad Thomas for a successful meeting. The awards were presented to chapter and non-chapter members for their contributions to the chapter and fisheries and environmental conservation in North Carolina.

Student papers were judged for the Richard L. Noble Best Student Paper Award and the professional papers were judged for the W. Don Baker Memorial Best Professional Paper Award. There were five presentations by students and thirteen presentations by professionals. Thanks to all who presented papers!

Daniel Weaver won the 2009 Richard L. Noble Best Student Paper Award for his presentation titled "Accuracy of snorkeling techniques for estimating stream fish populations". The paper was coauthored by Dr. Tom Kwak and Dr. Kenneth Pollock, NCSU. In addition to a Chapter award plaque, Daniel will receive a monetary award of $500 from the Chapter's Ichthus fund for travel to present the paper at the 2009 parent society meeting in Nashville, Tennessee.

*Daniel Weaver, recipient of the 2009 Richard L. Noble Best Student Paper Award receiving his award from Christian Waters, NCAFS President.*

Kevin Hining won the 2009 W. Don Baker Memorial Best Professional Paper Award for his presentation entitled "Characteristics of riverine smallmouth bass populations in Western North Carolina". The paper was coauthored Amanda Bushon, David Goodfred, and David Yow of the N.C. Wildlife Resources Commission.

*President Christian Waters presenting the 2009 W. Don Baker Memorial Best Professional Paper to Kevin Hining.*

The Distinguished Service Award recognizes Chapter members who have distinguished themselves by service to the Chapter, the American Fisheries Society, or the fisheries profession. The 2009 award was presented to Bob Barwick and Greg Cope in recognition of their outstanding dedication, leadership efforts, and service to the Chapter as co-chairs in forming and leading the Education and Outreach Committee. These two individuals provided positive growth and leadership in several outreach initiatives for the Chapter including nonnative species introductions, lake shoreline development issues, and several continuing education courses offered to Chapter membership.

*President Christian Waters presenting the Distinguished Service Award to Bob Barwick and Greg Cope.*

The Fisheries Conservation Award recognizes non-Chapter members who have distinguished themselves by service or commitment to the Chapter or to the fisheries resources of North Carolina. In recognition of his long-time commitment and service to the fisheries profession, the NC AFS Chapter EXCOM renamed the Fisheries Conservation Award in honor of Fred Harris. Fred served as Executive Director of the NCWRC and President of the AFS and was instrumental in forming the NC AFS Chapter. Fred made many significant contributions to fishery conservation in North Carolina and across the nation.

The 2009 Fred A. Harris Fisheries Conservation Award was presented to Mr. Duane Raver. Mr. Raver's artistic contributions have contributed to education through various media of the unique fish and other wildlife that inhabit our state. His artistic efforts have indirectly help promote habitat conservation through illustrations in other media collaborations including the U.S. Fish & Wildlife Service's conservation library. Furthermore, Mr. Raver has selflessly donated his time and talent to various conservation efforts and requests of organizations.

*Fred Harris presents the inaugural Fred A. Harris Fisheries Conservation Award to Duane Raver.*

Finally, the Chapter recognized outgoing president, Christian Waters for his hard work, dedicated efforts, and outstanding leadership to the Chapter. A big thanks to Christian for his outstanding leadership to the Chapter during 2008!

Congratulations to all of these award recipients for a job well done!

*Submitted by John Crutchfield, Awards Committee Chair*

## *Chapter Bylaws and Procedures Ad Hoc Committee*

President Waters and the EXCOM have charged an Ad Hoc Committee (John Crutchfield, Bob Barwick, Mallory Martin, and Brian McRae) to revise the Chapter's Bylaws and Procedures Manual. The last revision to these documents was performed in 2003 and there have been several changes in business conduct of the Chapter that need to be addressed. One major change will be to split the Bylaws and Procedures Manual into two separate and distinct documents. Additionally, several other items will be addressed including: (1) update the procedures to integrate the use of the internet and email, specifically in relation to electing officers and publishing the newsletter, (2) incorporate "outreach" into the function of the Education Committee by establishing co-chairs and developing an objective for Chapter outreach efforts, (3) update information on Chapter awards incorporating the procedures for granting student travel awards and the specifics on monetary awards, and (4) develop a procedure for reviewing and approving funding requests of the Chapter. Several other items will also be addressed.

The revised Bylaws were posted on the Chapter's website on January 25, 2009, for Chapter member review and comment. Comments were received, discussed by EXCOM on February 12, with revisions subsequently incorporated. The revised Bylaws were discussed with Chapter

members at the February 25 annual business meeting, and Chapter members voted unanimously to accept the revised Bylaws. The revised Bylaws will be forwarded to the Southern Division EXCOM and Parent Society Governing Board for final review and approval.

Pertinent changes have been made to the Procedures manual and were discussed at the Chapter business meeting. After EXCOM review, the revised Procedures Manual will be posted for Chapter membership review.

*Submitted by John Crutchfield, Ad Hoc Committee Chair*

## *North Carolina Division of Water Quality News*

### *Basinwide Monitoring*

Due to the prolonged 2007-2008 drought, fish community monitoring activities focused on the New River, Watauga River, and the Sand Hills and Coastal Plain regions of the Cape Fear River basin. The complete data, ratings, analyses, and reports for these river basins will be available in Spring 2009 at: http://www.esb.enr.state.nc.us/BAU.html and http://www.esb.enr.state.nc.us/bar.html). Files of the indigenous and nonindigenous fauna for North Carolina may be found at: (http://www.esb.enr.state.nc.us/Native%20and%20Introduced%20Freshwater%20Fish%20in%20North%20Carolina.2-1.htm). A brief summary and excerpts on the distribution of the fauna in each basin are provided herein:

**Cape Fear River Basin**

- Twenty-eight sites in the Sand Hills and Coastal Plain were assessed; sites were last evaluated during 1998 or 2003. No sites were rated because criteria and metrics have yet to be developed for these communities. However, many of the sites could potentially qualify as regional reference sites because of their primarily forested watersheds, moderate to high quality instream and riparian habitats, and absence of NPDES facilities in the watershed. Despite naturally low fish abundances and species diversity, most of these Sand Hills communities seemed to be characteristic of unimpacted and fully functioning streams and had not changed since the last assessments.

- Instream and riparian habitat assessment scores ranged from 50 to 98. All pH measurements in the Little River-Cape Fear River HUC were less than 6.0 s.u.; none of these streams is currently classified as Swamp Waters. The low pH in these streams is a natural occurrence, characteristic of tannin-stained waters. Specific conductance ranged from 12 µS/cm to 239 µS/cm; lower readings were recorded from forested watersheds in the Sand Hills than from agricultural watersheds in the Coastal Plain.

- One hundred six species are known from the basin; only the Pee Dee-Yadkin (113) and the Roanoke River (108) basins are more speciose. The assemblage includes 30 species of minnows, 18 species of sunfish and bass, 11 species of catfish, and 10 species of suckers. Special state and federal protection status has been given to 12 species: Shortnose Sturgeon, Atlantic Sturgeon, Thinlip Chub, Cape Fear Shiner, Sandhills Chub, Atlantic Highfin Carpsucker, Carolina Redhorse, Broadtail Madtom, Least Killifish, Roanoke Bass, Blackbanded Sunfish, and Carolina Darter. In 2008 the

Sandhills Chub was collected from Flat, James, Juniper, and Muddy (Cumberland County) creeks.

- Approximately equal numbers of species are found in the Coastal Plain and Piedmont (81 and 76 species, respectively) while 64 species are found in the Sand Hills. Seventeen species are restricted to the Piedmont, 1 to the Sand Hills (Sandhills Chub), and 15 to the Coastal Plain. Endemic species found only in the basin or in a few nearby basins are the Thinlip Chub, Cape Fear Shiner, Atlantic Highfin Carpsucker, Carolina Redhorse, Broadtail Madtom, and Carolina Darter.

- At least 22 species are nonindigenous. In 2008, 4 of the 48 species collected were nonindigenous species (Channel Catfish, Green Sunfish, Redear Sunfish, and Spotted Bass). Twenty-one sites had no exotic species present. Compared to other basins, the Sand Hills and the Coastal Plain faunas are relatively intact as few nonindigenous species are routinely collected during the assessments.

- Forty-eight of the 89 Sand Hills and Coastal Plain species were collected in 2008. Species not collected included those with preferences for larger waterbodies (e.g. sturgeon and some of the species of suckers and catfish). Other data summaries are:
  - Most widely distributed species
    - Sand Hills -- Redbreast Sunfish, Dusky Shiner, Pirate Perch, Bluegill, Tessellated Darter
    - Coastal Plain -- Redfin Pickerel, American Eel, Redbreast Sunfish
  - Less widely distributed species (collected from a single site)
    - Sand Hills -- White Shiner, Bluehead Chub, Sandbar Shiner, Creek Chub, Lake Chubsucker, Notchlip Redhorse, Tadpole Madtom, Swampfish, Green Sunfish, Black Crappie
    - Coastal Plain -- Satinfin Shiner, Highfin Shiner, Comely Shiner, Creek Chub, Snail Bullhead, Yellow Bullhead, Flat Bullhead, Channel Catfish, Swampfish, Spotted Bass, Black Crappie, Swamp Darter
  - Most abundant species
    - Sand Hills -- Dusky Shiner (Bluegill was disproportionally abundant at the Little River and Gum Log Canal)
    - Coastal Plain -- Dusky Shiner
  - Rare species (less than five specimens collected)
    - Sand Hills -- Sandbar Shiner, Creek Chub, Lake Chubsucker, Notchlip Redhorse, Tadpole Madtom, Swampfish, Flier, Green Sunfish, Black Crappie, Piedmont Darter
    - Coastal Plain -- Bowfin, Whitefin Shiner, Highfin Shiner, Comely Shiner, Creek Chub, Snail Bullhead, Flat Bullhead, Channel Catfish, Tadpole Madtom, Swampfish, Redear Sunfish, Largemouth Bass, Black Crappie, Swamp Darter

- New distributional records in 2008 were:
  - Highfin shiner, *Notropis altipinnis*, Bladen County (Hammond Creek, tributary to the Cape Fear River), the most southeastern know record from North Carolina, sympatric with *Notropis cummingsae* at this site
  - Sandhills Chub, *Semotilus lumbee,* Cumberland County (Muddy Creek, tributary to the Little River)

- Creek Chub, *Semotilus atromaculatus*, Bladen County (White Creek, tributary to the Cape Fear River)
- Spotted Sunfish, *Lepomis punctatus,* Sampson County (Crane Creek, tributary to Six Runs Creek)

*Dusky Shiner (left) and Bluespotted Sunfish (right), common inhabitants of the Sand Hills and Coastal Plain regions of the Cape Fear River Basin.*

**New River Basin**

- Twenty-two sites were assessed; assessment were last made in 1998. Sixteen sites were rated using the North Carolina Index of Biotic Integrity (NCIBI). The scores ranged from 36 to 56 with the ratings ranging from Fair to Good; 14 sites rated Good-Fair or Good; and no sites rated Poor or Excellent. Sites rated Fair received nonpoint source runoff from urban or agricultural areas or below wastewater treatment plants.

- Eight of the 22 sites had been rated during the 1998 assessment Seven sites had no appreciable change in their rating and one site's rating increased over the 10 year period. The improvement in the Little River from Good-Fair to Good (NCIBI = 44 vs. 50) resulted from a slight increase in the species diversity and a more balanced trophic structure, both of which may have resulted from sampling under lower flow conditions in 2008 than in 1998.

- Habitat assessment scores ranged from 50 to 95; degradation across the basin was most pronounced in the instabilities of the banks, the lack of a canopy; and the narrow buffers. Across the basin, low scores were attributable to long-term, poor landuse practices, chronic erosion of the easily eroded banks, nonpoint source sedimentation, and upstream urbanization. Specific conductance ranged from 29 µS/cm to 126 µS/cm; elevated readings were a function of being downstream from permitted dischargers, having urbanized areas within the watersheds, and being situated in agricultural valleys with golf courses along their banks.

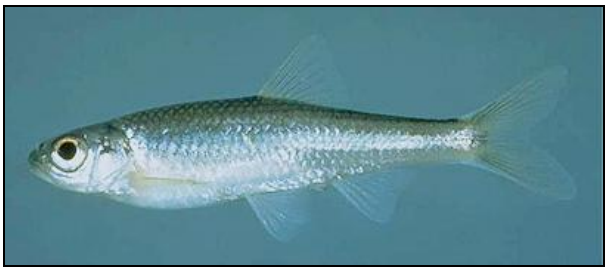
- Fifty-two species are known from the basin in North Carolina, including 26 species of minnows, 2 species of suckers, 9 species of sunfish and bass, and 7 species of darters. Endemic species include the Tonguetied Minnow, Bigmouth Chub, New River Shiner, Kanawha Rosyface Shiner, Kanawha Minnow, Kanawha Darter, Appalachia Darter, and Sharpnose Darter. Special state and federal protection status has been given to the Tonguetied Minnow, Kanawha Rosyface Shiner, Kanawha Minnow, Kanawha Darter, Logperch, and Sharpnose Darter. In 2008, the Kanawha Darter was collected at all sites

except the Middle Fork South Fork New River, Howard Creek, Naked Creek, and Grassy Creek; the Tonguetied Minnow was collected at 9 sites, the Kanawha Minnow at 8 sites, and the Kanawha Rosyface Shiner at 5 sites. Logperch and Sharpnose Darter were not collected; they are typically found in larger waterbodies that are not sampled as part of the assessment program.

- At least 24 species (46 percent of the total basin fauna) are nonindigenous. In 2008, 17 of the 42 species collected were nonindigenous species. Each stream sampled in 2008 had at least one, sometimes as many as eight, nonindigenous species present. They constituted from 7 to 40 percent of the total number of species and from < 1 percent to almost 40 percent of the total number of fish collected at a site.

- Species not collected in 2008 included those with preferences for larger waterbodies (e.g., Flathead Catfish and Muskellunge) and some of the more uncommon species (e.g., Mimic Shiner and Brook Trout). Other data summaries are:
    - Most widely distributed species (collected at all or 21 of the 22 sites) -- Fantail Darter, Central Stoneroller, Bluehead Chub, Northern Hogsucker
    - Less widely distributed species (collected from a single site) -- Whitetail Shiner, Spotfin Shiner, White Shiner, Spottail Shiner, Bluntnose Minnow, Brown Bullhead, Pumpkinseed, Largemouth Bass, Black Crappie
    - Most abundant species (constituting two-thirds of all the fish collected) -- Central Stoneroller, Mottled Sculpin, Mountain Redbelly Dace, Bluehead Chub, Fantail Darter
    - Rare species (less than 10 specimens collected) -- Whitetail Shiner, Spotfin Shiner, Highback Chub, White Shiner, Spottail Shiner, Tennessee Shiner, Brown Bullhead, Bluegill, Largemouth Bass, Black Crappie

- New distributional records recorded in 2008 were:
    - Highback Chub, *Hybopsis hypsinotus*, new for basin and for Alleghany County (Little River and Pine Swamp, Glade, and Brush creeks, tributaries to the Little River), probably introduced from the adjacent Pee Dee-Yadkin River Basin
    - Bluehead Chub, *Nocomis leptocephalus*, Watauga County (Howard and Meat Camp creeks (tributaries to the South Fork New River), South Fork New River, and Middle Fork South Fork New River)
    - Tennessee Shiner, *Notropis leuciodus*, Ashe County (Cranberry Creek, tributary to the South Fork New River)
    - Redlip Shiner, *Notropis chiliticus*, Ashe County (Grassy Creek, tributary to the New River and Cranberry Creek, tributary to the South Fork New River), well-established in the Little River watershed in Alleghany County
    - Brown bullhead, *Ameiurus nebulosus*, new for basin and for Ashe County (Naked Creek, downstream of golf course ponds, tributary to the South Fork New River)
    - Green Sunfish, *Lepomis cyanellus*, Watauga County (Howard Creek and Middle Fork South Fork New River, tributaries to the South Fork New River)
    - Largemouth Bass, *Micropterus salmoides*, Ashe County (Naked Creek, tributary to the South Fork New River)




*New River Shiner (left) and Bigmouth Chub (right), endemic species in the New River Basin.*

**Watauga River Basin**

- Ten sites were assessed; sites were last evaluated during 2004. Only one site was rated using the NCIBI. Dutch Creek was rated Good-Fair, the same rating it received in 2004. Sites not rated included a least impacted reference site (Laurel Creek); Cove Creek and the two sites on Beaverdam Creek each draining agricultural areas, and two sites, Beech Creek and Elk River, that have altered fish communities.

- Habitat assessment scores ranged from 70 to 96; degradation across the basin was most pronounced in the narrowness of the riparian zones and the lack of a canopy. The lowest score at Cove Creek was attributable to long-term poor landuse practices and nonpoint source sedimentation. Specific conductance ranged from 39 µS/cm at a regional reference site to 140 µS/cm; elevated readings were attributable to urbanized and industrialized watersheds, effluent from permitted dischargers, and agricultural landuse practices.

- Thirty species are known from the basin in North Carolina, the least speciose of any basin, due in part to its small watershed of only 205 square miles. The assemblage includes 14 species of minnows, 5 species of sunfish and bass, and 3 species each of suckers and trouts. There are no endemic species and no species has been afforded special state or federal protection status. The Green Sunfish, *Lepomis cyanellus*, is reported for the first time from the basin; it was collected from Beaverdam, Cove, and Dutch creeks, tributaries to the Watauga River. There were no other new distributional records.

- Nine species are nonindigenous and include Rosyside Dace, Common Carp, Golden Shiner, Mountain Redbelly Dace, Margined Madtom, Rainbow Trout, Brown Trout, Redbreast Sunfish, and Green Sunfish. In 2008, 7 of the 23 species collected were nonindigenous species. Each stream had at least one, sometimes as many as seven, nonindigenous species constituting from 20 to 43 percent of the total number of species and from 2 to 68 percent of the total number of fish collected at a site.

- Twenty-three species were collected in 2008. Species not collected included those with preferences for larger waterbodies (e.g., Silver Shiner and Tangerine Darter), more lentic than lotic preferences in this basin (e.g., Common Carp, Golden Shiner, and Largemouth Bass), and some of the more uncommon basin species (e.g., Bluntnose Minnow and Longnose Dace). Other data summaries are:
    - Most widely distributed species (collected at all sites) -- Central Stoneroller, Northern Hogsucker, Brown Trout

- Less widely distributed species (collected from a single site) -- Mountain Redbelly Dace, Mottled Sculpin, Bluegill, Greenfin Darter
- Most abundant species (constituting slightly more than one-third of all the fish collected) -- Central Stoneroller
- Rare species (less than 10 specimens collected) -- Rosyside Dace, Brook Trout, Bluegill


*Mountain Redbelly Dace (left) and Rosyside Dace (right), two nonindigenous species in the Watauga River Basin.*

***DROUGHT STUDY***

The central Piedmont of North Carolina has seemingly been experiencing prolonged and more frequently occurring droughts since the mid-late 1990s. The most recent droughts have occurred from 2005 to 2008. A special study examining the fish community recovery at three streams in the Carolina Slate Belt region of Chatham County, Cape Fear River Basin, was conducted but terminated prematurely due to the persistent drought. Even so, the fish communities were negatively impacted by the 2007-2008 drought. Low flow conditions affected the water quality (specific conductance, dissolved oxygen concentrations, and dissolved oxygen saturation) and the instream habitat characteristics (e.g., quality of riffles). The lack of flow decreased riffle-dependent species, depressed species diversity, altered age class structures, and lead to high incidences of disease due to crowding. Recovery of stream fish communities is dependent upon downstream refugia and proximity to larger streams or to reaches of streams that do not dry up, become stagnant, and devoid of oxygen. Recovery of these communities was not documented because of the recurrence of the drought which did not abate until Fall 2008. The fish communities ratings (NCIBI Ratings) for Carolina Slate Belt streams are responsive to flow conditions, but should be interpreted with caution in light of recurring droughts and flood events. Ratings from drought-affected fish communities do reflect the historical integrity of the fish community, but should not be used indiscriminately for Use Support determinations resulting in the erroneous placement of a stream on the impaired stream (§303 d) list.


*Two Carolina Slate Belt streams -- Collins Creek at SR 1539, Chatham County (left) and Sandy Creek at SR 2481, Randolph County, December 2007.*

## *News from around North Carolina*

***New NC AFS Outreach Program Established***
*Submitted by Chad Thomas, NC AFS President*

In February, the Executive Committee received a formal request from Patty Matteson, Public Affairs and Outreach Coordinator with USFWS, to provide financial support in the amount of $1,000 for a new outreach program entitled “Shad in the Classroom”. The project was developed by Sandy Burk with Living Classrooms of D.C., a non-profit organization based out of Washington. Two schools in Raleigh have agreed to participate in the program (Centennial Middle School and Leadmine Elementary School) and a third school located in Fayetteville will be sponsored by the NC Wildlife Resources Commission. The program will be consistent with the North Carolina standards of learning, and will provide teachers with an opportunity to provide students with a hands-on learning experience as the culture and release of live fish is integrated into the curriculum. The program has a strong environmental component, and has as its core objective to increase student, parent and community awareness of the issues facing migratory fish.

Many of our Chapter members are already working with Ms. Matteson during the planning stages of this program. The NCSU student sub-unit has been contacted as well, and will be assisting in various ways as the program evolves. In addition, the NC Watha State Fish Hatchery and Edenton National Fish Hatchery will provide assistance with shad eggs and fry. The NC AFS Executive Committee recognized the opportunity to partner with state and federal agencies as well as local school groups and fishing clubs through this venture. After carefully reviewing the request, the Executive Committee unanimously decided to provide $1,000 to support the program. The monies will be used to purchase two “hatcheries” which consist of the fish tanks and all equipment and educational materials necessary to raise the shad in the two Raleigh classrooms. As the 2009 annual Chapter meeting in Burlington realized a profit of over 1,500, funds to support this project will be directed from our Chapter checking account.


*Fisheries biologist and author Sandy Burk shows students how to care for American shad hatching in the shad tank built by the students. Photo by JEANETTE O'CONNOR / LIVING CLASSROOMS as published in USFWS Fish and Wildlife News, Winter 2009.*

Beyond the initial opportunity to provide financial support, the Executive Committee recognized the potential for the Chapter to become involved with the Shad in the Classroom project on a more permanent basis. Future goals are to develop a web-based curriculum to allow schools throughout the state to develop their own Shad in the Classroom programs. Schools in the Roanoke Rapids area will be targeted for program expansion as shad restoration is an important component of fisheries management in the nearby Roanoke River. Partnership in this program would provide positive exposure for NC AFS while allowing us to actively support resource conservation issues. Our Chapter's involvement with the Shad in the Classroom program will most likely be coordinated through the Education and Outreach Committee which is currently recruiting new members. If you would like to become involved, please contact Chad Thomas for details.

***River and Stream Restoration Short Course***
*Forwarded by Dave Coughlan*

The New Jersey section of the American Water Resources Association is hosting the River & Stream Restoration short course this April.

**RIVER & STREAM RESTORATION: GEOMORPHIC & ECOLOGICAL PROCESSES**
April 27-28, 2009: 2-Day Fundamentals
April 27-May 1, 2009: 5-Day Short Course
Location: New Jersey Water Supply Authority, Clinton, NJ

**2-Day Fundamentals: April 27-28, 2009**
Cost: $590.00
*Day 1:*
- Fluvial Geomorphology
- Channel-habitat relations
- Channel response to alterations
- Field reconnaissance

*Day 2:*
- Channel-floodplain connections
- Stream Ecosystem Function
- Post-Project Appraisal
- Process Vs. Form-Based Restoration
- Setting Goals in River Restoration

**5-Day Short Course: April 27-May 1, 2009**
Cost: $1,500.00
*Day 1 & Day 2— Same as 2-day course*
*Day 3:*
- Sediment Transport
- Hydrology/Hydraulics
- Mapping & Measuring Habitat
- Field Reconnaissance

*Day 4:*
- Urban Streams
- Channel Classification

*Day 5:*
- Post-Project Appraisal Design & Monitoring
- Implementation

For more information about the course and registration, visit the course website:
*http://streamrestorationnj.com/*

***NC State University Stream Restoration Program Workshop Announcements***
*Forwarded by Dave Coughlan*

**RC 161 - Introduction to Taxonomy and Pollution Ecology of Aquatic Insects**
**April 14-16, 2009** - AB Tech, Asheville, NC
Benthic macroinvertebrate larvae (aquatic insects) play key roles in many regulatory water quality programs in North Carolina. Not only are these insects used to detect water pollution problems, but are also used to determine if streams are perennial features, and are proposed for use in stream restoration projects as success criteria. Despite the value of this group of organisms in North Carolina's regulatory programs, very little is known about these bugs. This workshop will introduce the participants to the basic ecology and taxonomy of aquatic insects. Participants will learn family level identification of mayflies, stoneflies and caddisflies (or EPT); however, other groups also will be discussed. This workshop is also scheduled for July 28-30 and Oct. 20-22, 2009. Please click this link for more information and to register online: http://www.ncsu.edu/srp/ept_workshop.html

**RC 131 - Assessment and identification of Riparian Vegetation**
**May 12-13, 2009** - Chatham County Agricultural Bldg., Pittsboro, NC
This two-day course will introduce students to vegetation assessment of riparian areas along streams that will potentially be restored. Existing riparian condition will be examined and discussed in both classroom and field settings. Topics will include stream bank stability from a vegetative perspective, evaluation of current plant inventory, invasive vegetation issues, and potential planting constraints. Identification of common riparian plants of North Carolina will also be discussed during field sessions. Students will be given handouts with information on how to identify individual riparian plants. Please click this link for more information and to register online: http://www.ncsu.edu/srp/veg_workshop.html

**RC 435: Management of Invasive and Exotic Vegetation in Riparian Areas**
**August 13, 2009** - NC State University's Centennial Campus, Raleigh, NC
This one-day course will introduce students to management considerations and techniques used in controlling invasive and exotic vegetation in the riparian setting. This course is focused on riparian areas in the Southeast. Classroom topics will include identification of common invasive and exotic plants, ecological considerations, assessment and pricing, and tools of the trade. Outdoor field demonstrations will show students various techniques used to control nuisance vegetation with some hands-on activities. Please click this link for more information and to register online: http://www.ncsu.edu/srp/rc_400.html

For other workshops in the River Course series, please visit our website at:
http://www.ncsu.edu/srp/rivercourse.html

For a complete listing of workshops offered by NC State University Department of Biological & Agricultural Engineering, please go to:
http://www.bae.ncsu.edu/training_and_credit/workshops.php

***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/.