



PENNSYLVANIA CHAPTER AMERICAN FISHERIES SOCIETY

Fall 2012 Newsletter

PENNSYLVANIA CHAPTER

2012-2013 Chapter Officers:

President

Fred Brenner
Grove City College

President-Elect

Steve Means
PADEP

Past President

Bob Ventorini
PA Fish and Boat Commission

Secretary-Treasurer

Becky Dunlap
Trout Unlimited

ExCom 1

Mary Walsh
Western PA Conservancy

ExCom 2

Brian Ensign
PA Fish and Boat Commission

Student Representative

Nick Bobich
California University of PA

Fall Technical Meeting – Friday, October 26

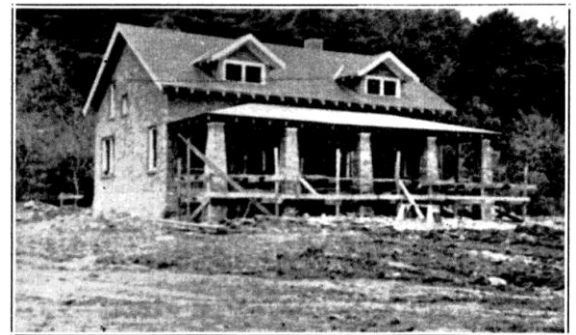
Please plan to attend our Chapter's Fall Technical Meeting at Stackhouse. Social hour starts at 6:00 p.m. Business meeting (~ 7:00 p.m.) and invited speakers (~ 7:30 p.m.) will follow. Invited speakers include Tim Schaeffer (PA Fish and Boat Commission) – "Asian carp threat in the Ohio River"; Carrie Blakeslee and Heather Galbraith (USGS Leetown Science Center) – "Assessing the link between American eel and eastern *Elliptio* populations in the Susquehanna River basin"; and Aaron McNevin (Mansfield University) – "Around the World in 15 minutes – the context for U.S. commercial aquaculture".



The H.R. Stackhouse School (typically referred to today as just "Stackhouse") was initially constructed to serve as an administration building for the Commonwealth of Pennsylvania Board of Fish Commissioners. Its opening on May 25, 1934 was coordinated with the first day of public fishing at Fisherman's Paradise on Spring Creek. The first use of the building was a Commission "Fish Warden School" held August 28 through September 1, 1934. Dedicated in the memory of Mr. H.R. Stackhouse, a former administrative secretary and acting executive director who served the Commission for 43 years. Both Commission employees and Pennsylvania Chapter AFS executive committee members can reserve Stackhouse (at no cost!) for meetings and events. Stackhouse features residence rooms, a kitchen and dining room, a library, recreation areas, and a conference room.

Summer Social Cancelled – Again

For the second year in a row, our Chapter's Summer Social was cancelled due to a lack of interest of Chapter members. In summer 2011, we canceled the picnic planned by then President Tyler Wagner. This past summer, we cancelled the camping trip at Black Moshannon State Park that was devised by Past President Bob Ventorini. Hopefully, new President Fred Brenner can schedule an event that will entice enough Chapter members to prevent the trichotomy.



Stackhouse in 1934.

Chartered in 1969, the Pennsylvania Chapter of the American Fisheries Society is a scientific and professional organization maintained by people interested in the conservation and enhancement of fishery resources. The mission of the Chapter is to: (1) advance the conservation, development, and wise use of fishery resources for optimum use and enjoyment by all mankind; (2) provide a forum for formal and informal dissemination of scientific knowledge, research, and training in fisheries science, management, and production; (3) promote and evaluate the educational, scientific, and technical aspects of the fisheries profession; and (4) recognize outstanding contributions to the understanding, conservation, and/or wise use of Pennsylvania's fishery resources. In the conduct of our mission, we will strive to maintain an organizational structure that represents all members, provides opportunities for active participation and effective leadership, and generates the resources necessary to implement or continue Chapter activities and programs.

Otolith Workshop

This past April, our Chapter hosted an otolith and aging workshop at the University of Pittsburgh's Pymatuning Laboratory of Ecology in Linesville. Although only 32 AFS members registered, the workshop attracted fisheries professionals and students from Pennsylvania, West Virginia, Ohio, New York, Delaware, New Jersey, Virginia, Kentucky, and Iowa.

In a very informal setting, the workshop proved to be a tremendous opportunity for professionals and students alike to learn and/or refine otolith extraction and preparation skills and aging techniques. Workshop instructors included Jeff Miner, Ph.D., Associate Professor and Chair of the Department of Biological Sciences at Bowling Green State University; Jeremiah Davis, M.S. Degree Candidate in Biology at Bowling Green State University; Jeff Hansbarger, Fisheries Biologist with the Wildlife Resources Section of the West Virginia Division of Natural Resources' District IV office in Beckley; Jesse Fischer, Ph.D. Candidate in Fisheries Biology with the Department of Natural Resource Ecology and Management at Iowa State University; Mike Hosack, Fisheries Biologist with the Fisheries Management Division of the Pennsylvania Fish and Boat Commission's Lake Erie Research Unit; and Ryan Braham, M.S. Degree Candidate in Fisheries Biology with the Department of Wildlife and Fisheries Resources at West Virginia University.

The workshop instructors shared decades of practical otolith experience over a variety of warmwater species with the attendees. Workshop topics included different extraction and preparation procedures; age determinations; special techniques for channel catfish and flathead catfish; aging muskellunge using pelvic fin rays; low-speed Isomet saw techniques; extraction and preparation procedures for larval and juvenile lifestages; and preparation methods for otolith chemical analyses.

All attendees felt the workshop was a very valuable experience. Catherine Lim, fisheries biologist with the Virginia Department of Game and Inland Fisheries, suggested a future otolith workshop be held. Some attendees even mentioned developing an Age and Growth Section with the Parent Society. If any of these are of interest to you, please contact Past President Bob Ventorini at rventorini@pa.gov.



Alicia Wells and Joshua Martz (background), students at Clarion University, and Josh Reffner (front left) and Nick Bobich (front right), students at California University of PA, attempt to extract tiny otoliths from specimens of the invasive Oriental weatherfish (or loach) (*Misgurnus anguillicaudatus*). The fish were provided by workshop attendee Scott Wells, fisheries biologist with the New York State Department of Environmental Conservation (NYSDEC), Bureau of Fisheries Region 4 office in Stamford. This nonnative fish species has been observed by NYSDEC biologists in five waters across New York. Nick was recently elected Student Representative for our Chapter.



Jeff Hansbarger, workshop instructor, catfish expert, and fisheries biologist with the Wildlife Resources Section of the West Virginia Division of Natural Resources' District IV office in Beckley, steadies a 16,783 g (37 lb.) flathead catfish during otolith extraction. The surgeons performing the excision are Brian Ensign (on saw) and Freeman Johns (on towel). Brian and Freeman are fisheries biologists with the Fisheries Management Division (Area 2 in Tionesta and Area 1 in Linesville, respectively) of the PA Fish and Boat Commission. Brian was recently elected Executive Committee Member for our Chapter.

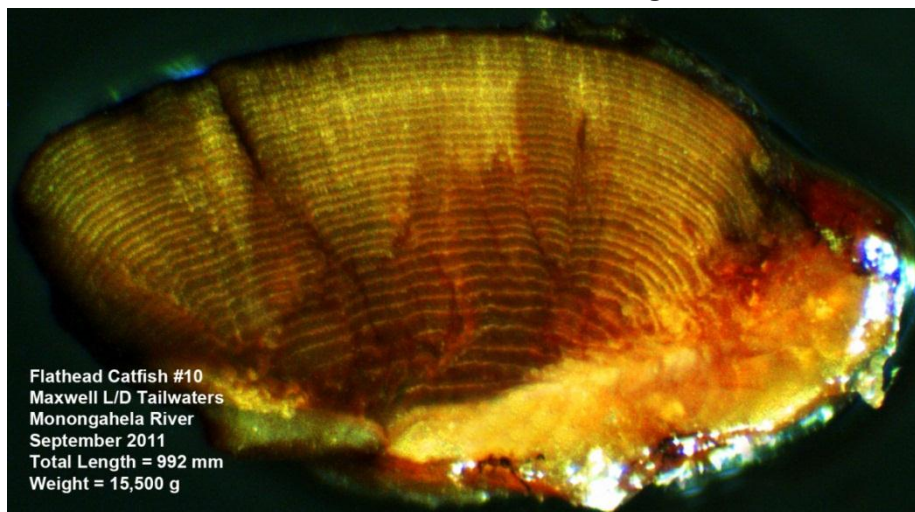
Otolith Workshop – *Continued*



Success!!! After entering the otic capsule, one lapillus of the flathead catfish is found and captured. Such a tiny structure from a 37-pound beast. This otolith revealed the fish was age 25.



Left-to-right; Mike Hosack (PA Fish and Boat Commission), Matt Wolfe (Ohio Department of Natural Resources), Ken Anderson (PA Fish and Boat Commission), and Matt Gordon (Clarion University) enjoying madcap otolith workshop humor....."Why did the sagitta cross the microscope? To get to the other slide!"



Flathead Catfish #10
Maxwell L/D Tailwaters
Monongahela River
September 2011
Total Length = 992 mm
Weight = 15,500 g

Cross-section of a flathead catfish lapillus, which are typically easier to read than otoliths collected from channel catfish. What age did you determine? Email rventorini@pa.gov for the consensus answer.

Jeremiah Davis (Bowling Green State University) instructing Scott Wells (New York State Department of Environmental Conservation) on imaging software methods to enhance the resolution of otolith cross-sections.



Chapter Administers Student Travel Awards

This past summer, our Chapter awarded \$500 “Cooper Awards” to two deserving graduate students to attend the AFS annual meeting this past August in Minneapolis-St. Paul, Minnesota. This year’s Cooper Award winners were Kelley Salvesen and Tyrell Deweber. Both are students of Tyler Wagner, Ph.D., Assistant Unit Leader of the Pennsylvania Cooperative Fish and Wildlife Research Unit at Penn State University.

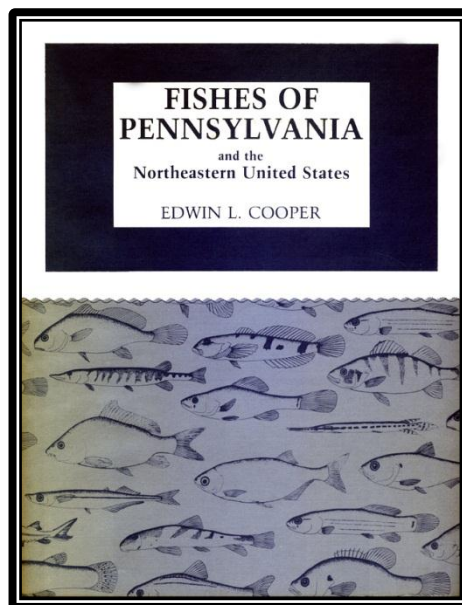
The Cooper Award was created by the Pennsylvania Chapter this year to honor the memory of the late Penn State Professor Emeritus of Zoology, and famed author of *Fishes of Pennsylvania and the Northeastern United States*, Edwin Lavern Cooper, Ph.D.

Like one of the Parent Society’s student awards, the Cooper Award recipients were determined from a writing contest to recognize students who are able to effectively communicate the value of fisheries research to the general public. Student applicants were asked to submit a 500- to 700-word article explaining their own research, or a research project in their laboratory or college/university. The winning articles were prepared in a journalistic style understandable to the general public.

Kelley’s article (presented on Page 7), “Lake trout reproduction and movement on the Niagara River, New York”, describes her M.S degree research of working to quantify strain of origin for a sample of mature lake trout in the Niagara River, where two hatchery strains are currently stocked, and identify parental hatchery strain of naturally reproduced offspring. Tyrell’s article (presented on Page 8), “A beautiful fish in an uncertain future”, summarizes his Ph.D. degree research investigating the potential impacts that climate and land use change may have on stream habitat and brook trout populations in the Eastern United States throughout the next century.



Edwin Lavern Cooper, Ph.D., 1919–2009.



Kelley Salvesen, Penn State University.



Tyrell Deweber, Penn State University.



“In The Spotlight”.....where we focus on our hard-working Chapter members from four different arenas – *Agency, Academia, Industry, and Student*. For this issue of “In The Spotlight”, we highlight fisheries professionals operating in the Susquehanna River basin (other Pennsylvania river basins will be featured in upcoming issues).

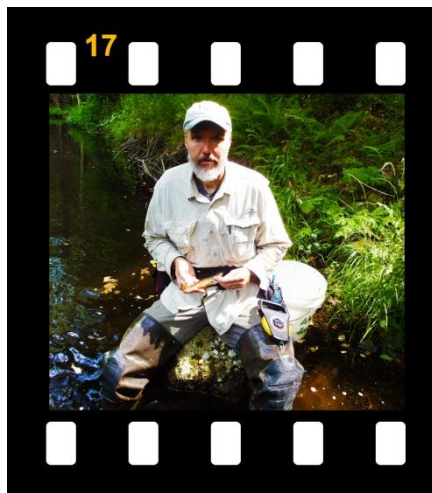


Agency – Geoffrey Smith

INTEL: Geoff serves as the Susquehanna River Biologist for the Pennsylvania Fish and Boat Commission’s Fisheries Management Division in Harrisburg. Geoff holds a B.S. degree (2001) in Biology from Lycoming College and a M.S. degree (2007) in Biological Sciences from Marshall University. The bulk of Geoff’s recent work has focused on the investigation of factors leading to disease in YOY smallmouth bass in the Susquehanna River basin. Geoff’s favorite Pennsylvania native fish species is the western blacknose dace (*Rhinichthys obtusus*).

Academia – Dr. Brian P. Mangan

INTEL: Dr. Mangan is a Professor of Environmental Science and Biology at King’s College where he chairs the Environmental Department. He holds a B.S. degree (1982) in Biology from Penn State, a M.S. degree (1988) in Biology from Bloomsburg University, and a Ph.D. degree (1999) in Ecology from Penn State. He is the founder and director of the Susquehanna River Institute, a non-profit organization devoted to research and education related to the Susquehanna. Dr. Mangan’s river research has focused on the ecology of insects, crayfish, mollusks, and fish; and lately he has been investigating pathways of mercury contamination in the river. For the past three summers, he has assessed headwater stream trout populations for the Pennsylvania Fish and Boat Commission’s Unassessed Waters Program. Dr. Mangan’s favorite Pennsylvania native fish species is the brook trout (*Salvelinus fontinalis*).

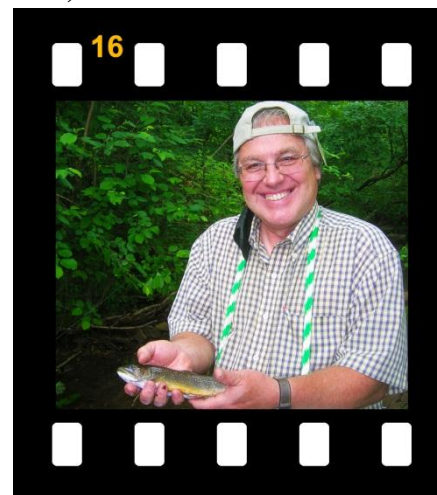


Academia – Dr. Melvin Zimmerman

INTEL: Dr. Zimmerman is the Lowry Professor of Biology and the Director of the Lycoming College Clean Water Institute. Dr. Zimmerman also directs the Environmental Science program at Lycoming College, where he teaches courses in Ecology, Aquatic Biology, Invertebrate Zoology, Environmental Science, and Tropical Marine Biology. His research and publications deal with stream ecology and restoration, wetland ecology, and wastewater biology. For the past three summers, he has directed summer interns in assessing headwater stream trout populations in the Pine Creek, Lycoming Creek, and Loyalsock Creek watersheds for the Pennsylvania Fish and Boat Commission’s Unassessed Waters Program. Dr. Zimmerman holds a B.S. degree from SUNY in Cortland, and M.S. and Ph.D. degrees from Miami University. Dr. Zimmerman’s favorite Pennsylvania native fish species is the brook trout (*Salvelinus fontinalis*).

Agency – Douglas P. Fischer

INTEL: Doug serves as the Ichthyologist and Nongame Fisheries Biologist for the Pennsylvania Fish and Boat Commission’s Environmental Services Division in Pleasant Gap. Doug holds a B.S. degree (2000) in Environmental Resource Management from Penn State and a M.S. degree (2004) in Fisheries Science from Penn State. Doug’s primary duties are related to Commonwealth-wide fisheries conservation, species of special concern, invasive species, fish taxonomy, and community level fisheries assessments. Doug’s favorite Pennsylvania native fish species are all of them!



Treasurer's Report.....

Date	Description	Expenditure	Income	Balance
11/17/2011	Closure of conference account, transfer of funds		\$2,526.71	\$16,300.30
11/18/2011	Giant - Debit for drinks/dessert for pizza social	\$67.41		\$16,232.89
11/18/2011	#312 Robert Ventrini	\$60.93		\$16,171.96
11/18/2011	Brother's NY Style Pizza State College - debit	\$292.19		\$15,879.77
11/21/2011	Giant - Credit for return of leftovers		\$15.05	\$15,894.82
11/21/2011	Deposit \$ from meeting, member dues, T-shirts		\$303.00	\$16,197.82
12/3/2011	Deposit chapter dues, A. Lenig		\$5.00	\$16,202.82
12/5/2011	#313 James Reynolds (travel for Fall Meeting)	\$513.53		\$15,689.29
12/5/2011	#314 Robert Ventrini	\$22.60		\$15,666.69
12/31/2011	Kmart debit (binder, ink, paper)	\$42.36		\$15,624.33
1/2/2012	Wal-Mart debit (3" binder)	\$7.92		\$15,616.41
1/18/2012	Deposit membership fee, C. Itle-Sherry		\$5.00	\$15,621.41
5/6/2012	#315 Jesse Fischer (travel for Spring Workshop)	\$662.47		\$14,958.94
5/9/2012	Deposit John Ryder's dues 2008-2012		\$25.00	\$14,983.94
5/16/2012	Deposit otolith workshop - Scott Wells		\$80.00	\$15,063.94
5/16/2012	Deposit otolith workshop - Dave Argent		\$80.00	\$15,143.94
5/16/2012	Deposit otolith workshop - Jordan Allison		\$80.00	\$15,223.94
5/16/2012	Deposit otolith workshop - Donald Swatzel		\$80.00	\$15,303.94
5/16/2012	Deposit otolith workshop - Jacob Jacobini		\$80.00	\$15,383.94
5/16/2012	Deposit otolith workshop - Daniel Cowden		\$40.00	\$15,423.94
5/16/2012	Deposit otolith workshop - Alicia Wells		\$40.00	\$15,463.94
5/16/2012	Deposit otolith workshop - Kimberly Capone		\$80.00	\$15,543.94
6/11/2012	Deposit Main AFS dues refund		\$540.00	\$16,083.94
6/25/2012	#316 AFS Plaques	\$75.00		\$16,008.94
6/26/2012	Deposit 2011 rebate		\$259.20	\$16,268.14
7/4/2012	#317 University of Pittsburgh Pymatuning Lab of Ecology (Spring Workshop)	\$2,500.00		\$13,768.14
7/5/2012	#318 Kelley Salvesen	\$500.00		\$13,268.14
7/6/2012	#319 Tyrell Deweber	\$500.00		\$12,768.14

Chapter Website in Crucial Need of an Update

This past summer, a Chapter executive committee member was contacted by a Past President of the Northeastern Division of AFS with a request to have our Chapter Website (<http://www.fisheriessociety.org/pa/>) updated. If you are adroit with Website maintenance and the like, and have time to volunteer, please contact Past President Bob Ventrini at rventorini@pa.gov. For comparison, we are fond of these Chapter Websites (check them out!):

<http://sdaafs.org/wvafs/>

<http://stuorg.iastate.edu/isu-afs/>

<http://wi-afs.org/>

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

<http://newyorkafs.org/>

Lake Trout Reproduction and Movement on the Niagara River, NY

Kelley Salvesen, Penn State University

Lake trout (*Salvelinus namaycush*, also called 'lake charr' or 'lakers') can be found across much of the country. Native to the Great Lakes and northern North America, they were introduced into many mid-west lakes and even internationally. While size depends on prey abundance, these fish generally live to 25 years; however, records for lake trout include 100+lb fish and estimated ages of up to 65 years. Unfortunately, many populations became locally extinct (scientifically known as 'extirpated') in the Great Lakes around the turn of the 20th century. This was mainly caused by overfishing, habitat loss, and parasitism by sea lamprey (an invasive, primitive fish). In an attempt to restore lake trout to their native habitat, programs to control the sea lamprey populations have been implemented, which are quite successful. The hatchery production fish were developed from the few remaining lake trout populations within the Great Lakes (mainly Lake Superior) as well as other lakes throughout the country. Throw a bunch of fish in the water and that should do the trick, right? Unfortunately, lake trout restoration has been a long, on-going process.

Lake trout 'imprint' on the reef where they were hatched, usually returning to that same area to spawn when they're adults. Hatchery fish are generally stocked as fingerlings (1 inch in length up to a year old) or yearlings (1 year+ old), with most fish stocked being yearlings. This means stocked hatchery fish have no "home" reef to return to, and may not know where to spawn. Additionally, there are now many new invasive species in the lakes. Zebra and quagga mussels have cleaned the water of the Great Lakes but colonize lake trout spawning habitat making it unusable for lake trout. Once lake trout find an area on which to lay their eggs, they must deal with many egg predators including the invasive round goby. Additionally, alewife- a prey species for lake trout- was introduced into the lakes but alewife has a specific enzyme that leads to poor quality eggs for lake trout. Due to these and other reasons lake trout are still being stocked into the Great Lakes and natural reproduction remains low.

Because of these problems, a study to better understand which hatchery strains are reproducing and where is being done on the lower portion of the Niagara River in New York. This river connects Lakes Erie and Ontario, and supports a naturally reproducing population of lake trout. Identified in a 2006 study done by the US Fish and Wildlife Service's Lower Great Lakes Research Office, the populations appears to be coming in from Lake Ontario to spawn in the river, as shown by lake trout eggs being collected in the river. Genetic analysis was used to confirm these eggs were lake trout. In the current study, lake trout are caught by angling in the fall as they enter the river, and small radio-tags are attached to fish of spawning size. These radio-tags each have their own frequency, and will allow detection of the fish through receivers. Eggs are sampled for just after the spawning season with egg traps and larval fish are collected in the spring using drift nets. From each fish handled, including all eggs and fry, small genetic samples are taken. The genetic work uses population-specific markers to identify hatchery strain of origin of the fish. This will be helpful information to inform management and stocking practices, letting managers know which strain is reproducing and what portions of the river they're using. This will provide more information to help further restoration of lake trout. With improved natural reproduction, hopefully hatchery stocking won't even be needed someday!

A Beautiful Fish in an Uncertain Future

J. T. Deweber, Penn State University

The feeling of catching a brookie in the Appalachians is hard to describe. I caught my first brook trout whenever I was 19 in Great Smoky Mountains National Park. Since then I've caught many more, including many in Pennsylvania, and each one is a trophy even if it isn't the biggest fish out there. Perhaps the best part is the knowledge that the brook trout belongs to these gurgling streams and the streams belong to the brook trout. There is something quite special about catching a fish that is such a significant part the landscape and the culture.

Unfortunately, brook trout are no longer found in many of the streams where they once thrived. Recent research efforts show that they are no longer found in almost one-third of their original habitat in the Eastern U.S. and are no longer widespread in another one-third¹. There are many reasons why streams no longer support brook trout, including historic and current human land use practices, acid rain, and the spread of non-native trout. And perhaps more alarming is the fact that brook trout are sentinels of clear clean streams, and their loss signals many negative changes, including a reduction in water quality for human consumption. While there is nothing one can do to change the past, we can learn from what has happened and plan better for the future to protect brook trout. Through my research at Penn State, I am addressing two major threats that brook trout will face in the future: land use change and climate change².

In recent years, suburban areas have rapidly spread into forests and farmlands and these land use changes have negatively impacted many streams so that they no longer support brook trout. One of my colleagues has developed predictions of where suburban areas are likely to spread in the future by observing recent changes². I am using these predictions to identify brook trout streams that are at risk to land use change. Climate change is also a major threat because water temperatures are expected to increase with air temperatures and may become too warm for brook trout, which need cold streams to survive. I am identifying brook trout streams that are at risk from climate change by predicting where water temperatures may become too warm. I will then make maps of streams that are at risk to climate and land use changes, along with those that are expected to remain unharmed.

Brook trout and the streams where they dwell face an uncertain future due to land use and climate change. Maps identifying areas where brook trout may be at risk in the future provide useful information that can be combined with conservation actions to protect this precious species. For example, if an important brook trout stream is likely to be impacted by suburban spread, land use planning can be used to set aside the surrounding forests and thus conserve this brook trout stream. Or trees can be planted to shade and cool streams that are expected to become too warm for brook trout in the future due to climate change. There are a number of other conservation actions that can be used alongside of my results to protect brook trout and many also help protect other species, improve water quality, and provide recreation and fishing opportunities.

I hope that my research will be combined with conservation actions to protect brook trout and the streams where they dwell in the years to come. Future generations deserve a chance to enjoy these streams as they are now and the thrill of catching a wild brookie.

After all, brook trout belong here.

¹Hudy, M., T. M. Thieling, N. Gillespie, and E. P. Smith. 2008. Distribution, status, and land use characteristics of subwatersheds within the native range of brook trout in the Eastern United States. *North American Journal of Fisheries Management* 28:1069-1085.

²My research is part of a larger national effort with many other researchers. For more information see www.fishhabclim.org.

Upcoming Events



5th International Otolith Symposium

20–24 October 2014,
Mallorca, Balearic Islands,
Spain

