



PENNSYLVANIA
CHAPTER

PENNSYLVANIA CHAPTER AMERICAN FISHERIES SOCIETY



Summer 2015 Newsletter



Cooper Award

Joint Meeting of the Pennsylvania and Ohio Chapters of the American Fisheries Society



The Pennsylvania Chapter awarded two Cooper Awards at its 2015 Joint Meeting to Chelsea Gilliland and Megan Kepler Schall. The abstracts submitted by these winners are featured in the newsletter's *In The Spotlight* section.

The Cooper award was created 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. Under this program, the Pennsylvania Chapter provides a travel award to deserving Pennsylvania graduate and/or undergraduate students to attend a professional meeting.

The Chapter will soon be soliciting abstracts for the next Cooper Award. Student applicants are asked to submit a 500- to 700-word article explaining their own research, or a research project in their laboratory or college/university. The article must be written in a style (i.e., journalistic) understandable to the general public. Students may write about research that has been completed, is in progress, or is in the planning stages.

A committee chaired by Mary Walsh and selected by our Chapter's Executive Committee will judge all entries. Contact Mary at pachapterafs@gmail.com and watch the PA AFS for the article submission deadline.

2015/2016 Chapter Officers:

President:
Rebecca Dunlap

President-Elect:
Doug Fischer

Past-President:
Steve Means

Secretary / Treasurer:
Mary Walsh

ExCom 1:
Jordan Allison

ExCom 2:
Tom Shervinskie

Student Representative:
Chelsea Gilliland

Website Manager:
Rebecca Dunlap

Newsletter Editor:
Aiden Simpson
Rebecca Dunlap

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Chapter updates available at: www.pa.fisheries.org

2015 Summer Social and Chicken Barbeque

- Saturday August 1st, 2015
- Camp Bason – Long Spring, along the West Branch of the Susquehanna (Ruth Ln, Mill Hall, PA 17751)

Steve and Beth Bason have graciously agreed to host our annual summer picnic again at their river-side property approximately 7.5 miles upstream of Lock Haven. Bring your family and share in our gratitude as we say goodbye to outgoing Executive Committee members and welcome our new officers. **THIS IS A FREE EVENT.... REGISTRATIONS DUE NO LATER THAN JULY 18TH!!!**



Agenda:

10:30 A.M. West Branch Paddle Trip (Pack a lunch) - Join the chapter for an informal canoe / kayak float trip down the West Branch Susquehanna. Paddlers can elect to float from "Camp Bason – Long Spring" to Lock Haven (~ 6 miles) or be transported up-river to DCNR's new Baker Run canoe / kayak launch and paddle to "Camp Bason" (~ 7 miles).

Contact Jordan Allison with questions: jorallison@pa.gov / 570-337-5971

3:00 P.M. AFS Chapter Social & Chicken Barbeque (bring a dish) - Chicken / hotdogs / hamburgers and all the trimmings will be provided by the Chapter. Attendees are asked to bring a dish to share.

Presentation of Awards - share in our gratitude as we say goodbye to outgoing Executive Committee members and welcome our new officers



**RSVP: No later than
July 18th to
pachapterafs@gmail.com**

More Summer Social information here:
<http://pa.fisheries.org/>

Joint Meeting of the Pennsylvania and Ohio Chapters of the American Fisheries Society

A Summary

Day 1 Summary

In February, the Pennsylvania Chapter co-hosted one of the most successful technical meetings in recent history. The chapters welcomed more than 100 attendees to the Tom Ridge Environmental Center in Erie Pennsylvania for a 3-day conference and workshop. The event commenced on Wednesday February 25th with an official welcome by the chapter presidents and was followed by an afternoon technical session and an evening poster social.



Executive Committee members, Dr. Doug Austen (AFS), and John Cooper (North East Division) at the joint meeting



Technical Session

Days 2 & 3 Summary

The second day of the meeting included chapter meetings, additional technical sessions, a student awards presentation, and plenary sessions by Dr. John Dettmers of the Great Lakes Fishery Commission and Dr. Doug Austen of the American Fisheries Society. The meeting culminated with a fish identification workshop designed to assist in the identification of both rare and common fishes - led by local ichthyofauna specialists Doug Fischer and Brian Zimmerman.



Ohio Chapter Members



Fish ID workshop led by Doug Fischer and Brian Zimmerman

In total, the event included 29 podium presentations, 14 posters, and raised more than \$400 via hat sales for the Cooper Award Fund.

PRESIDENT HOOK

Welcome to the spring /summer edition of the Pennsylvania American Fishery Society newsletter. As I reflect back over the past year as President of the Chapter and as the two preceding years as Secretary / Treasurer – I realize that I have so very much to be grateful for in terms of the growth of our chapter. Over the past three years I have witnessed the Pennsylvania Chapter expand in a multitude of ways. I am happy to report that membership dues, meeting attendance, and communication efforts have increased (some greatly!). In addition, the chapter has increased the frequency of our newsletter publications, launched a new website, and was featured in *Fisheries* for the first time in Chapter history.



As most of you hopefully know, the duties of the Executive Committee are for the most part volunteer. In addition to our busy personal and professional lives, each of us serving a role on your Executive Committee has donated countless hours to meeting preparations, conference calls, website and newsletter updates, Cooper Award responsibilities, finances, and other items too prolific to mention.

I've been fortunate to be part of such a strong Executive Committee that has worked especially hard to facilitate worthwhile workshops and meetings, increase communication with our membership, and provide ample professional networking opportunities and scholarship awards for our student members. I cannot understate the role that your Executive Committee members – and my partners - over these past few years have filled. These members include Steve Means, current Past-President who among other things facilitated the 2014 technical workshop *Improving Skills in Professional Communications*; Doug Fischer, current President-Elect who spearheaded the recent wildly successful Joint Meeting with the Ohio chapter; Jordan Allison, current Executive Committee member who lead the recent Cooper Award actions, authored the Chapters *Fisheries* article, and lead chapter elections; Mary Walsh, current Secretary/Treasurer who has kept our communications and finances current and relevant; Tom Shervinskie, Executive Committee Member who has organized executive committee calls and has served as an invaluable source of expertise; and Chelsea Gilliland, outgoing Student Representative who with the help of Dr. David Argent lead the newly formed Pennsylvania subchapter.

In addition to witnessing the chapter grow, I know that I have grown as well these past few years. I've grown to appreciate the dedication of those I mentioned above – a dedication not to just this Chapter but to our field of study.

Volunteering for the PA AFS Executive Committee has been a privilege and I challenge each of you reading this to serve. As a Fisheries professional, I challenge you to find one other local organization that will provide you with the opportunities, networking capabilities, and technical correspondences that our Chapter does. I'm confident that you will not find it.

I ended the 2014 newsletter Secretary / Treasurers Hook with the following – which is more than appropriate to also end my final President-Hook article:

Cliché aside, I'd like to quote William Shakespeare's Twelfth Night in closing by saying "I can no other answer make, but, thanks, and thanks". Thanks to all of you, our membership, and especially to the current executive committee for enhancing the PA Chapter of the American Fishery Society via each new meeting and workshop.

Rebecca Dunlap - Chapter President



2015 Cooper Award Winners

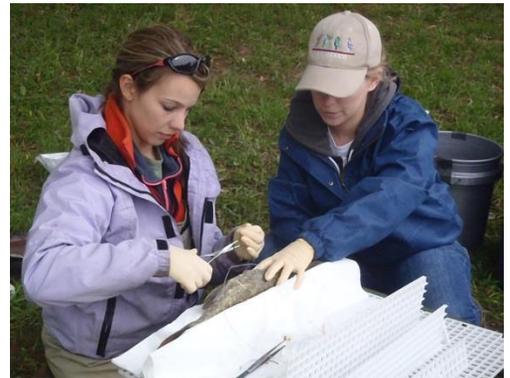
**Megan Kepler Schall and
Chelsea Gilliland**

Investigation of risk factors affecting population status of Susquehanna River Smallmouth Bass (*Micropterus dolomieu*)

Megan Kepler Schall
Pennsylvania State University

Since the early 2000s, smallmouth bass in the Susquehanna River basin (in Pennsylvania) have displayed characteristics of disease including the presence of parasites, bacterial and fungal infections, lesions, melanistics spots, and general deformities. Both adult and young of the year have shown characteristics of disease, with mortality documented in young of the year. Potential risk factors for disease and mortality including parasites, bacterial infections, contaminants, and environmental conditions (e.g., temperature, DO, etc.) have been identified. These factors are currently being investigated throughout the Susquehanna River basin through a multi-agency, university, and research group collaborative effort. Although this research has occurred for several years and has helped improve our understanding of this complex system, there are many questions left unanswered. For instance, it is unclear how smallmouth bass are using the rivers that they live in and the resulting stressors they may be exposed to including contaminants, elevated temperatures, and parasites.

My PhD research aims to evaluate a range of attributes associated with smallmouth bass and the Susquehanna River basin including the following objectives: 1.) investigating trends in smallmouth bass populations throughout the Susquehanna River basin and other rivers in a regional context using population data, 2.) investigating movement data, life history characteristics, and population structure to better understand how smallmouth bass are using their natural environment and linking these dynamics to fisheries management and disease monitoring, and 3.) evaluating fish health and disease causing agents associated with infections in young of the year smallmouth bass in the Susquehanna River basin, with an emphasis on examining various tissues for abnormalities histologically, parasites, and contaminants. These objectives are currently being investigated through research that has been ongoing over the past year and a half. For example to fulfill objective 2, a telemetry project is currently underway to investigate movement dynamics of adult smallmouth bass in the West Branch of the Susquehanna River and two tributaries where both suitable tributary and river mainstem habitat are available. A total of 85 fish have been radio-tagged during two different seasons (spawning and overwintering). This research will be occurring over a year time frame and will provide insight into range of movements and potential stressors fish may be exposed to during different seasons throughout the year. A population genetics study is in the planning stages to compliment the movement work and expand our understanding of population structure (including connectivity of populations in the system) to a larger scale beyond the telemetry region. The movement and population structure work are being coordinated with efforts to study a wide range of variables in the Susquehanna River basin such as contaminants and parasites focusing not only on adult fish, but also on potential disease causing agents affecting young of the year smallmouth bass. All together the research aims to combine information from population modeling, movement data, population structure, and fish health attributes to provide insight for fisheries and fish health management in the Susquehanna River basin.



In The Spotlight cont'd: 2015 Cooper Award Winners

Examining genetic variation among Rainbow Darters (*Etheostoma caeruleum*) in the Monongahela River.

Chelsea Gilliland

California University of Pennsylvania.

Rainbow Darters, *Etheostoma caeruleum*, are arguably one of the most attractive fishes native to Pennsylvania, with their stunningly bright colors and complex behavioral habits. Being one of the smallest members of the family Percidae, they are often overlooked in comparison to their more popular game fish relatives, the Walleye (*Sander vitreus*) and Yellow Perch (*Perca flavescens*) (Shiels 2013). Rainbow Darters often serve as a crucial forage for large freshwater fishes making them a dynamic species for many stream systems (Michigan DNR 2015). Physical parameters, water quality, and flow regime largely dictate the presence of this species, however, they tend to select for specific micro-habitats located within riffle sections of streams and small rivers which contain cobble to small gravel substrate and fast-moving, clean currents (Harding, Burky, and Way 1998).

Extending from north-central West Virginia into west-central Pennsylvania, the Monongahela River stretches over 206 km, flowing north into Pittsburgh, PA (Argent and Kimmel 2009). Nearly 100 years ago, a series of lock and dam chambers were installed along the Monongahela River (U.S. Army Corp of Engineers). The severe hydrologic alterations yielded high pollution outputs and caused the river to dramatically widen compared to its historic state. These changes created unsuitable habitat for Rainbow Darters to navigate within the main channel, potentially isolating populations to within its tributaries.

This project looks to quantify the genetic variation present among Rainbow Darters located within the tributaries of the Monongahela River. To do so, advanced population genetic techniques were applied to determine allelic diversity among potentially isolated populations. Rainbow Darters were collected using pulsed direct current (DC) electrofishing backpacks along five stream tributaries of the Monongahela River: Peters Creek (n=11), Pigeon Creek (n=6), Pike Run (n=10), Tenmile Creek (n=11), and Whitely Creek (n=10). Samples were immediately placed on ice and transported to the laboratory. Deoxyribonucleic acid (DNA) was isolated from the caudal fin tissue of individual Rainbow Darters using phenol:chloroform extraction. After centrifuging the samples, the remaining solution is partitioned into two distinct aqueous phases with the bottom consisting primarily of removed proteins, and the top phase consisting of nucleic acids and their constituent parts. Then, ethanol precipitation was used to further purify the extracted DNA.

Polymerase Chain Reaction (PCR), is a technique used in molecular biology which amplifies a single strand of DNA at highly repeatable sequences, also known as microsatellites, through a series of thermal cycles. This study focuses specifically on the Eca-6EPA microsatellite region developed for Rainbow Darters by B. Tonnis (2006). Agarose gel-electrophoresis was used to view PCR results under UV light. Individuals could either be homozygous, meaning they contain multiple copies of the same allele, or heterozygous meaning the alleles differ. The resulting DNA band lengths were measured in base pairs (bp) using a DNA ladder which allowed us to determine whether genetic distinctnesses are present within the potentially isolated tributaries. Genetic distinctnesses indicate that little to no migration or interbreeding occurred between populations. This information is useful for understanding how lock and dam chambers impact Rainbow Darters as well determining the vulnerability of sub-populations.

A total of ten alleles were identified among the five tributaries. Pike Run and Peters Creek expressed the greatest allelic diversity, reflecting seven out of the ten identified alleles. Microsatellite sizes ranged from 220 base pairs to 320 base pairs with 240 and 260 base pair microsatellite lengths being the most common throughout all five tributaries. To estimate the population differentiation, an Analysis of Molecular Variance (AMOVA) was conducted. Our AMOVA output stated variation among the sites was not significant ($p=0.110$), meaning the five tributaries were not genetically distinct from each other. While there may be limited genetic variation at the Eca-6EPA locus, this is only one microsatellite and others are currently being examined.



Pennsylvania Chapter of the American Fisheries Society Officer Election Results

President-Elect

The Executive Committee is pleased to welcome **Jordan Allison** as its incoming President-Elect. Jordan will be ending his two-year term as an Executive Committee member in August. His new role as President-Elect will require that he assume the responsibilities of the President in the absence of the President, chair the Program Committee, and serve as a voting member of the Chapter Executive Committee. Jordan works as a Fisheries Biologist with the Pennsylvania Fish and Boat Commission's Division of Environmental Services. He graduated from Mansfield University where he earned a B.S. in Fisheries Biology. During his time at Mansfield, Jordan had the opportunity to work for a variety of organizations including the National Park Service in Yellowstone National Park and Oregon State University. Wanting to continue his education, he moved to Michigan in 2009 where he pursued a M.S. degree at Grand Valley State University. In Michigan, Jordan assessed the reproductive success of an adfluvial Walleye population which spawns in the Muskegon River, a tributary to Lake Michigan. Jordan has been an invaluable member to the Chapter's Executive Committee the past two years.



Executive Committee

In addition, the Chapter is pleased to welcome **Dr. David Argent** as its newest Executive Committee member. Dr. Argent's responsibilities during his two-year term will include serving as a voting member of the Chapter Executive Committee, serving as the chair of the resolutions committee if such a committee becomes necessary, and chairing the nominations and elections committee during his second year in office. Dr. Argent is currently a professor at California Univ. of Pennsylvania where he performs a variety of fisheries related research and teaches various courses in support of the Bachelor's program with a concentration in Fisheries and Wildlife Sciences. He currently advises the Subunit Chapter of the PA AFS Chapter – newly formed in spring 2014. Dr. Argent is a past President and past Ex Comm member of the PA Chapter. At the Parent society level, Dr. Argent served as the Symposia Program co-Chair for the national AFS meeting held in Pittsburgh in 2010 and as the Northeast Education Committee representative (2010-2012). Presently he serves as a member of the Professional Certification Committee. Dr. Argent is also a life member of the American Fisheries Society and can't think of anything else he'd rather do than learn about fish.



Pennsylvania Chapter of the American Fisheries Society Officer Election Results

Student Representative

Thomas Casey Weathers from the Pennsylvania State University is being welcomed as the Chapter's new Student Representative. Over the next year, Casey will represent college fisheries students by asking for feedback from and encouraging participation by students in the Chapter. Casey will co-chair the Membership Committee and also serve as liaison between the Chapter and the Student Chapter(s). Casey holds a BS in Biology from Pittsburg State University (KS)(2009) and a MS in Wildlife & Fisheries Science from Penn State (2013). Previous to attending



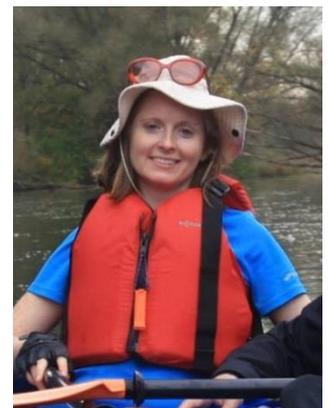
Penn State, he joined the fisheries department at Great Smoky Mountains National Park (GRSM) as a student conservation association intern and demonstrated the skills of leadership, integrity and passion which impressed upon fisheries biologists', Steve Moore and Matt Kulp, to rehire him for a duration of 3 more years as a GS-4/5 fisheries technician through 2011.

Casey's MS research assessed how extreme variable headwater habitats effect spatially limited brook trout (*Salvelinus fontinalis*) populations' phenotypic expression in GRSM. After completing his MS degree, Casey began working as doctoral student at Penn State with Dr. John Carlson examining landscape-scale barrier effects to brook trout metapopulation assemblages and genetic connectivity within and among populations across the Allegheny Plateau south to North Carolina. His goals are to graduate during the spring of 2017 and earn a post-doc research position in fisheries genetics.

Growing up in Kansas he frequented spring fed trout waters of Missouri, were he learned to fly fish at the age of five. Casey spent a few summers' trout bumming it in West Yellowstone, MT working at Bud Lilly's Trout Shop prior to earning his BS degree. He recently revisited Yellowstone and presented on his graduate research at the XI Wild Trout Symposium where he was also awarded the Marty Seldon Award in recognition as an outstanding student for accomplishments in the field of wild trout biology and management. Casey actively volunteers with the Spring Creek Chapter of Trout Unlimited, when time permits, and has been a student member of AFS since 2008.

Secretary / Treasurer

Mary Walsh was re-elected as Secretary/ Treasurer of the Chapter. Mary's services over the past year have been plentiful. Over the next year Mary will continue to be responsible for the correspondences and archives of the chapter. In addition, she will be responsible for the treasury of the chapter and will assess the membership for dues and special fees. Mary has worked in the aquatic resource field for 15 years. She's an aquatic ecologist with the PA Natural Heritage Program at Western Pennsylvania Conservancy. She works on conservation of freshwater organism. Mary's education includes a B.S. in Ecology, Ethology, and Evolution from the University of Illinois at Urbana-Champaign and a M.S. in Ecology from Penn State University.



Pennsylvania Chapter of the American Fisheries Society Officer Election Results

Past-President

After serving two years as Secretary / Treasurer and one year as President, Chapter President **Rebecca Dunlap** will transition to Past-President in August. Becky will continue to serve as a voting member of the Executive Committee and will provide assistance to the new President as needed. Becky currently serves as a Water Pollution Biologist for the Pennsylvania Department of Environmental Protection. Becky holds a B.S. degree in Biology from Mansfield University and a M.S. degree in Biology from the University of North Texas. Becky also serves as adjunct faculty for an online university teaching both Earth Science and Biology.



President

Current President-Elect, **Doug Fischer**, will officially take the reins as President at the Summer Social. Over the next year, Doug will preside over and be responsible for the conduct of all meetings of the Chapter and be responsible for the conduct of all Executive Committee meetings. Doug will also serve as the official spokesperson of the chapter and will create, appoint, and dissolve temporary committees as needed. Doug has served as the Ichthyologist and Nongame Fisheries Biologist for the Pennsylvania Fish and Boat Commission's Environmental Services Division since 2007. Doug earned a B.S. (2000) in Environmental Resource Management with a technical area in water resources and a M.S. (2008) in Fisheries Science, both from the Pennsylvania State University.



In addition to the aforementioned transitions, Current Past-President, **Steve Means**, will transition off of Executive Committee. Steve served as Chapter President in 2012/2013. Steve has over 20 years' experience working as an aquatic biologist with the Pennsylvania Department of Environmental Protection's Northcentral Regional Office in Williamsport. Steve holds a B.S. degree in Fisheries from Mansfield University and a M.S. degree in Wildlife and Fisheries Science from Penn State University.



The end of the semester brings a new slate of officers for the California University Subunit

Dr. David Argent recently welcomed Christina Edwards (President), Nathan Backenstose (Vice President), Sarah Martin (Treasurer), Luke Gray (Secretary) and Laken Ganoë (Public Relations) to the 2015 – 2016 term.

The Subunit members recently participated in a musky spawning exercise at the Linesville hatchery and will be participating in the distribution of Safe Seafood cards from Sea Food Watch this summer. The students are currently fundraising to defray costs associated with attending the AFS Southern Division meeting by selling t-shirts and totebags. To find out more about how you can assist the subunit, contact Dr. David Argent at Argent@calu.edu.

