

Pennsylvania Chapter of  
the American Fisheries  
Society



December 2018  
2018 Annual Newsletter

# 2018 Annual Newsletter

## AFS 148: ATLANTIC CITY

The American Fisheries Society recently held its 148<sup>th</sup> annual meeting in Atlantic City, NJ. The Pennsylvania Chapter was well represented with oral and poster presentations given by variety of students and professionals alike.

Highlights of the event include four days of presentations, a trade show, silent auction,

spawning run,  
carcass crawl,  
splash dash and  
numerous social and  
networking  
opportunities.



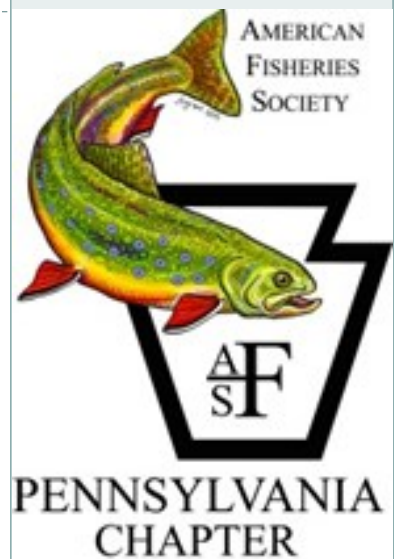
The meeting featured  
over 100 symposium  
topics with some  
panels spanning  
multiple days.

Individual tracks ranged from very  
narrow species specific issues to the  
all-encompassing human dimensions  
aspect of fisheries science.

## 2018 COOPER AWARD WINNER

**Sara Mueller, PhD Candidate, Penn  
State University**

Brook trout (*Salvelinus fontinalis*) is a keystone cold-water species native to the eastern United States and represents the only native salmonid genus in Pennsylvania. Populations of these fish are declining throughout their range; from Quebec to Georgia and from the Atlantic Ocean to the Appalachian ridge. In 2005, the top five issues for stream-dwelling brook trout were high water temperatures, agriculture, riparian condition, non-native species, and urbanization. Within Pennsylvania, wild brook trout have experienced a decrease in population size (>50%) across 73% of their native watersheds. Stressors to brook trout populations continue to increase and it is foreseeable that populations of wild brook trout could become extirpated by 2100. Due to the popular nature of wild brook trout, state fish and wildlife agencies have been quick to develop conservation plans to maintain and restore wild brook trout populations to their waters, including the Pennsylvania Fish and Boat Commission.



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### UPCOMING EVENTS

- February 21-23—Joint AFS TWS Technical Meeting, State College, PA
- Apr 14-16—Northeast Fish & Wildlife Conference, Groton, CT
- 2019 Summer Social—TBD
- AFS 149—Reno-Tahoe, NV September



### 2019 PA CHAPTER JOINT TECHNICAL MEETING—AFS & TWS

Please plan to join the Pennsylvania Chapters of the American Fisheries Society and the Wildlife Society in State College, PA on February 21-23, 2019 for a joint technical meeting. The theme of the meeting is The Nexus: Bridging Land and Water Issues. The meeting will feature plenary speakers, concurrent technical sessions, a poster session and student-focused workshops geared towards becoming a professional biologist. Resume review, job hunting tips, and practice interview services will be provided by actual fish and wildlife biologists from around Pennsylvania. Don't miss out on this great opportunity to network with professionals from multiple agencies and gain useful vocational skills. The deadline for early registration is February 4, 2019.



## COOPER AWARD... CONTINUED

When Samuel L. Mitchell described *Salvelinus fontinalis* in 1814, no type specimen was designated. However, researchers were able to narrow the locality of the fish species, as described by Mitchell, to Long Island, New York. In 2014, Stauffer and King designated a neotype specimen. In designating the neotype, measurements and counts, called morphometrics and meristics, of the fish collected from Long Island, New York were compared to fish collected from the Great Smoky national park. A multimetric analysis showed a clear difference in the measurements and counts taken between these populations indicative of a differentiation of species.

Over the past several years, the Stauffer laboratory at The Pennsylvania State University began preserving wild brook trout for morphometric and meristic analysis in addition to preserving fin clips for genetic analysis across Pennsylvania. In phase one of a PhD project being completed by Sara Mueller, the morphometric analysis will be conducted to determine if populations of wild brook

trout located between Long Island, New York and Great Smoky National Park show a gradient of characteristics, cluster more closely with one population, or is unique in phenotype. This project will then be expanded to include RAD-seg genetic analysis to determine the population structure of wild Pennsylvania brook trout. lastly, this will be coupled with microCT scans to examine the internal structures determined to be of importance in delineating wild brook trout populations

This project will be a landmark study that will contribute to the conservation community's overall understanding of the progression and evolution of wild brook trout in the United States. Without this work, fisheries managers would not be able to properly manage wild brook trout. It is critical for this project to expand on the base of previous work by a multitude of scientists and begins to answer many looming questions about modern day management of wild brook trout in Pennsylvania.

*“Without this work, fisheries managers would not be able to properly manage wild brook trout.”*



*Sara Mueller receiving the Cooper Award from chapter President Tim Wertz*



*Sheila Eyler: United States Fish and Wildlife Service*

## MEMBER SPOTLIGHT: SHEILA EYLER

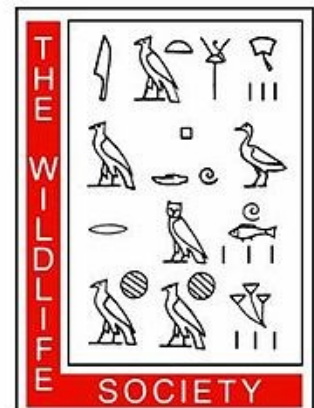
Sheila is the Project Leader for the Mid-Atlantic Fish and Wildlife Conservation Office of the U.S. Fish and Wildlife Service. Her primary focus is migratory fish restoration and management for the Susquehanna and Delaware river basins. She has worked in the Fisheries Program for FWS for 19 years, serving in her current position since 2014. Sheila is originally from Minnesota and earned her MSc degree from University of Maryland – Eastern Shore evaluating river herring passage on a small Chesapeake Bay tributary. She later went on to earn her PhD at West Virginia University studying downstream eel migration at hydroelectric dams in the Shenandoah River. Sheila serves as coordinator for the Susquehanna River Anadromous Fish Restoration Cooperative and the Delaware River Basin Fish and Wildlife Management Cooperative. She has worked on developing the fish passage requirements for Conowingo Dam as well as tracking improvements to fish passage required at the main stem hydroelectric projects on the Susquehanna River. She is also interested in American eel restoration and has been involved in restoration efforts in the Susquehanna River and evaluation of the silver eel fishery in the Delaware River.



*American shad (Alosa sapidissima) - target species of Sheila's restoration work*

## 2019 AMERICAN FISHERIES SOCIETY ANNUAL CONFERENCE: RENO-TAHOE, NEVADA

The 2019 American Fisheries Society Annual Conference will be held jointly with The Wildlife Society in Reno, Nevada from September 29–October 3 2019. This will be the first ever joint national meeting of the two organizations. The event will likely be the largest gathering of fish and wildlife professionals ever, and will provide unprecedented opportunities for science-sharing and potential collaboration. Individually, these organizations' conferences ensure your staff stay knowledgeable and up to date on the latest science and management techniques, but combined this can't miss event opens doors for the future of natural resource professions. Join us in Reno for an unforgettable experience, and be part of this historic event.



## JUNIATA COLLEGE RESEARCH UPDATE

Juniata College students in the Fisheries and Aquatic Science Lab led by Dr. George Merovich are compiling information about Huntingdon County's waters to understand some of the major elements of these trout and smallmouth bass fisheries: evaluation of brook trout habitat restoration projects, identification of keystone areas of water quality in the Little Juniata Watershed, and most recently, investigation of rusty crayfish presence and effect in Huntingdon county waters.

Working with the Little Juniata River Association, Trout Unlimited, and the PA Fish and Boat commission, student researchers provided pre and post-remediation monitoring at Kelso Run in the Little Juniata River watershed. Kelso Run underwent major habitat degradation during hurricane Ivan in 2004, which was mainly scouring of stream debris and quality riparian zones. This loss of trout habitat led the LJRA to complete a project in summer 2018 that would potentially increase Brook Trout population sizes and limit bank erosion. In addition to trout fisheries, additional students are assessing smallmouth bass ecosystems by determining how the invasive Rusty Crayfish presence interacts with this game species. A hopeful expansion of this project is to develop occupancy models that predicts which streams are at risk for invasion of rusty crayfish and to develop priorities for eradication efforts. From managing rusty crayfish invasion to creating Brook trout stream conservation measures to remediating Brook Trout habitat, knowing the current conditions of Huntingdon county's waters is needed to make efficient decisions concerning these game species. Fish, as mainly top predatory species, depend on a plethora of stream conditions to survive and flourish. Organizations need to know what the stream conditions are to meet their goals of conserving and promoting these fisheries. Students in the Fisheries and Aquatic Science Lab at Juniata College are aware of this need for knowledge and are on the quest to find out this information. – by Marissa Cubbage '19, Fisheries and Aquatic Sciences major, Juniata College, Huntingdon, PA

## MEMBER SPOTLIGHT: LUANNE STEFFY

Luanne is an aquatic ecologist for the Susquehanna River Basin Commission, where she has been working since 2004. Luanne has a B.S. in Biology from Geneva College (1999) and an M.S. in Environmental Science from Drexel University (2003). She has been a certified ecologist through the Ecological Society of America since 2014. Her professional experiences include a broad range of stream monitoring and assessment activities, including macroinvertebrates, fish, periphyton, bacteria, water quality, stream morphology and flow-ecology interactions. She has been the project lead for a wide variety of projects over her 14 years at the Commission, including multiple series of EPA's National Rivers and Streams Assessment and National Lakes Assessment. Luanne's current research interests and activities include ecosystem flows, stream methane monitoring, suspended sediment-turbidity relationships, macroinvertebrate assemblage patterns in the Susquehanna River and understanding long term variability in macroinvertebrate communities in high quality streams. Luanne also presented a poster at AFS 2018 on the impacts of abandoned mined drainage remediation on macroinvertebrate and fish assemblages in two tributaries to the West Branch Susquehanna River. In her free time, Luanne enjoys playing volleyball, golfing, birdwatching and reading.



*Luanne Steffy: Susquehanna River Basin Commission*

Publication Notice: Luanne and fellow PA chapter member, Matt Shank, recently published a paper in *River Research* that details using turbidity as a surrogate for suspended sediment. This monitoring technique allows for large scale sediment load estimations to be computed for varying time scale resolutions and has many implications for Chesapeake bay TMDL goals. For more see: **Steffy LY, Shank MK. Considerations for using turbidity as a surrogate for suspended sediment in small, ungaged streams: Time series selection, streamflow estimation, and regional transferability. *River Res Appl.* 2018;1–11. <https://doi.org/10.1002/rra.3373>**

## STUDENT SPOTLIGHT: BEN KLINE

My name is Ben Kline and I am undergraduate student studying under Dr. Tyler Wagner at Penn State University. Since 2016, I have worked on a number of projects focusing on freshwater fish conservation in streams and lakes throughout Pennsylvania. I first joined the Pennsylvania AFS Chapter in 2017, and participated in the annual chapter meeting at Lycoming College in 2018. At this meeting, I gave my first research talk: "Resource use by brook trout in a thermally complex environment". Since then, I have also represented the Wagner Lab at the annual meeting of the National Chapter of the American Fisheries Society in Atlantic City, NJ, where I presented a poster on my research. Now a senior, I hope to continue my education in fisheries ecology by completing my Master's Degree. I am broadly interested in understanding the influence of multiple stressors and climate change on freshwater fish populations, particularly in understanding the complex interface between scientists, managers, and public stakeholders.

My initial research project began in 2016 when I first became interested in engaging in fisheries research for the first time. I began a project that hoped to investigate how fine-scale habitat use in brook trout may be modulated by temperature, and how the use of unique habitat patches, such as thermal refugia, may broadly influence fish. To do this, I analyzed data collected from the Experimental Stream Lab at the USGS Leetown Science Center in West Virginia. We used a laboratory experiment to simulate a warming stream environment, much like one would see in a mainstem channel during the warming summer months. Passive integrated transponder (PIT) tags were used to monitor fish movement between energetically profitable feeding zones and thermally preferable coldwater habitat patches. Fish personality and aggression were also quantified using open field tests and video analysis.

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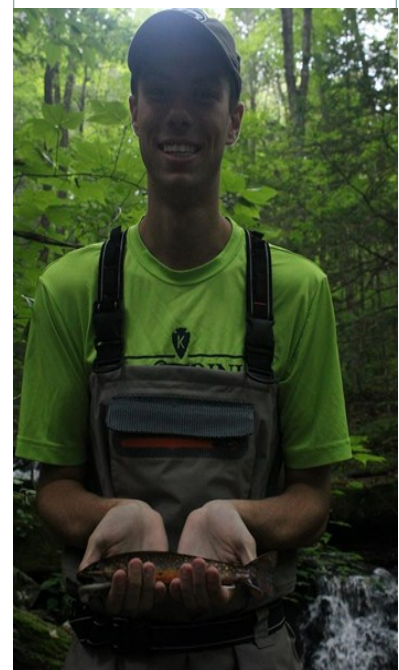
My more recent research has focused on the use of species distribution modeling and occupancy models to understand how landscape features and other abiotic components influence freshwater fish communities. While most modeling approaches seek to understand and predict conditions under current or future conditions for a certain species, many fail to account for the interconnectedness of aquatic fish assemblages. As such, I am working to develop a Joint Species Distribution Model from data collected on fish assemblages in approximately 700 lakes. By better understanding the way that these species influence each other through more complex models, we hope to better inform managers and scientists in their decision making process, and improve overall predictive power of existing scientific models and datasets.

When not in the lab, I am an avid outdoorsman and love to spend my time hiking and camping with my friends and family. I also am heavily involved in community service at Penn State and currently serve as the President for the Council of Lionhearts, a student-lead service council dedicated to promoting service and community engagement to students at Penn State. I am also the Service Chair for the Penn State Chapter of Circle K, a general purpose service organization, and have completed over 800 hours of community service during my time at Penn State. I am also passionate about teaching and outreach and have served as an undergraduate teaching assistant for multiple semesters, as well as serving as an assistant instructor for environmental education events at local schools and at the Pennsylvania Wildlife Leadership Academy.



*Ben Kline: Penn State University, holding a sculpin collected during a sampling demonstration at the Wildlife Leadership Academy*

*Ben Kline: Penn State University, holding a brook trout captured while sampling in Loyalsock, Pennsylvania*



## PENNSYLVANIA CHAPTER OF THE AMERICAN FISHERIES SOCIETY

THE CHAPTER WAS CHARTERED IN 1969 AND SERVES AS A SCIENTIFIC AND PROFESSIONAL ORGANIZATION MAINTAINED BY PEOPLE INTERESTED IN THE CONSERVATION AND ENHANCEMENT OF FISHERY RESOURCES OF THE COMMONWEALTH OF PENNSYLVANIA. OUR MISSION IS TO:

- Advance the conservation, development and wise use of fishery resources for optimum use and enjoyment by all mankind
- Provide a forum for formal and informal dissemination of scientific knowledge, research and training in fisheries science, management and production
- Promote and evaluate the educational, scientific and technical aspects of the fisheries profession
- Recognize outstanding contributions to the understanding, conservation and/or wise use of Pennsylvania's fishery resources

### PA Chapter Officers

Chapter President: David Argent

President-Elect: Greg Moyer

Past President: Tim Wertz

Secretary/Treasurer: Sara Mueller

Executive Committee: Aaron Henning

Executive Committee: George Merovich

Student Representative: Dustin Zettle

Contact us:

pachapsterafs@gmail.com



## 2018 SPRING TECHNICAL MEETING WRAP UP

The 2018 Spring Technical Meeting of the PA Chapter of the American Fisheries Society was held at Lycoming College in Williamsport, PA. The meeting was a resounding success with a plethora of contemporary fisheries research topics being presented. Penn State University student Shannon White won best student presentation at the meeting for her work on quantifying hatchery introgression in wild brook trout populations in a northcentral Pennsylvania watershed. Brandon Basinger of California University of Pennsylvania won the best student poster competition for 'Analyzing the Fall Diet of Black Bass in the Monogahela River. Highly educational workshops on mussel identification and fish kill investigations were put on by representatives from the Pennsylvania Fish and Boat Commission, the US Fish and Wildlife Service, the Pennsylvania Department of Environmental Protection and The Nature Conservancy. Additionally, the chapter rolled out its first ever student "fish bowl" trivia contest. With representatives from California University of PA, Lycoming College, Mansfield University, Penn State and King's College in attendance, competition was fierce. In the end the Penn State team claimed the bowl but a impressive amount of ichthyologic information was shared by all. Distinguished service awards were presented to Becky Dunlap and Steve Means. A big thanks goes out to the workshop presenters, meeting organizers and Lycoming College for hosting the great event.



*Clockwise from top: Chapter members at social, Dave Spotts, Heather Smiles, Sara Mueller, Dave Rebeck, Heather Wertz; Collegiate Fish Bowl Champions: Penn State University; Mussel Identification workshop participant Amy Jewitt, Instructor Rick Spear, Instructor Neven Welte*