

PENNSYLVANIA CHAPTER AMERICAN FISHERIES SOCIETY

JULY 2023 SUMMER NEWSLETTER

PA Chapter Officers 2022 / 2023



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Matt Shank



Past President
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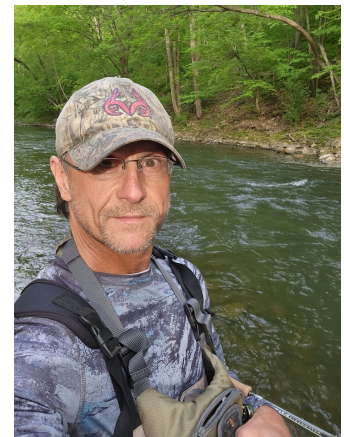
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President's Hook: Matt Shank



WELCOME to the summer 2023 edition of the PA Chapter of the American Fisheries Society newsletter! Looking back over my time as chapter president, and the preceding 3 years as Excomm member and president-elect, I am extremely grateful for this opportunity and all the relationships I've had the privilege to build.

More on that later. The real message I want to convey in this short column is the role of AFS in today's fisheries landscape as I've come to understand it. When I was in college, I was environmental studies major and really wanted to get a summer gig with an environmental agency. I scoured websites, filled out applications, and sent cover letters. But after trying for a couple years I could not even get an interview. Then, the summer before my senior year, I thought why not just call them up? I found a few Fisheries Biologist Aide (FBA) positions with the Fish and Boat Commission, and found a web page

with contact info. My phone call happened to be answered by Mark Hartle (PFBC, retired), who was extremely helpful in answering my questions and providing instructions on how to successfully apply for an FBA position. Mark even followed up with a mailed packet of additional info and his business card. I got hired that summer of 2007 as a creel clerk during the Susquehanna and Juniata River Creel Survey, got my very first experience electrofishing, and made invaluable contacts along the way. Mark's small gesture set me on the track that led to where I am today. All it took was for an established professional to provide a well-intentioned (but otherwise oblivious) student with some social capital. So, I'd like to coin a term. Social capital, defined as 'the value derived from positive connections between people' in a fisheries context shall now be known as O-fish-al capital.

O-fish-al capital is what is available to all students and young professionals when they become AFS members and engage in state chapter and national activities. They discuss their posters during socials at meetings, learn of new techniques to apply to their work or research, and most of all begin to build a network of contacts they can lean on to get where they want to go. In an increasingly competitive profession, those experiences are more important now than ever. PA AFS is striving to provide O-fish-al capital to the next generation of fisheries scientists by encouraging student attendance at annual meetings and providing prizes to deserving students who come and present their work. Aside from the monetary benefits of these prizes, the contacts made and lessons learned will hopefully make for more competitive and well-rounded students, academics, and professionals. Just take a look at previous newsletters – look at some of the names of past Cooper Award winners and see where they are today.

I'd like to thank everyone who has played a role in making the PA chapter a success during my short time at the helm. Specifically, Sara Mueller who went above and beyond in her role as Secretary/Treasurer for 5+ years in a position with a 1-year term. Thanks to Steve Seiler and everyone at Commonwealth University of PA for hosting a very successful 2023 spring technical meeting (see more about that in this newsletter). A huge thanks to the PA Chapter Executive Committee, including Adam Slowik, Clayton Good, George Merovich, Sara Mueller, Emily Bierer, and Jon Niles. It was a pleasure to further the Chapter's mission with this group of hard working and knowledgeable folks. A huge shout-out to Dakota Raab who illustrated a beautiful rainbow darter *Etheostoma caeruleum* that we are now using as the Chapter's logo. A final thank you to everyone who attended, presented and facilitated a workshop at the 2023 spring meeting.

I've since thanked Mark Hartle for his offering of O-fish-al capital years ago, although I don't think he fully realized the impact it's made on my trajectory 16 years later. I challenge everyone to provide more O-fish-al capital to those who need it. The next generation of fisheries scientists are going to have a lot of work to do....

Hoping to see everyone at our summer social in Raystown on July 22. — **Matt**

Recap of the 2023 Spring Technical Meeting

THE Pennsylvania Chapter held our spring technical meeting in Lock Haven, PA on February 23-24, 2023. The Commonwealth University Watershed Ecology Center (WEC) board of directors hosted the meeting and we enjoyed the fabulous facilities of the Lock Haven campus. There 115 meeting attendees over the two-day conference. Day 1 featured a plenary talk by Dr. Casey Bradshaw-Wilson of Allegheny College, 12 podium presentations, 12 poster presentations, a Chapter business meeting, and an evening social. Student winners of Kahoot quiz games with fishy questions were awarded prizes donated by Chapter members. Day 2 featured workshops on mayfly taxonomy, mussel ecology and identification, and R for fisheries professionals. Special thanks to our meeting sponsors and all presenters and workshop facilitators who contributed to an extremely successful meeting.



The new PA AFS logo



Podium presentations during Day 1 in the Durrwachter Conference Center

Our 2023 Cooper Award winner was Sierra Rider of Bucknell University. The Chapter awarded Sierra a certificate and \$500 to further her research. The top 3 student podium and poster presenters were given cash awards totaling \$1200. Dakota Raab from the PA Fish and Boat Commission provided an illustration of a rainbow darter for use in the Chapter's new logo (pictured). This logo was featured on hats, t-shirts, and stickers that were sold to raise funds for our student awards.



Kahoot winners Kristen Crable and Logan Kreutzberger of Penn State University



President Matt Shank presenting Brendan Nauman of Juniata College with the award for best student presentation "Linking in-stream and landscape-level conditions to macroinvertebrate assemblages in the Little Juniata River watershed."



2023 Cooper Award winner Sierra Rider with Steve Seiler from Commonwealth University

Research project updates from across the state



Chesapeake Logperch Aquaculture – Submitted by Jack Test and Doug Fischer, PFBC



Male *P. bimaculata* displaying distinct saddles

DURING early April 2023, personnel from the Pennsylvania Fish and Boat Commission (PFBC) and Penn State (Jack Test, Doug Fischer, Rob Criswell, and Antonio Stylianides) travelled to York and Lancaster counties to collect brood stock for multiple Chesapeake Logperch (*Percina bimaculata*) aquaculture initiatives. The Chesapeake Logperch is listed as threatened in both Pennsylvania and Maryland



Doug Fischer, Rob Criswell, and Antonio Stylianides in the jet boat entering mouth of Muddy Creek.

and it is being assessed by the US Fish and Wildlife Service (FWS) for potential federal listing. We accessed Muddy Creek via the Susquehanna River with a jet boat and made collections with a Smith Root LR 20b backpack electrofisher using a straight direct current waveform. After collecting nearly 70 fish, we separated them by size and sex in order to assign them to their future hatchery homes. These fish were transported to the PFBC Aquatic Conservation Center in Union City, the FWS Northeast Fishery Center at Lamar, and Penn State University Park (Jay R. Stauffer Jr. Lab).

Rediscovery and Recovery of the Lost Lake Erie Cisco – Submitted by Doug Fischer, PFBC



Cisco collected for morphometrics, meristics, and genetics in 2021.

THE Pennsylvania Fish and Boat Commission (PFBC) has been actively working to assess the feasibility of restoring Cisco (*Coregonus artedii*) to Lake Erie in partnership with the United States Geologic Survey (USGS), United States Fish and Wildlife Service (USFWS), and the Great Lakes Fisheries Commission. Cisco are currently listed as endangered in PA and they are an important forage item for larger gamefishes, in particular Lake Trout (*Salvelinus namaycush*).

In 2016, PFBC Bureau of Fisheries staff rediscovered wild populations of Cisco and Lake Trout in an inland lake found in the northeastern part of the state. This lake was once open to public fishing, but has since been restricted to private access. Sometime in the late 1800s or early 1900s, the Pennsylvania Fish

Commission (PFC), predecessor to the PFBC name, stocked Lake Trout and Cisco in some northeastern lakes to create angling opportunities. Most of these lakes became developed over the years and water quality suffered to the detriment of their fish populations. Both Lake Trout and Cisco populations were extirpated from Lake Erie likely sometime in the mid-1900s. The existence of wild populations of both species in an inland lake within the Lake Erie region begged the question of whether they could benefit recovery efforts in Lake Erie. Additional investigations would be necessary to determine if these fish populations could contribute to conservation actions.

We initially focused on determining the source populations of the Cisco and Lake Trout that would have been utilized by PFC hatcheries in the late 1800s or early 1900s. Available information in historic PFC annual reports indicated that Cisco were, indeed, likely sourced from Lake Erie for hatchery operations and there was no clear source indicated for Lake Trout. In 2016, genetic material was collected from individuals of both species and sent to the USFWS Northeast Fisheries Center. Initial genetic results for Cisco indicated a need for more samples and the Lake Trout samples have not yet been sequenced. (Continued on next page)



Doug Fischer holding a wild Cisco after its “rediscovery” on a cold November morning in 2016.



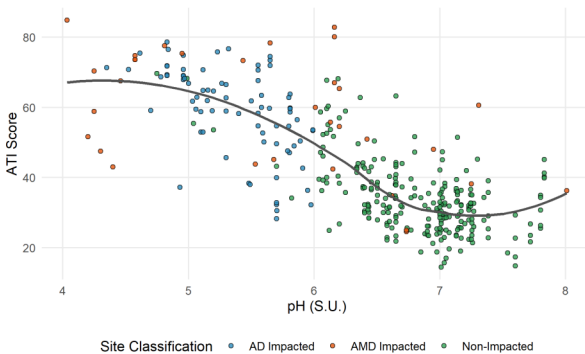
Aaron Frey with a wild Lake Trout caught in a short soaked gill net in northeastern Pennsylvania in 2016.

In 2021, the PFBC collected 27 Cisco specimens for traditional morphometric and meristic analysis, in addition to collecting more genetic material. Multivariate statistical analyses of the morphometrics and meristics indicated that these Cisco aligned with the “shallow water” Cisco (*Coregonus artedii albus*) unique to Lake Erie. The genetic material is still being processed and will be compared with archival scale samples collected from the Western Basin of Lake Erie in the early 1900s. During the summer of 2022, USGS and PFBC personnel conducted a hydroacoustic survey to develop a rough estimate of the density and biomass of the extant Cisco population. The USGS concluded that a best estimate of the population is 1500-2000 Ciscos. In 2023, we plan to collect individuals that can be transported to a state or federal hatchery to initiate aquaculture production and create a redundant source population in case something catastrophic were to happen to the wild population. Future work will include genetic analyses, determining the long-term viability of a reintroduced Lake Erie population, and additional hatchery operations.



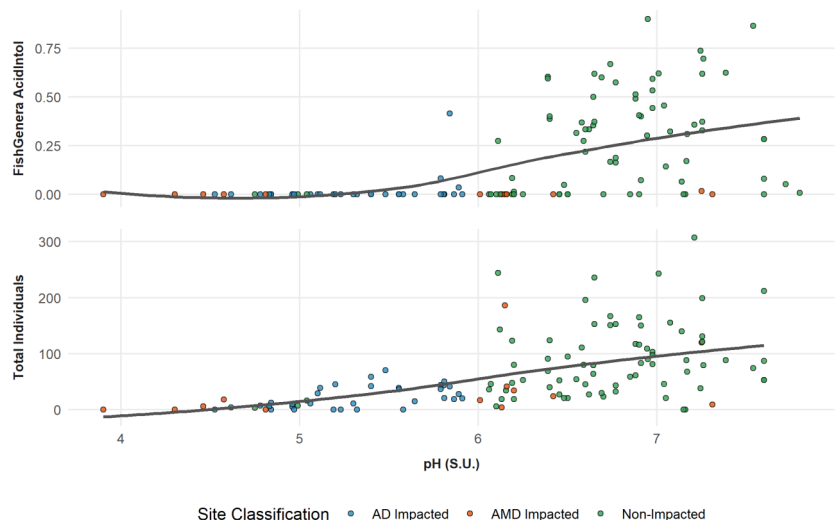
PA Acidification Assessment Method Development—Submitted by Matt Shank, PA

SURFACE water acidification is a process characterized by increasing concentrations of hydrogen ions (H⁺), which lowers the pH of waterbodies. In PA, the sources of acidification are primarily atmospheric deposition (AD) and acid mine drainage (AMD).



Macroinvertebrate and fish communities in streams affected by acidification display consistent and recognizable patterns including decreased richness, diversity, and abundance. PADEP has recently developed new biological metrics that are responsive to acidification stress. A macroinvertebrate metric, the Acid Tolerance Index (ATI) utilizes individual Acid Tolerance Values (ATVs) that were developed for 112 macroinvertebrate taxa. These ATVs represent a useful addition to currently available organic pollution tolerance values that are currently utilized for Indices of Biological Integrity, but do not fully capture organism tolerance to non-nutrient stressors. Fish metrics are simple, but linked to the increased mortality and emigration and reduced reproduction and immigration that result from acidification stress. The fish metrics are the total number of individuals captured in electrofishing surveys and the sum of individuals from four acid-intolerant genera (*Cottus*, *Etheostoma*, *Clinostomus*, and *Oncorhynchus*).

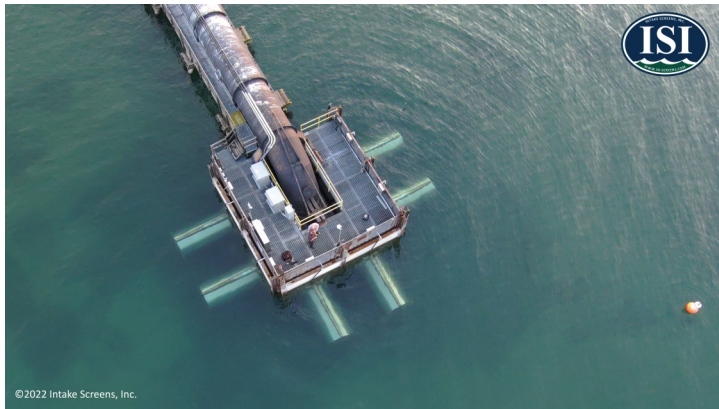
Fish and macroinvertebrate communities affected by AMD often appear similar to those affected by AD. However, by leveraging water quality data, these stressors can be effectively disentangled. This research will allow accurate and precise aquatic life use decisions, as well as providing useful for additional research objectives, particularly when measuring recovery from acidification stress. These metrics also allow for accurate identification of streams that represent excellent targets for restoration.



On impingement and entrainment — Submitted by John Young, Vice President and Principal Scientist, ASA Analysis and Communication, Inc.

Impingement and entrainment are key threats to aquatic life at sites that withdraw water for various purposes. Impingement refers to the physical contact of organisms with barriers such as screens at intakes when they cannot escape water intake velocities. Entrainment is passage through water intakes in the absence of such barriers.

ASA Analysis & Communication, an environmental consulting firm with local offices in Lemont and Bellefonte, is conducting several environmental studies in New York. At Seneca Lake, the effectiveness of small slot (0.5 mm) wedgewire screens at keeping fish eggs and larvae from being drawn into a power plant cooling system is being tested. At a power station on Long Island Sound, the survival rates of fish collected from screens at the cooling water intakes is being measured. In addition, the ability of fish eggs and larvae to survive passage through the cooling system is measured with specially constructed sampling gear. ASA currently has five PSU graduates on staff.



Overhead view of 6 installed wedgewire screens at an offshore cooling water intake. Water depth is approximately 12 ft. Barrel sampler (right photo) being readied for deployment at a cooling water discharge. Sampler is used to collect fish eggs and larvae without damaging them.



153rd Annual Meeting

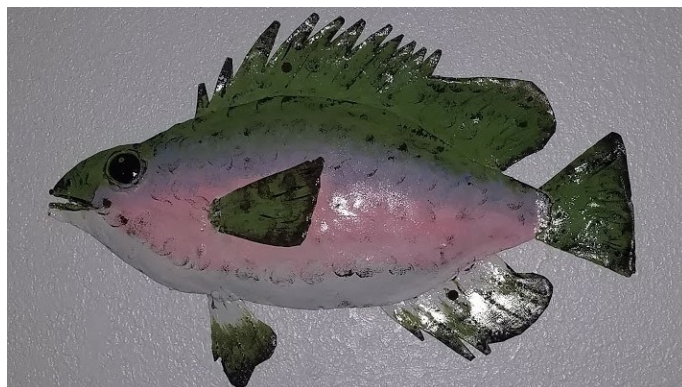
August 20-24, 2023, Grand Rapids, Michigan



Officer elections coming up soon...be on the look out for an electronic ballot. Consider volunteering your time and expertise to running your PA Chapter of AFS. Contact us for any comments, questions, or suggestions pachapterafs@gmail.com

Ichthyology blunders: A contest...Reel Fish Fun 🐟

THIS piece originally appeared in the 2019 summer news letter. With few responses (I know why...you all know), I thought I'd include it again in this addition for new folks tuning in here. So in 2018, I saw these 2 pieces of art (constructed of tin) on the wall in a local hotel in Huntingdon, PA. While I love everything fishy, and these works are indeed impressive, my eye caught obvious anatomical and taxonomic mishaps and over generalizations. I am often plagued with the need to study and point out these "slip-ups" anytime I see fish art on clothing, socks, and so forth (anyone with me here?). So, first who can provide an ID on the suspected species below? And, how many fish follies can you fish friends find? Email your response to: merovich@juniata.edu. Best essay response wins a trip to see them on display!



News from around the Chapter

Reminder: The PA AFS summer social will be held at Juniata College's Raystown Field Station on Sunday July 22nd! We hope to see you there. See the [website](#) for more info on this family friendly event. Follow us on twitter [@afs_pa](#) to keep up to date with PA AFS news.

The Pennsylvania Chapter
American Fisheries Society
2023 Summer Social



Raystown Field Station

RAYSTOWN
FIELD STATION

Saturday July 22, 2023

Lunch at Noon: Please bring a covered dish or dessert

Business Meeting at 3 PM

With introduction of new officers

[14322 Field Station Lane, Entriaken PA 16638](#)
[GPS Coordinates: 40.367336, -78.144544](#)

Fun for the whole family by the lake!

Come early. Stay late. Hiking, canoeing, kayaking, fishing, fish sampling, swimming, sightseeing, and conversation.

For more information about the event contact: George Merovich at MEROVICH@juniata.edu. To learn more about the Juniata College Field Station visit: www.juniata.edu/offices/field-station



Images from 2022– come out and join us this year!



More news

New publication —

Stauffer, J.R., Jr.; Freedman, J.A.; Fischer, D.P.; Criswell, R.W. Morphological Comparison of the Chesapeake Logperch *Percina bimaculata* with the Logperch *Percina c. caprodes* and *Percina c. semifasciata* in Pennsylvania. *Fishes* **2023**, 8, 288. <https://doi.org/10.3390/fishes8060288>



Article

Morphological Comparison of the Chesapeake Logperch *Percina bimaculata* with the Logperch *Percina c. caprodes* and *Percina c. semifasciata* in Pennsylvania

Jay R. Stauffer, Jr. ^{1,2,*}, Jonathan A. Freedman ^{3,†}, Douglas P. Fischer ⁴ and Robert W. Criswell ^{5,‡}



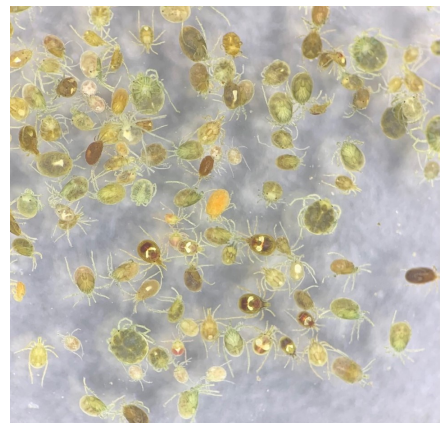
Stenger earns MS degree from PSU studying water mites as a tool for biomonitoring



Logan standing along an attaining sample site (Laurel Run, Huntingdon Co).

Logan Stenger, a graduate student in Penn State's Department of Entomology advised by Dr. Michael Skvarla, recently defended his Master's research (*Water mites as bioindicators of water quality conditions in Pennsylvania streams*) that examined the bioindicator potential of lotic water mites (Trombidiformes: Hydrachnidia). To do so, Logan collected water mites from 13 “attaining” (unpolluted) streams and 13 agriculturally “impaired” (polluted) streams across central Pennsylvania. In total, Logan identified nearly 15,000 individual water mites representing 5 superfamilies, 10 families, and 15 genera. Only two of these genera had been previously documented in Pennsylvania. Data comparisons showed significant differences between the water mite assemblages of attaining and impaired streams, with attaining streams harboring a greater diversity of water mites. In addition, several water mite taxa were associated with other biological and physiochemical parameters currently used to assess water quality. For example, some taxa became increasingly dominant in streams with good water quality conditions and less dominant in streams with poor water quality and are particularly useful as bioindicators. Conversely, other taxa became increasingly dominant in low-quality streams and are likely tolerant of higher levels of pollution. These findings illustrate that water mites vary in their sensitivity to pollution and are therefore suitable bioindicators whose inclusion in biomonitoring assessments could increase assessment accuracy. To learn more about Logan's research, contact him at stenglr14@gmail.com or visit Penn State's Theses and Dissertation Library at <https://etda.libraries.psu.edu/> to access an online version of the full thesis for free (available after August 2023).

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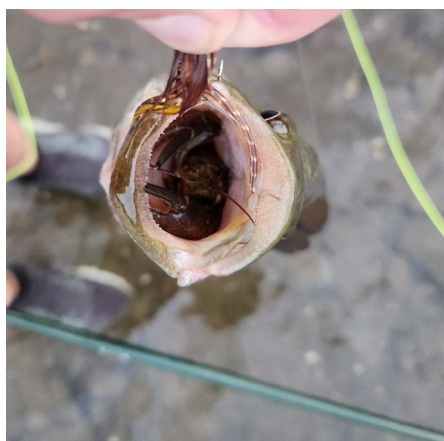


A typical water mite sample under a microscope showcasing the diversity within a single stream.

Photo Corner



Juniata College Fisheries and Aquatic Sciences Program provided an electrofishing workshop at the 28th annual [Rivers Conservation and Fly-Fishing Youth Camp](#) (hosted by Cumberland Valley Chapter of TU) at Messiah University in Grantham, PA on June 21, 2023. Pictures show students involved in safety training, electrofishing, netting and identifying fish in the Yellow Breeches and Trout Run. The week-long camp is an awesome model in conservation camps for kids interested in conservation, the outdoors, and fly-fishing. Photos by G Merovich and T Russel (Juniata College).



A 9-inch smallmouth bass caught on a streamer at the mouth of the Raystown Branch of the Juniata River on June 3, 2023. That's a rusty crayfish crammed in the fish's mouth. Photo by G Merovich.



Past President, Adam Slowik, enjoying an evening of fishing with his two daughters Avery and Piper Slowik on their pond.



Jack Test pictured holding a Chesapeake Logperch (*P. bimaculata*)