PACHAPTERAFS@GMAIL.COM @AFS_PA PA.FISHERIES.ORG

PENNSYLVANIA CHAPTER AMERICAN FISHERIES SOCIETY

SUMMER 2022 NEWSLETTER

2021 - 2022 Chapter Officers

Chapter President -
Adam Slowik

President Elect -
Matt Shank

Past President -
George Merovich

AMERICAN FISHERIES SOCIETY

PENNSYLVANIA CHAPTER

Student Representative -
Emily Bierer

Executive Committee -
Jon Niles

Secretary / Treasurer -
Sara Mueller

Executive Committee -
Tyler Grabowski

CONTENTS

Background Photo Credit: A. Leakey

MESSAGE FROM THE PRESIDENT

Adam Slowik,
Brookfield Renewable

Hello and Greetings To All:

I hope everyone is off to a great field season. With restrictions dwindling and the sun shining we are making our way back into normalcy. This February we hosted our 2022 conference with the Keystone Coldwater Conference and Pennsylvania Council of Trout Unlimited. This collaboration resulted in one of our largest conferences to date. With over 200 people ranging from professionals, to students, to active citizen scientists, it was refreshing to see others conversing and enjoying an engaging atmosphere. The success of this conference is due to the teams planning from PAAFS and KCC committees. Thank you to all who made it a memorable event. Keep an eye out for the 2023 technical conference. We will be unveiling the location soon.

Put a hold on your calendars for July 24th. The summer social will occur at the Raystown Field Station. We have an exciting day planned with seine nets, backpack e-fishing gear, and a full barbecue. Please come out and enjoy the fun with us. Reservations can be made to spend the night at one of the cottages. Reach out to a board member for further information. We hope to see you all there.

We are looking into the future and trying to remind ourselves the value of being a member of the PAAFS. For some it is a great resource for networking or possibly a chance to donate your knowledge and skill to students whom are our future. The PAAFS board is working on means to bring more to you as a valued member. Please look for alerts about future courses, field events, seminars, or educational sessions. If you would like to volunteer and give back to our organization, we strongly encourage you to contact a board member as we would delighted to hear from you.

Lastly, I would like to extend my deepest gratitude to our board. With their dedication and willingness to exceed none of the events or even this newsletter would be possible. We were able to overcome obstacles in uncertain times to keep this show moving. I am humbled by the passion these members have. Several positions on the board will be opening. Nominations will begin soon!

Enjoy this Spring newsletter. It is full of exciting and historical information. We all hope you'll enjoy it as much as we do.

Be Safe on The Water,
Adam Slowik

RECAP OF 2022 SPRING TECHNICAL MEETING

Our spring technical meeting was held in State College, PA on February 25-26, 2022 jointly with the PA Council of Trout Unlimited. A total of 193 participants attended over the 2 day Keystone Coldwater Conference.

Day 1 featured 4 workshops on the following topics:

1) a new Thermal Fish Index (Tim Wertz and Matt Shank - PADEP),
2) PA Trout Unlimited Women, Diversity, and Inclusion (Amidea Daniel - PFBC and Kelly Williams CCCD),
3) Building Community Around Conservation (Jeff Yates - TU), and
4) Youth Engagement (Jessica Kester and Spencer Gee - Penn State Extension).

Following the workshops and a PA chapter business meeting, Tim Schaeffer (Executive Director of PFBC) introduced the Friday evening keynote address by Greg Czarnecki (PA DCNR), who talked about Climate Change in Penn's Woods. Day 1 wrapped up with a student poster session and social.

Tim Wertz and Matt Shank present on PADEP's new fish assessment tool - the Thermal Fish Index (TFI)

Greg Czarnecki (PA DCNR) delivering the Keynote Address on the topic of Climate Change in Penn's Woods.

RECAP OF 2022 SPRING TECHNICAL MEETING

Day 2 began with a morning Plenary Session moderated by Ben Hayes (Bucknell University) on the conference theme: Learning from the Past, Adapting to the Future. Panelists included Eric Chapman (Western PA Conservancy) Sheila Eyler (US Fish and Wildlife Service), Lisa Hollingsworth-Segedy (American Rivers), Jennifer Orr-Greene (TU), and Shawn Rummel (TU).

Four concurrent session were then held with a total of 32 podium presentations on various technical topics. A total of 21 student research projects were presented and we gave out $1200 in cash prizes to students for the top 3 poster and podium presentations. A huge thank you to PATU and Rachel Kester for leading and organizing the event!

Ben Hayes moderating the Plenary Session that kicked of Day 2 of the 2022 Meeting

Renee' Carey (Northcentral Pennsylvania Conservancy) and 1SG Brandon Bleiler (333rd Engineering Unit, U.S. Army Reserves) present on the Plunketts Creek Berm Removal and Floodplain Reconnection

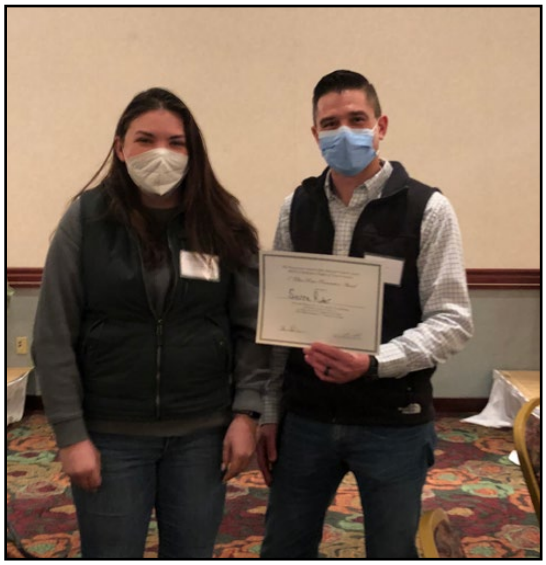
2022 SPRING MEETING | STUDENT AWARDS

Richard Novak earned the Best Student Presentation Award

Richard is a student at Penn State. Julian Avery (PSU) co-authored the presentation titled: Wood turtles & stream restoration: Opportunities for the conservation of non-target taxa

Sierra Rider was selected for the Best Student Poster Award

Sierra is a student at Bucknell University. Her poster was co-authored by Olivia Bongiovi and Matthew McTammany (BU) and was titled: Physical habitat responses to bank stabilization and restoration of agricultural stream channels



The best student presentation and poster award winners received $300. Additional 2nd ($200) and 3rd place ($100) awards went to:

Presentations:

2nd Place: Alexa Hershberger (Indiana University of Pennsylvania - Influence of abiotic variables on biological recovery from abandoned mine drainage in a Western Pennsylvania watershed)

3rd Place: Chris Custer (Penn State University - Quantifying the roles of biotic and abiotic factors structuring stream fish communities)

Posters:

2nd Place: Cara Brenna (Susquehanna University - Presence of Microplastics in Freshwater and Marine Birds)

3rd Place: Nick Christensen (Indiana University of Pennsylvania - Evaluation of Brook Trout Dispersal Following Culvert Removal)

RESEARCH AND PROJECT UP-DATES

Studying American Eel Downstream Migration

by Sheila Eyler, U.S. Fish and Wildlife Service

American eel (*Anguilla rostrata*) being measured and tagged

American eel access to the Susquehanna River had been precluded for a century due to the construction of the large hydroelectric dams in the lower River. The U.S. Fish and Wildlife Service has been active in eel restoration and research in the Susquehanna since the mid-2000s with work being spearheaded by the Service's Maryland Fish and Wildlife Conservation Office with assistance from the Mid-Atlantic Fish and Wildlife Conservation Office. Young eels (elvers) have been collected at the Conowingo Dam and stocked upstream at various locations in the Susquehanna River since 2008. The transport program was initiated by the Service, and is now operated by the owner of Conowingo Dam. The stocked eels have been maturing and are moving back downstream, out of the Susquehanna, in a trek toward their spawning grounds in the Sargasso Sea.

Among the suite of eel research studies that have been conducted by the Service over the past 15 years, a study to evaluate downstream migration of adult (silver) eels in the lower Susquehanna River was piloted in fall 2021. The purpose of the pilot was to determine feasibility of capturing enough mature eels for study as well as establishing an acoustic receiver array to adequately monitor downstream migration through the lower river. During electrofishing efforts in August and October, 2021, a total of 25 eels were captured in the lower Juniata and main stem Susquehanna, 16 of which

were mature or nearing maturity and could be tagged. For the pilot study, receiver arrays were deployed on the main stem in the Harrisburg area, downstream of York Haven Dam and near the mouth of the Susquehanna River at Havre de Grace, Maryland.

Downstream migration past the Harrisburg receiver array was noted for 10 of the 16 tagged eels from August through October 2021. Not all receiver arrays were deployed in time to detect downstream migrants, and only three eels were detected at the Havre de Grace receiver last fall. However, six of the 16 tagged eels were ultimately detected by other researchers operating acoustic receiver arrays in the Chesapeake Bay from November 2021-February 2022, suggesting that at least six of the 10 migrating eels successfully escaped the Susquehanna River this past season.

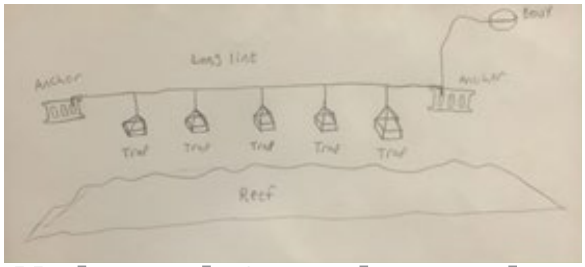
The study is expected to continue in 2023 and 2024 with up to 100 silver eels being tagged each year. Additional receiver arrays will be deployed to track eel movements past each of the four hydroelectric dams in the lower river. The overall objective of the study is to determine the timing of downstream migration and the extent that eels can escape the lower the Susquehanna River into the Chesapeake Bay. This information will help inform development of protection measures, if needed, at the hydroelectric dams in order to meet survival requirements as dictated in the dam's respective operating licenses.

The downstream migration study is being conducted with financial and field support from the hydroelectric companies in the lower Susquehanna River, including Constellation (Conowingo Dam), Brookfield Renewable (Holtwood and Safe Harbor Dams), and York Haven Power Company (York Haven Dam).

Electrofishing the Susquehanna River to collect and tag American eels as part of the USFWS study.

Evaluating Walleye *Sander vitreus* spawning effort on constructed rock rubble reefs in Raystown Lake

by George Merovich, Juniata College,
Fisheries and Aquatic Sciences Program



Mesh trap design and set used to collect walleye eggs

Deploying trap lines

The Juniata College Fisheries and Aquatic Sciences Program in collaboration with the PA Fish and Boat Commission, the US Army Corp of Engineers, and the Raystown Field Station recently began a study on Raystown Lake to evaluate walleye use of constructed spawning habitat. Peak spawning times for walleye are in April in water temperatures in the mid-40s to low 50s °F. Walleye select spawning habitat consisting of rocky substrate along the lake shore in water depths of 1.5 – 3 m (5-10 feet) and broadcast spawn over these areas. Currently, this type of spawning habitat is rare in Raystown Lake, and the popular walleye fisheries is maintained by stocking tens of thousands of juveniles each year. Construction of rock rubble reefs to improve spawning habitat are in the planning stages for some time in 2022, in various parts of the lake. In April 2022, we used covered mesh traps (0.36 m x 0.39 m) set in 1.5 - 3 m of water around the points of the mouth of Trough Creek (Mile Markers 14 and 15) to collect walleye eggs before rubble reef construction in these locations. We sampled for a total of over 2,600 trap-days, accounting for a total area of 2,500 m^2 from April 1st to May 6th.

Typically, traps were checked after 5 days of deployment. In total we collected 51 walleye eggs. Numbers were highest from April 15 to April 29, with a total of 40 eggs collected. Average water temperature at this time was 10° C (50° F). Non-target collections were dominated by scuds but we also collected a possible Esocid egg, white perch eggs, and a juvenile green sunfish. Next April, after rock rubble reefs are in place, we will sample the same areas again, over constructed reefs and in control areas, to complete this BACI-designed (before-after-control-impact) study. Despite the necessity to remain objective scientists without desires for particular outcomes, we hope that the restoration works favorably to improve walleye spawning success in the lake and we hope to catch far more eggs next year. Perhaps what we learn could help with future habitat restoration for walleye spawning so that the walleye fisheries in the lake could depend less on stocking efforts and save management dollars for other needs.

Special thanks to Juniata undergraduate research students Maya MacDonald and Ben Messinger for beginning this study with trap designs in 2021; Andrew Garman and Brenden Nauman for leading further development of trap design and sampling in 2022; Tara Whitsel (US ACoE), Alicia Palmer (US ACoE), and Chuck Yohn (Juniata College Raystown Field Station) for organization and facilities usage; Mike Stwartz (PaFBC), Ben Page (PaFBC), Bryan Chikotas (PaFBC) and Zane Brower (PaFBC) for planning and execution of the study.

Research techs checking traps for eggs

Walleye eggs collected on Apr 15 (left) and a possible Esocid egg collected on the first round of sampling Apr 4 (right)

RECENT PUBLICATIONS

Merovich, G. T., Jr., M. Hearn, N. A. Smith, & V. P. Buonaccorsi, 2022. Hybridization between two introduced, invasive crayfish species in the upper Juniata River system, Pennsylvania, USA. Journal of Crustacean Biology 42: ruab084.

Abstract

Hybridization between invasive rusty crayfish and native crayfishes threatens native crayfishes through various genetic mechanisms. We found evidence that rusty crayfish hybridizes with Allegheny crayfish in the upper Juniata River watershed. Both rusty crayfish and Allegheny crayfish are non-native to this system, so biodiversity loss is not a concern with this hybridization. More important is the possible ecological effects of hybrids through heterosis. More study is needed to determine the extent of hybridization, demographic parameters, and potential ecological effects.

Rusty crayfish from Standing Stone Creek, Huntingdon, Co., PA

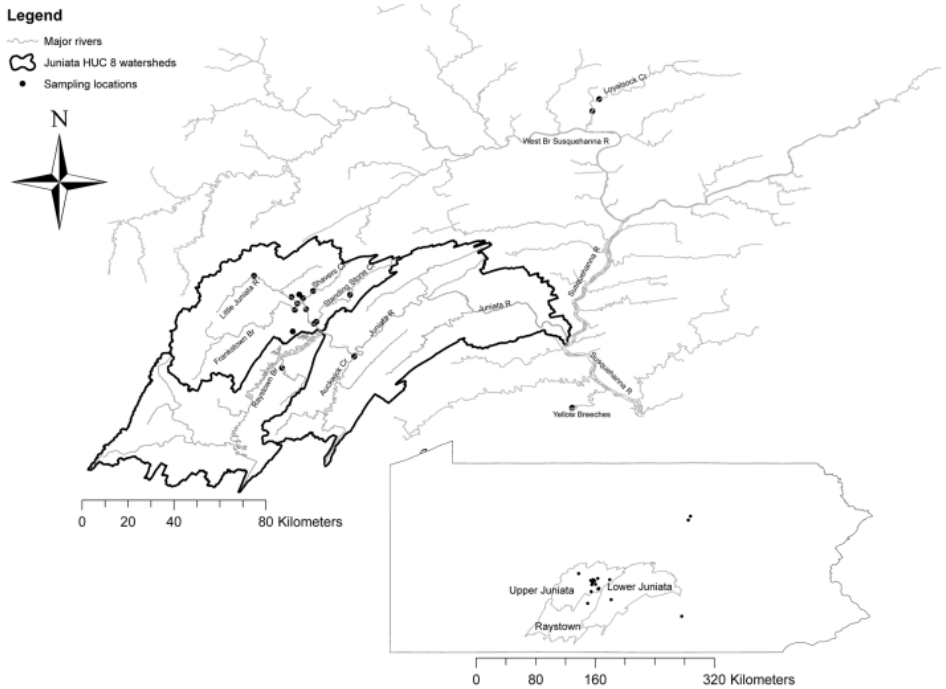


Figure 1. Study region with rivers where crayfishes were sampled. Most samples were in the Upper Juniata Hydrologic Unit Code (HUC) 8 watershed, whereas one each was in the Raystown HUC 8 and the Lower Juniata HUC 8 (inset). Three other locations were sampled outside the Juniata basin: two sites on the Loyalsock Creek in the West Branch of the Susquehanna and one site on the Yellow Breech Creek in the Lower Susquehanna.

RECENT PUBLICATIONS

White, S.L , M.S. Eackles, T. Wagner, M. Schall, G. Smith, J. Avery and D.C. Kazyak. 2021. Optimization of a suite of fathead catfsh (*Pylodictis olivaris*) microsatellite markers for understanding the population genetics of introduced populations in the northeast United States. BMC Res Notes 14, 314 (2021).

https://doi.org/10.1186/s13104-021-05725-2

Abstract

Objective: Flathead catfish are rapidly expanding into nonnative waterways throughout the United States. Once established, flathead catfish may cause disruptions to the local ecosystem through consumption and competition with native fishes, including species of conservation concern. Flathead catfish often become a popular sport fish in their introduced range, and so management strategies must frequently balance the need to protect native and naturalized fauna while meeting the desire to maintain or enhance fisheries. However, there are currently few tools available to inform management of invasive flathead catfish (*Pylodictis olivaris*). We describe a suite of microsatellite loci that can be used to characterize population structure, predict invasion history, and assess potential mitigation strategies for flathead catfish.

Results: Our panel of 13 microsatellite loci were polymorphic and appear to be informative for population genetic studies of flathead catfish. We found moderate levels of diversity in four nonnative collections of flathead catfish in the Pennsylvania and Maryland sections of the Susquehanna River and the Schuylkill River, Pennsylvania. Analyses suggested patterns of genetic diferentiation within- and among-rivers, highlighting the utility of this marker panel for understanding the structure and assessing the degree of connectivity among flathead catfish populations.

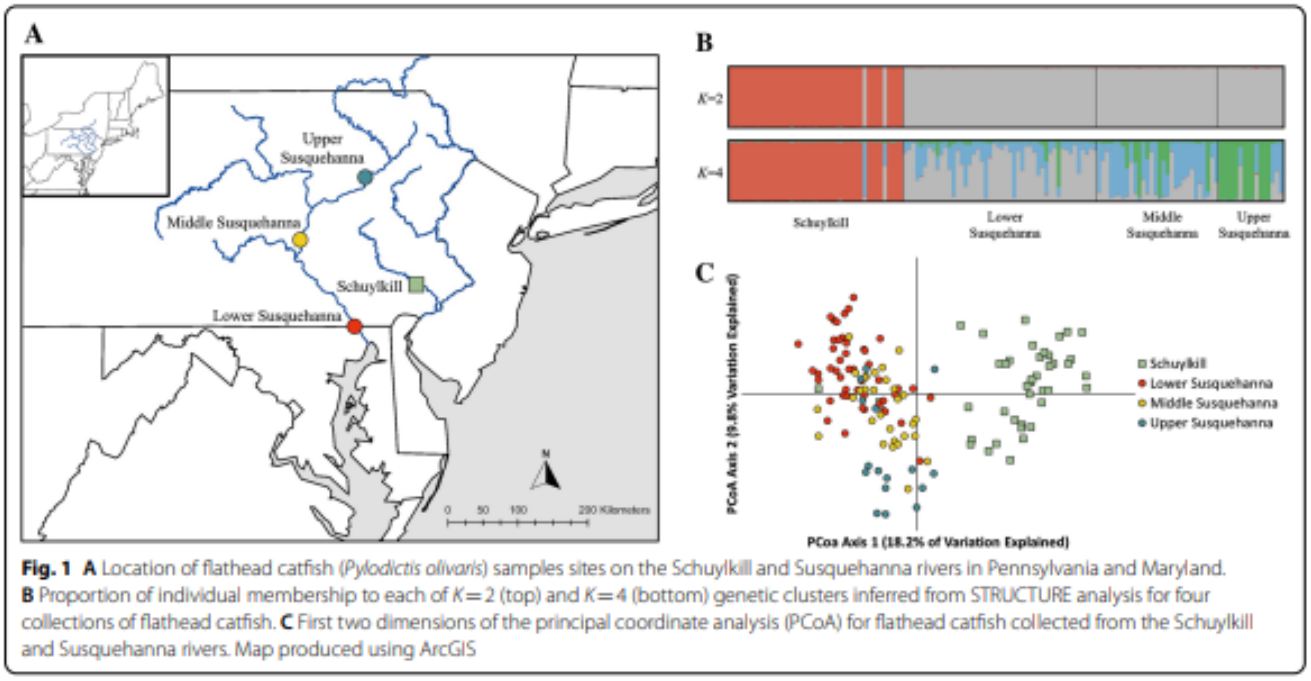


Fig. 1 **A** Location of flathead catfish (*Pylodictis olivaris*) samples sites on the Schuylkill and Susquehanna rivers in Pennsylvania and Maryland. **B** Proportion of individual membership to each of $K=2$ (top) and $K=4$ (bottom) genetic clusters inferred from STRUCTURE analysis for four collections of flathead catfish. **C** First two dimensions of the principal coordinate analysis (PCoA) for flathead catfish collected from the Schuylkill and Susquehanna rivers. Map produced using ArcGIS

PA AFS MERCH SALES

PA AFS IS SELLING T-SHIRTS TO RAISE MONEY TO SUPPORT FUTURE COOPER AWARD WINNERS.

The PA AFS 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 award program, PA AFS will provide a travel award of $250 - $500 (dependent on number of applicants) to a deserving Pennsylvania graduate and/or undergraduate student annually to present a podium or poster presentation at the national AFS Conference.

In order to ensure funding is available for the Cooper Award, the Excomm is selling heavy-duty vinyl stickers, t-shirts, and hats. Please email us at pachapterAFS@gmail.com to order. Or pick one up at the next social or meeting. This is a great way to support the chapter, make an investment in future scientists, all while looking great!

Dr. Edwin L. Cooper.

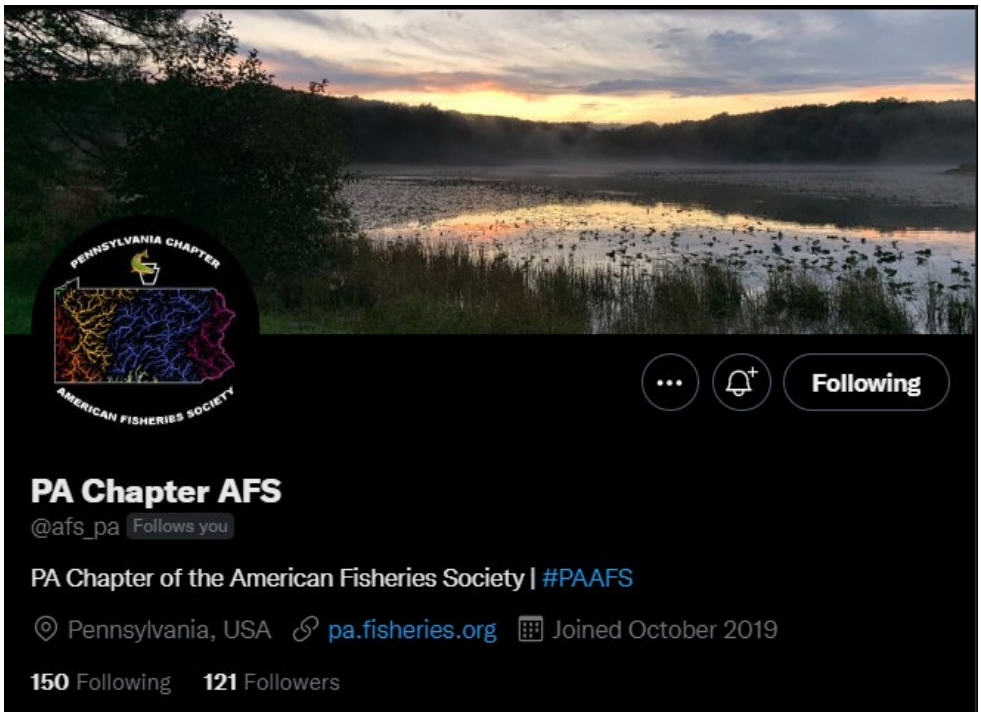
Chapter member and 2021 presenter Daniel Gillies (@GilliesScience) showing off his PA AFS apparel

NEW

PA AFS ON TWITTER!

PA AFS EXCOMM HAS CREATED A TWITTER ACCOUNT

#PAAFS

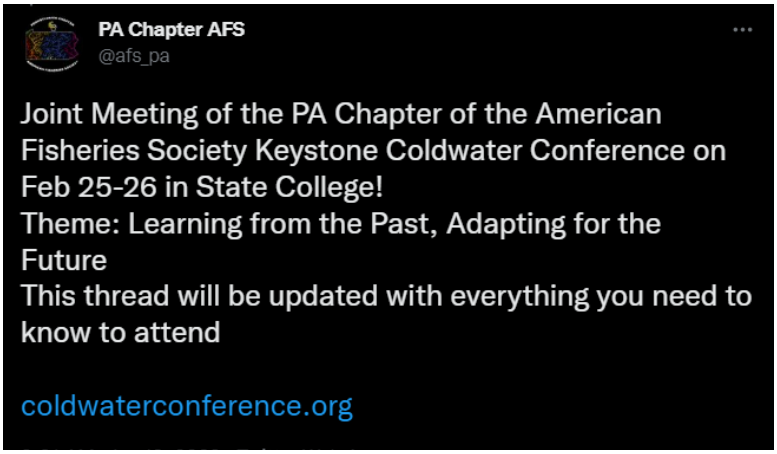


In addition to traditional email blasts, we will be making announcements regarding Chapter business and upcoming meetings via twitter.

We'll also be highlighting the efforts of Chapter Members and featuring the contents of this newsletter.

Twitter is a great way to stay up to date with the latest in research, developments with national AFS, and much more!

Follow us @afs_pa to stay informed!



NATIONAL AFS UPDATE

2022 AFS MEETING IN SPOKANE!

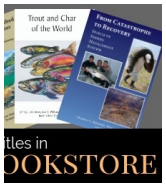
MEETING WEBSITE

REGISTER NOW! 70 SYMPOSIA! CONTINUING EDUCATION COURSES

THE 152ND ANNUAL MEETING OF AFS IS SCHEDULED FOR SPOKANE, WASHINGTON IN AUGUST! THE SYMPOSIA AND CONTINUING EDUCATION COURSES HAVE BEEN ANNOUNCED. MAKE PLANS TO ATTEND!

JOIN THE NATIONAL AMERICAN FISHERIES SOCIETY TODAY!

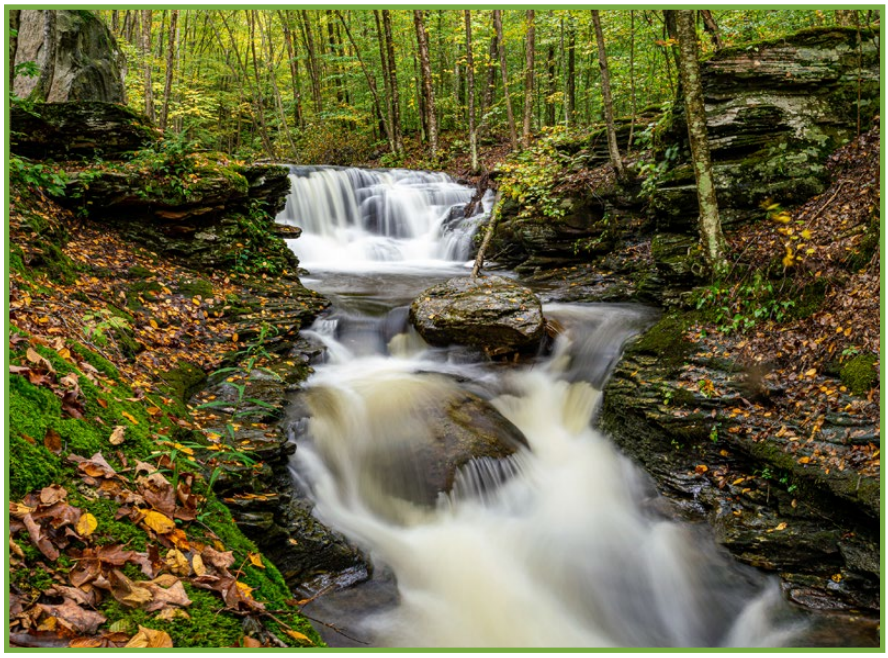
DOWNLOAD THE AFS JOURNALS APP!



CHECK OUT THE NEW TITLES IN THE AFS BOOKSTORE!

CHECK OUT THE LATEST AT THE AFS WEBSITE

PHOTO CORNER



HEADWATER

WHAT PA AFS NEWSLETTER WOULD BE COMPLETE WITHOUT SOME AQUATIC EYE CANDY?

GLAMOUR SHOTS

(Top to bottom):

Miners Run, McIntyre Wild Area, Loyalsock SF;

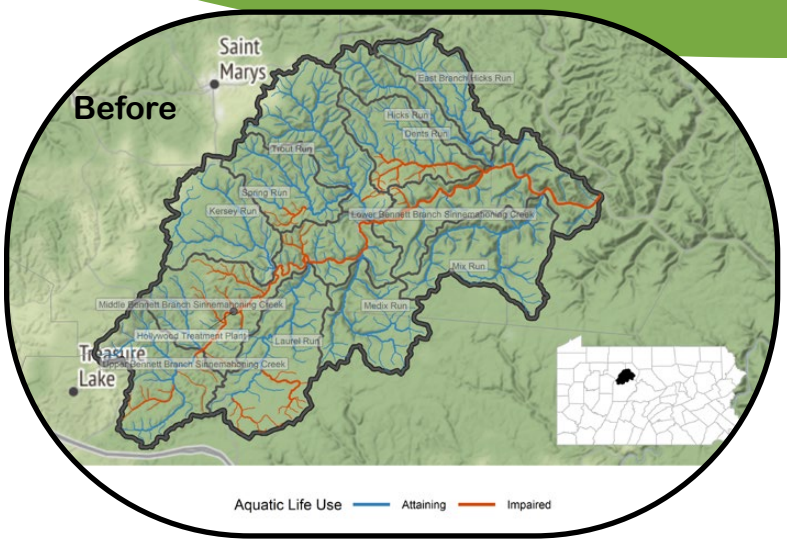
Porcupine Hollow entering Dents Run (Elk Co.) - a reminder of the work still to be done;

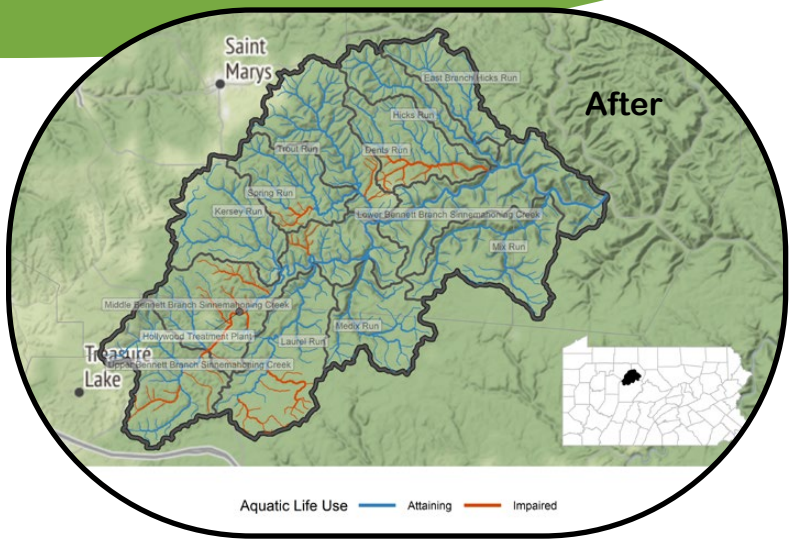
Penns Creek ox-bowing through the roadless section between Coburn and Ingleby

Photo Credits: M. Shank

Bennett Branch Sinnemahoning Creek

PADEP's 2022 Integrated Report has removed 32 miles of the BBSR from the Impaired Waters [303(d)] list. Thanks to the hard work of countless stakeholders and the Hollywood Treatment Plant, **aquatic life use has been restored**.





(Top left):
BBSR at the Caledonia bridge in 2009, prior to the Hollywood Treatment Plant (credit E. Cavazza).

(Bottom left):
BBSR at the Caledonia bridge in 2021(credit M. Shank).

(Top right):
The Hollywood Treatment Plant that collects and treats 21 mine discharges at a centralized treatment. This plant came online in 2012 (credit E. Cavazza).

2022 SUMMER SOCIAL

SUNDAY JULY 24 AT JUNIATA COLLEGE'S RAYSTOWN FIELD STATION!

LUNCH AT NOON: PLEASE BRING A COVERED DISH OR DESSERT

BUSINESS MEETING AT 3 PM
WITH INTRODUCTION OF NEW OFFICERS

14322 FIELD STATION LANE, ENTRIKEN 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

PA AFS OFFICER ELECTIONS

2022 IS AN ELECTION YEAR FOR CHAPTER OFFICERS!

KEEP AN EYE OUT FOR A BALLOT AND PLEASE CAST YOUR VOTE!

OPEN POSITIONS:

1. PRESIDENT ELECT
2. EXECUTIVE COMMITTEE MEMBER

INFORMATION ON THE ROLES OF EACH POSITION CAN BE FOUND HERE.

ELECTION RESULTS WILL BE ANNOUNCED AT THE 2022 SUMMER BUSINESS MEETING ON JULY 24.

AMERICAN FISHERIES SOCIETY

PENNSYLVANIA CHAPTER

2021-2022 PA CHAPTER OFFICERS

CHAPTER PRESIDENT: ADAM SLOWIK

PRESIDENT-ELECT: MATT SHANK

PAST PRESIDENT: GEORGE MEROVICH

SECRETARY/TREASURER: SARA MUELLER

EXECUTIVE COMMITTEE: JON NILES

EXECUTIVE COMMITTEE: TYLER GRABOWSKI

STUDENT REPRESENTATIVE: EMILY BIERER

CONTACT US: HTTPS://TWITTER.COM/AFS_PA

PACHAPTERAFS@GMAIL.COM

2023 SPRING TECHNICAL MEETING

WE ARE PLANNING TO HOST THE OUR NEXT SPRING TECHNICAL MEETING IN

LOCK HAVEN IN FEBRUARY 2023

MORE TO COME AS WE CONTINUE TO PLAN!

KEEP AN EYE OUT FOR UPDATES VIA EMAIL AND TWITTER. CHECK THE EVENTS PAGE ON THE PA AFS WEBSITE FOR DETAILS AS WE GET CLOSER TO THE DATE