Spring 2022



President's Message

NED President Patrick Shirey

hank you to the volunteers who help our American Fisheries Society (AFS). As an AFS parent-society member for the past 16 years, I have enjoyed serving in various volunteer roles and most recently the Northeastern Division (NED) in officer roles, including as president the past six months.

I thank Past-President Ed Hale for his three extra months service because of the moved Baltimore, MD meeting. At the Baltimore meeting Ed recognized our Secretary/Treasurer Rich Bell with the President's Award. Please thank Rich Bell for his continued invaluable service to the NED.

My first AFS annual meeting was Lake Placid, NY (2006) as a graduate student. Those that attended that meeting remember the weather being unseasonably cool - the royal blue fleece vests in the welcome gift bags were treasured. I decided to attend a few weeks before the meeting, so I didn't present any work and I didn't know anyone before making the trip. I remember vividly one interaction at the conference that made me feel unwelcome and other exchanges that made me feel included. I choose to focus on the inclusive behavior at Lake Placid that made me feel welcome as a new member to help foster inclusion within AFS.



In this issue

Upcoming Meetings2
Chapter Updates3
Subunit Updates8
Fisheries News13
Recent Publications14
Officer Contacts18
Acknowledgements19

If you are a new member, please introduce yourself to the officers online and in person so that we may pay it forward. Please consider volunteering to serve your chapter, the division, or the parent society as Mike Steeves represents the NED on the Program Committee for the 152nd Annual Meeting in Spokane, WA, as Abigail Archer manages our website, and as Toniann Keiling chairs our awards committee. We have many volunteers who help the division (https://ned.fisheries.org/).

Diversity, Equity, and Inclusion (DEI)

Thanks to the Southern New England Chapter (Lian Guo, Abigail Archer, and the SNEC officers) for



American Fisheries Society

Editors

Matt Mensinger¹ matthew.mensinger@maine.edu Robert Jarrett¹ robert.jarrett@maine.edu Kathryn Sloane¹ kathryn.sloane@maine.edu

¹University of Maine Student Subunit of the American Fisheries Society starting and leading a monthly DEI discussion group that is open to all AFS members to join. Please consider contributing to the DEI discussions on the 3rd Thursday each month at 2pm EST.

January 2023 Joint Meeting

The DEI discussions have impacted planning conversations for the joint NED/SNEC/ Diadromous meeting at the Boston Hyatt Regency to be held January 8-10, 2023. The planning committee welcomes additional volunteers to contribute to fundraising and the meeting program. We appreciate Sara Turner for leading this effort and the planning team to make this meeting happen. Please attend to network and learn in person!

2027 AFS Annual Meeting

As we look forward to the 152nd AFS Annual Meeting in Spokane, WA this August 21-25, the NED Executive Committee is working with AFS Meetings Manager Shawn Johnston to identify cities to host the 157th AFS Annual Meeting in 2027. Thanks to NED Vice President Heather Stewart and President-Elect Susan Cushman for taking a leadership role in trying to find the best meeting options.

Gift-a-Membership Campaign

The new AFS Membership Manager, Kelly Kotche, is working to update the gift membership option at the request of the NED to make it website based instead of a mailed form. President-Elect Susan Cushman is working on efforts to increase membership and improve membership services as she serves the NED on the AFS Membership Committee and the Governing Board. The NED and AFS staff will launch a campaign to ask members to gift a membership to others to show your appreciation of colleagues and to share the value of AFS membership. Please join me and pledge to gift a membership to someone you know.

UPCOMING MEETINGS

Pennsylvania Chapter Summer Social July 14, 2022 Raystown Field Station Hesston, Pennsylvania

AFS Annual Meeting

August 21-25, 2022 Spokane, Washington

Atlantic International Chapter

September 18-20, 2022 Newry, Maine

Wild Trout Symposium

September 27-30, 2022 West Yellowstone, Montana

17th Flatfish Biology Conference

November 15-161, 2022 Westbrook, Connecticut

Northeastern Division/Southern New England Chapter

January 8-10, 2023 Boston, Massachusetts

CHAPTER UPDATES

Pennsylvania Chapter

Matthew Shank

he Pennsylvania Chapter held our spring technical meeting in State College, PA Feb 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, 2) PA Trout Unlimited Women, Diversity, and Inclusion, 3) Building Community Around Conservation, and 4) Youth Engagement. Following the workshops and a PA chapter business meeting, Tim Schaeffer (Executive Director of PA Fish and Boat Commission) introduced the Friday evening keynote address by Greg Czarnecki (PA Department of Conservation and Natural Resources), who talked about Climate Change in Penn's Woods. Day 1 wrapped up with a student poster session and social.

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! Follow us on twitter @afs_pa to keep up to date with PA AFS news.



Left: Richard Novak (Penn State University) receiving his award for best student podium presentation on wood turtles and stream restoration. Right: Greg Czarnecki (PA DCNR) delivering the Keynote Address on the topic of Climate Change in Penn's Woods.



PA AFS merch table. Purchases can be made online <u>here.</u> All proceeds go to our Cooper Award recipient to fund student travel to a national AFS meeting.

Other news from PA AFS:

PA AFS past Presidents Greg Moyer and Dave Spotts prepared a powerpoint presentation of the history of the PA Chapter! This presentation was featured at the 2021 National AFS conference in Baltimore and is available to view <u>online</u>.

The PA AFS summer social will be held at Juniata College's Raystown Field Station on Sunday July 24th! Please mark your calendars and see attached for more info. This is a family friendly event and will feature one or more hands-on workshops!

New York Chapter

Heidi O'Riordan

he New York Chapter American Fisheries Society annual meeting was held virtually on March 9th- 11th. We had planned an inperson meeting at the Atlantis Aquarium in Riverhead until January 2022, so it was a quick turn -around to get all the virtual aspects together in a short amount of time. Like last year, we used the Whova virtual platform again, and were able to provide free registration. This year's theme was Urban Fisheries. Highlighting projects with our New York City partners, our marine or coastal programs, fish passage projects, climate change, and as per usual, lots of inland fisheries' topics. We had a total of 68 speaker and poster presenters. Over 200 people registered for the conference, out of the 187 who downloaded the Whova app there were 177 active users.

Our first opening speaker was Chris Paparo, otherwise known as "The Fish Guy". Chris is native to Long Island, and currently manages Stony Brook's Marine Sciences Center in Southampton. He is a well-known wildlife photographer, writer, and lecturer. Chris shared some breathtaking images and drone footage of Long Island marine life in his talk called "More Than Stripers- New York's other marine fish". Our second speaker was Dr. Peter Park. Peter is an Assistant Professor in the Department of Biology at SUNY Farmingdale State College on Long Island. He was awarded the American Fisheries Society Northeastern Division 2020 Special Achievement Award for his work on fish community science in the East River. His talk was titled: "Fish in the Concrete Jungle Where Dreams are Made of: A case study in integrating fish community science, fisheries biology, and high impact scientific teaching utilizing NYC's East River fishes." Both Chris and Peter really set the stage for an urban and coastal themed conference, despite the virtual setting.

One of the main draws for these annual meetings is the networking and socializing aspect, so we provided a live poster and social session through the GatherTown application. Much like a video game, GatherTown allowed attendees and their avatars to explore a specially created virtual space. This was used to view posters, ask questions, and speak to presenters. Attendees were able to talk with one



Logo for the 2022 New York Chapter Meeting

another face to face, in a personal space, or as a group. Overall, GatherTown was a success, we had 50 conference attendees sign into GatherTown to view 24 posters, talk with presenters, and 'meet up' with friends and colleagues.

There were two events hosted by the Women in Fisheries (WiF) Subcommittee (of the Diversity Committee) of the New York Chapter, a Trivia Night and a Networking Breakfast. The mission of WiF is to inspire and empower women and people from underrepresented genders, to help them succeed in professional fisheries careers. Both events were well attended, and at the Networking Breakfast the group introduced the launch of their new mentoring program. The NY Chapter webpage has more information about this subcommittee including a WiF blog as well as job postings, news in fisheries, and a science blog.

New York Chapter awards for 2022 included three Klumb Spindler Travel Award recipients this year: Dillon VanDemortel from SUNY Cobleskill, Taylor Brown from Cornell University, and John Skelton from SUNY Cobleskill. The 2022 Diversity Travel Award was presented to Vivian Lee. Vivian Lee is a second-year veterinary student at Cornell University's College of Veterinary Medicine. She is originally from northeast New Jersey and obtained her Bachelor of Science in Animal Science, from Cornell University in 2021 as part of their Accelerated BS/DVM Program. Poster and presentation awards will be given shortly. Congratulations to this year's award recipients!

Diversity Award Winner

Vivian Lee (she/her) is a second-year veterinary student at Cornell University's College of Veterinary Medicine. She is originally from northeast New Jersey and obtained her Bachelor of Science in Animal Science from Cornell University in 2021 as part of their Accelerated BS/DVM Program.

Vivian has a keen interest in aquatic animal medicine and One Health, and hopes to make a global impact in achieving optimal health for animals, humans, and our planet. She has had various aquaticrelated experiences with Mystic Aquarium, Mote Marine Laboratory and Aquarium, and will be completing externships this summer at University of Florida's Tropical Aquaculture Laboratory and The Marine Mammal Center. This past summer, Vivian attended AQUAVET I, a four-week course hosted by Cornell University that provides a foundational



Vivian Lee winner of the New York Chapter of the American Fisheries Society's Diversity Travel Award 2021-2022

knowledge of aquatic veterinary medicine. This is where Vivian learned more about the aquaculture industry and the role that veterinarians play in fisheries management. As a second-generation Latin and Asian-American, Vivian has always strived to promote diversity, equity, and inclusion within the profession of aquatic veterinary medicine. She is a member of the Minorities in Aquarium and Zoo Science (MIAZS) and the Association of Minority Zoo & Aquarium Professionals (AMZAP). She is a member of the International Association for Aquatic Animal Medicine (IAAAM) International Relations Committee and the World Aquatic Veterinary Medical Association (WAVMA) Education & Students Committee, helping to foster a more inclusive environment for international aquatic veterinarians and veterinary students. Most recently, she held a virtual panel discussion for the American Association of Fish Veterinarians (AAFV) featuring six BIPOC aquatic veterinarians to discuss their perspectives on DEI in the profession and how we can promote future initiatives.

Vivian is honored to receive the 2022 Diversity Travel Award by the New York Chapter of American Fisheries Society and is excited to hear the lectures for the annual meeting, learn more about fisheries in NYS, and meet new faces in AFS.

Atlantic International Chapter



Peter Emerson

s the pandemic continues the Atlantic Chapter (AIC) of the American Fisheries Society has maintained an active discussion amongst its members exploring ways we can move the chapter forward given the necessary restrictions. Spirits remain high and there is a sense of urgency to try to reclaim the sense of life before COVID.

The annual fall meeting of the AIC The 2021 annual fall meeting of the AIC did not go ahead as planned and was replaced by a mini conference hosted by Acadia University. This seemed the best option at the time given the challenges of setting up a virtual conference. A series of talks focusing on fisheries research in the Avery and Easy labs at Acadia was presented and well received by attendees.

Subunits under the AIC have been active throughout the year. The Maine subunit led by Kory Whittum and Matt Mensinger held its annual fishing trip hosting 25 participants, and continued citizen science initiatives and will be working together with local volunteers to survey smelt spawning grounds in Maine at the end of April. Matt is also responsible for securing a keynote speaker for the AIC September meeting which is to be held in Maine.

The New Hampshire subunit headed by Nathan Herman hosted a fishery themed trivia night with prizes including books and gear. The subunit also worked with the town of Durham in their community initiative to remove a local dam that is interfering with herring spawning runs.

The Quebec subunit welcomed a new President, Ramela Koumrouyan, an MSc candidate at McGill University. Ramela is studying the effects of UV stabilizers on the physical and molecular survival response of birds. Ramela has already been very active in her new role, and we all look forward to discussing all subunit activities in person in September. One of her current responsibilities includes developing a task list for the September meeting including the names of sponsors and detailing donations made to the AIC.

Presently we are in the process of organizing our annual which will be held September 18-20 at Sunday River Resort in Newry, Maine. Registration information and a call for abstracts is coming shortly. It was a considerable challenge to secure a venue for our September meeting due to challenges not all related to COVID. However, we will be meeting in Maine and look forward to a reinvigoration of the Atlantic International Chapter!

Southern New England Chapter

DEI Discussion Group

Abigail Archer

FS SNEC holds a monthly discussion on topics related to Diversity, Equity, and Inclusion within the fields of fisheries science, management, and outreach. Everyone is welcome to attend. You can drop in for just one discussion, or tune in every month. You do not need to have any expertise in DEI topics in order to attend – you just need a desire to learn.

The AFS SNEC DEI Discussions take place on the third Thursday of every month at 2PM via Zoom. Upcoming dates are May 19, June 16, and July 21. The Zoom link will be sent out via the AFS SNEC and AFS NED listservs.

SNEC member Dr. Lian Guo started this discussion group in 2021 and wrote an <u>article</u> for the Northeastern Division Newsletter describing the reasons for starting the effort.

The goals of this effort are to:

- Find and read/watch/listen to resources that will help the American Fisheries Society to be a di verse, equitable, and inclusive professional society
- Increase our awareness of social inequities in fisheries
- Discuss our thoughts and brainstorm steps our chapter could take to address the issues presented

Anyone can facilitate a monthly discussion and/or propose articles to read, videos to watch, or podcasts to listen to. If you'd like to facilitate but need help coming up with a discussion topic, we can help with that. To see past topics discussed and access the articles and podcasts that have been suggested, check out the <u>DEI page</u> on the SNEC website. To learn more about AFS-wide DEI efforts, check out the AFS Equal Opportunities Section <u>website</u> and the AFS Diversity, Equity, and Inclusion Committee <u>webpages</u>.



Wild Trout Symposium XIII West Yellowstone, Montana September 27-30, 2022 More info <u>here</u>



The Flatfish Biology Conference welcomes platform and poster presentations addressing any aspect of flatfish research (e.g., biology, ecology, aquaculture, stock assessment, physiology, etc.) from all regions. Professional and student flatfish researchers are invited to participate. For more information, please visit our <u>website</u> or contact the conference co-chairs: Steve Dwyer (stephn.m.dwyer@dominioenergy.com), Elizabeth Fairchild (elizabeth.fairchild@unh.edu), and Renee Mercaldo-Allen (renee.mercaldo-allen@noaa.gov)

STUDENT SUBUNIT UPDATES

Quebec

Ramela Koumrouyan

espite the omicron wave shutting down the possibility of public gathering for the winter, we at the Quebec subunit of AFS have kept active online with a variety of entertaining and educational events for the benefit of our members' future careers. We kicked off the year with a virtual cooking event where many of us cooked a tasty seafood-based dish together. The ex-committee has also been more active on social media and holds monthly meetings to plan for larger events, such as a career panel we hosted in early March. We took advantage of the situation still being virtual by hosting speakers from both inside and outside the province. The panel was a great success, as it piqued the curiosity of many attendees, provided them with burgeoning connections and saddled them with more tools for future career work that extends beyond the widely known avenue of academia such as industry and government.

With Canada opening and covid mandates restrictions lifting, the AFS is planning for in person gatherings, such as semi-regular get-togethers at the Thomson house, a McGill owned establishment serving affordable food and drink to graduate stu-



dents. We also plan to organize presentations to showcase student research. games nights, hikes, and fishing trips as the weather warms and opens the opportunity for outdoor adventures. Since the start of this year, several new members have joined our ranks (and expanded our mailing list), and we plan to become more involved with the At-



Kia Marin Research Associate in the Fraser



Animal Care Facility Manager at

Concordia University

Lab, Concordia University

Nathan Lujan Associate Curator of Fishes, Department of Natural History, Royal Ontario Museum Assistant Professor, Ecology and Evolutionary Biology Department, University of Toronto Joanne Parrott Senior Research Scientist with the Water Science and Technology Directorate of Environment and Climate Change Canada

The speaker line-up for Quebec's career panel in March 2021

lantic International Chapter in their future events and upcoming conference that will be held in Maine during mid-September. For more updates on the Quebec subunit, check out the linktree <u>https://</u> <u>linktr.ee/AFSQC</u> to follow us on social media and join our mailing list!

Rutgers

Laruen Cook and Elizabeth Bouchard

t is hard to believe it has been over two years since the COVID-19 pandemic began. RU AFS has persevered through the transition to virtual. We have stayed connected and safe while being active in research, science communication, and outreach. Three members presented at the AFS conference in Baltimore in Fall of 2021, and two of our members presented at the Aquaculture 2022 meeting. Our former and current presidents (Dr. Emily





 (Left) Elizabeth Bouchard presenting her work with horseshoe crabs at Aquaculture 2022.
(Top) Dr. Emily Slesinger presenting her reproductive physiology work with black sea bass at AFS Baltimore PA

Slesinger and undergrad Kiernan Bates) coauthored an article in the *Journal of Fish Biology* (check out the recent pubs section!), and Elizabeth Bouchard and Heidi Yeh published a science <u>policy</u> <u>memo</u> in the Journal of Science Policy & Governance about promoting living shorelines for coastal resiliency. Many of our members graduated last year and are doing great things -- from research to industry to policy on Capitol Hill -- and we couldn't be more proud!

This spring, as we find ways to get connected inperson again, our theme is science communication and outreach. Our members volunteered as score/ timekeepers, science judges, room moderators, and room leads in the Shore Bowl, a quiz-style trivia competition for high school students that aims to foster the next generation of marine researchers, stewards, and policymakers. We also hosted a Science and Social Media workshop (recording available on request!), attended by greater MAC and NED members, that focused on how to effectively use social media as an outreach and communication tool. Our future events include a beach clean-up with the Rutgers Oceanography Club and participating in Rutgers Day, where we will engage New Jerseyans about the importance of fish and fisheries!



Screenshot of RU AFS Science & Social Media Workshop, hosted by Rutgers PhD candidate Julia Van Etten (@couch_microscopy on Instagram).

Page 9

SUNY Cobleskill

Danny Skelton

he SUNY Cobleskill chapter of the American Fisheries society is an undergraduate student club that meets every Thursday at 12:30 PM. In 2020, the club was limited in its number of meetings, as they were held virtually. However, in 2021, the chapter slowly moved back to in-person meetings. This year the club has received a dramatic increase in students, a total of 45 consistent members! These students show up every week and are always excited to hear about what the latest plans are.

The SUNY Cobleskill chapter also had many of its members present about the internships or jobs they held over the summer. We also plan to have a presentation focusing on how to make a better resume and talks from professionals currently emploved in the field of fisheries. On March 10th 2022. the SUNY Cobleskill chapter had three of its members present posters at the New York Chapter of the American Fisheries Society (NYCAFS). Two of the members presented regarding their "Capstone", or junior research projects. These two members covered the effect of large woody debris and manmade pool diggers on the fish fauna of Panther Creek (Schoharie County), and rainbow smelt (Osmerus mordax) use of tributaries in Otsego Lake (Otsego County). The third presenter is a recent graduate of SUNY Cobleskill who presented work from their master's project on managing Otter Lake in the Adirondack region.

The SUNY Cobleskill chapter also is making a new t-shirt for club members. Our vice president Alyssa Hotchkiss has worked tirelessly to make this a reality and is almost solely responsible for the new t- shirts. The SUNY Cobleskill AFS chapter is also looking at having a quiz bowl on April 13th. This quiz bowl will be open to all conservation-based clubs and will look at bringing students together and encourage them to be more involved, as we move towards a more non-remote setting. The SUNY Cobleskill chapter is also looking at participating in the wildlife festival which is held by SUNY Cobleskill every spring semester. The wildlife festival allows families and other people from the local community to learn and have fun with topics regarding the outdoors. In 2020 and 2021 the festival was cancelled, due to the COVID-19 pandemic. This year however, the festival is coming back stronger than ever and AFS will be having a youth fishing derby. We will stock our local creek with brown trout from our school's hatchery and have youngsters rent fishing rods. We will supply them with bait and hooks. Overall, it will be a fun experience and get the younger children excited about the fisheries field. We, as an undergraduate association, are very proud of the work that we do to involve the students and the public in our field.

UMaine

Kory Whittum, Matt Mensinger, Rylee Smith, and Sarah Vogel

h, it's good to be back together! We've been fortunate to return to our regular inperson meeting schedule, which has been highlighted by our beloved fish printing and fly-tying workshops.

In November, a handful of subunit members travelled to the annual AFS meeting in Baltimore, where we enjoyed sharing our research and engaging with other members of the NED community. We also had strong subunit engagement at a number of virtual meetings including the 2022 Atlantic Salmon Ecosystem Forum and some guest appearances at the Oregon Chapter of AFS's meeting, spearheaded



Some modern FINcent Van Goughs during our fish printing workshop



Left: UMaine AFSers took a break from the annual AFS meeting to visit Baltimore's Inner Harbor

in part by our academic advisor Chrissy Murphy.

To cap-off the fall semester we put our fins together for a heated match of candlepin bowling against the UMaine Student Chapter of The Wildlife Society. We were victorious and took home the coveted bowling trophy – the premier accolade in intrainstitution fisheries and wildlife rivalries.

In February, subunit members, friends, and family returned to Hermon Pond for our annual ice fishing trip during Maine Department of Inland Fish and Wildlife's free fishing weekend. A recent rain presented some slick conditions, so we had to get creative shuttling people out to our fishing hole. It was worth the effort because the crappie and perch (white and yellow) were biting and nearly everyone caught something!

This spring, we partnered with Maine Department of Marine Resources to increase participation in their annual citizen science spawning smelt survey. Although we're still waiting for our first smelt sighting, the subunit has been able to cover six tributaries in the Penobscot River, contributing critical data points within Maine's largest watershed.

The spring semester will end with our 7th Annual Spawning Run 5K. We've elected for a hybrid option this year, to allow racers to participate from near and far. The event helps support community outreach, undergraduate scholarships, and professional development opportunities for our members.

We're looking forward to seeing some of you at the annual AFS meeting in Spokane or the Atlantic International Chapter meeting in Maine, but until then, stay in touch with us on Facebook (@UMaineAFSStudent), Twitter (@UMaineAFS), or email (<u>umaineafs@gmail.com</u>).



Fins up! The team celebrates after winning our annual bowling match against TWS

University of New Hampshire

Nathan Hermann

he Student Subunit at the University of New Hampshire is now in its second year since being revitalized. Being a Covid baby, we have been so excited to get back onto campus, and getting together for events and meetings in-person. Though, we still always maintain virtual options.

With efforts focused on growing membership, we have organized activities to serve the whole student population, whether they are AFS members or not. In an effort to get word out, our newly commissioned subunit logo found its way onto T-shirts and hats that look incredible. Next up, stickers!

Our most well attended event was our 2nd annual trivia night event. This year's was Marine Biology-themed to trick a few marine mammal lovers into learning about fisheries! Inspired by the debate in our local community, we also hosted events for students to learn and discuss the removal of a dam on the Oyster River which runs through campus.



The new UNH AFS Logo

We plan to continue providing educational programming getting students at UNH involved in the field of fisheries, in both fun and inspiring ways. We hope to supplement the events already underway with workshops or field trips that expose students to the analytical and field techniques common to research in fisheries. We are still small, but we are building a loyal following of undergraduate and graduate students that look forward to larger and longer connections with AFS.



Students whisper amongst their teams at our 2nd annual trivial night

Page 13

FISHERIES NEWS

13th Annual Otsego Ice Fishing Clinic

Another well-attended event on a cold windy day with a very sloooow ><> bite

Scott Wells, Department of Environmental Conservation, Region 4 Fisheries

hat started out as a warm calm morning soon turned breezy and cold at the north end of Otsego Lake, as New York's Department of Environmental Conservation (DEC) and Office of Parks, Recreation and Historic Preservation (OPRHP) teamed up for a 13th straight year to ice fish with the public during president's week. Just prior to the event we experienced a mid-February thaw, yet Hyde Bay held with 12 inches of firm ice.

Despite the long slippery walk out in front of Glimmerglass State Park's west side beach, anglers came in waves around 10am, 12pm, and 2pm after receiving near-shore introductions on the basics of ice fishing by Tom Hughes. Thereafter, the lake crew assisted anglers with bottom fishing using light tackle (jigs with spikes or fly grubs), plus ongo-

(Left) Children inspecting a yellow perch and chain pickerel before the filet demonstration (Right) View across the Otsego lake as participants walk out on the ice for the free ice fishing clinic off Glimmerglass State Park. ing surveillance of tip-ups already baited with minnows/shiners and set to catch fish.

Throughout the cold but fun day, we managed many line tangles, rebaited hooks on jigs and tipups, demonstrated how to drill holes, and reminded everyone to keep their backs to the wind. By late morning air temps had dropped from 50 to 31 °F due to a cold front and steady NW wind.

We observed very few non-clinic anglers on the lake this year, but similar to 2021, we expected a large event crowd as outdoor experiences are in high demand during this ongoing pandemic. Holes were drilled early by staff in a large circular area offshore in 6-12 feet of water just west of the beach house. We had to move east after initially setting up closer to Clarke Point due to the slippery ice conditions and unstable shore ice to get on/off the lake (normal after a thaw).

Unfortunately, the fish bite was very slow all day. Few flags sprung from our fleet of baited tip-ups and the many active jiggers had little success. Of the five fish caught, only two came from jigging: a plump bluegill and largemouth bass. Three other fish came from tip-ups: an early largemouth bass, then a short lunchtime bite resulted in a smallmouth bass and 23-inch lake trout (see photos). Strangely, these are species we don't normally catch during this event. Likely a result of the turbid water from melt-runoff via Shadow Brook and the more recent loss of winter plant density in an everchanging lake ecosystem. Yellow perch, our staple species for ice fishing statewide were nowhere to



be found.

A total of 13 staff and interns worked the event to assist >150 attendees, most of which had signed up with the Parks office days before the event (to manage numbers). Many youth attendees were quite serious about fishing and remained diligent with jigging rod in hand despite the fierce cold wind. Tom H. was able to carve up some fish in the afternoon, with yellow perch and chain pickerel caught on a previous fishing trip. Some happy anglers went home with boneless fillets.

Because of the cold and lack of fish, attendees only stayed on the ice ~15-30 minutes, though most (that could still feel their fingers/toes) appeared to enjoy the outing. Many learned to dress better for such an event. No press agents were observed likely due to the frigid weather!

Thanks again to all who attended and helped with yet another successful ice fishing clinic in DEC Region 4.

(Top) Event field staff image from left to right standing are S. Wells, M. Arnwine, W. Buetow, J. Priolo (DEC), SCA interns Nick and Zach, and K. Dumoulin (DEC). Down in front are T. Hughes (Parks), SCA intern Zach, and J. Foust (DEC). Missing in photo are ECO Fetterman, D. Sullivan and C. Gannon (Parks).

(Bottom) A 23-inch lake trout caught on a tip-up.





RECENT PUBLICATIONS

Convergence of undulatory swimming kinematics across a diversity of fishes

In the Proceedings of the National Academy of Sciences

Valentina Di Santo, Elsa Goerig, Dylan K. Wainwright, Otar Akanyeti, James C. Liao, Theodore Castro-Santos, George V. Lauder

Abstract: Fishes exhibit an astounding diversity of locomotor behaviors from classic swimming with their body and fins to jumping, flying, walking, and burrowing. Fishes that use their body and caudal

fin (BCF) during undulatory swimming have been traditionally divided into modes based on the length of the propulsive body wave and the ratio of head:tail oscillation amplitude: anguilliform, subcarangiform, carangiform, and thunniform. This classification was first proposed based on key morphological traits, such as body stiffness and elongation, to group fishes based on their expected swimming mechanics. Here, we present a comparative study of 44 diverse species quantifying the kinematics and morphology of BCF-swimming fishes. Our results reveal that most species we studied share similar oscillation amplitude during steady locomotion that can be modeled using a second-degree order polynomial. The length of the propulsive body



(A) New view based on high-speed video analysis of steady swimming kinematics to illustrate the considerable similarity among the four classic fish swimming modes. Head and tail amplitude variables do not distinguish the four classic categories of BCF swimmers: eel (Anguilla rostrata), trout (Salvelinus fontinalis), mackerel (Scomber scombrus), and tuna (Thunnus albacares). (B) Representative midlines (average of n = 10 each) of complete tail beat cycles of eel, trout, mackerel, and

wave was shorter for species classified as anguilliform and longer for those classified as thunniform, although substantial variability existed both within and among species. Moreover, there was no decrease in head:tail amplitude from the anguilliform to thunniform mode of locomotion as we expected from the traditional classification. While the expected swimming modes correlated with morphological traits, they did not accurately represent the kinematics of BCF locomotion. These results indicate that even fish species differing as substantially in morphology as tuna and eel exhibit statistically similar two-dimensional midline kinematics and point toward unifying locomotor hydrodynamic mechanisms that can serve as the basis for understanding aquatic locomotion and controlling biomimetic aquatic robots.

Significance: Swimming ability has contributed to the evolutionary success of fishes, and its mechanics have been studied extensively. Most fishes swim primarily through undulation of their body and caudal fin (BCF) and have been historically divided into four major kinematic modes based on their morphology. Here, we compare kinematics of BCF locomotion in 44 species. Contrary to expectations and despite considerable morphological diversity, fishes share major kinematic features during steady swimming and are placed on a continuum rather than in discrete categories. This suggests a unifying BCF mechanism to generate efficient aquatic propulsion. Our work reevaluates a wellestablished hypothesis in biomechanics, highlighting the importance of avoiding a priori partitioning of fishes into modes, to further our understanding of aquatic locomotion.

Reference: Di Santo, V., Goerig, E., Wainwright, D. K., Akanyeti, O., Liao, J. C., Castro-Santos, T., & Lauder, G. V. (2021). Convergence of undulatory swimming kinematics across a diversity of fishes. *Proceedings of the National Academy of Sciences*, *118*(49), e2113206118.

DOI: https://doi.org/10.1073/pnas.2113206118

Hybridization between two introduced, invasive crayfish species in the upper Juniata River system, Pennsylvania, USA

In the Journal of Crustacean Biology

George T. Merovich, Jr., Madison Hearn, Nicholas A. Smith, and Vincent P. Buonaccorsi

Abstract: Hybridization of non-native crayfishes with native crayfishes can facilitate invasion success of the non-native. We report novel genetic evidence of hybridization between rusty crayfish, *Faxonius rusticus* (Girard, 1852), and Allegheny crayfish, *F. ob*-



Rusty crayfish (Faxonius rusticus)

scurus (Hagen, 1870), two non-native species in the upper Juniata River basin of central Pennsylvania. We used double-digest restriction-associated DNA sequencing, which yielded 28,031 single nucleotide polymorphisms, to characterize the extent of hybridization. Two of eight individuals with mixed character traits were identified as the progeny of hybrids backcrossed into rusty crayfish. One individual, presumed to be a rusty crayfish in the field, was genetically identified as a hybrid backcross to rusty crayfish. The three crayfish taxa (rusty, Allegheny, and intermediates) are virtually indistinguishable based on typical morphological characters. Key character traits that distinguish rusty and Allegheny crayfishes can be mixed atypically in certain individuals (i.e., intermediates). Our results indicate that introgressive hybridization has occurred between rusty and Allegheny crayfishes, and that at least some of the character-trait intermediate individuals have hybrid ancestry. Hybridization may be an additional means by which invasive rusty crayfish increase their fitness and dominance at the expense of existing species and their habitat.

Reference: Merovich, G. T., Hearn, M., Smith, N. A., & Buonaccorsi, V. P. (2022). Hybridization between two introduced, invasive crayfish species in the upper Juniata River system, Pennsylvania, USA. *Journal of Crustacean Biology*, *42*(1), ruab084.

DOI: https://doi.org/10.1093/jcbiol/ruab084

Regional differences in energy allocation of black sea bass (*Centropristis striata*) along the U.S. Northeast Shelf (36°N to 42° N) and throughout the spawning season

In the Journal of Fish Biology

Emily Slesinger, Kiernan Bates, Mark Wuenschel, Grace K. Saba

Abstract: Fish reproduction is energetically costly, leading to a suite of energy allocation strategies for maximizing lifetime reproductive potential. Assessing energetic allocation for species that inhabit a wide distributional range can provide insight into different strategies found across individuals and populations. The Northern stock of black sea bass (Centropristis striata) inhabits the U.S. Northeast continental shelf from Cape Hatteras, NC, to the Gulf of Maine, and spawns inshore throughout this distribution from April to October. To assess energy allocation towards spawning, C. striata were collected in four regions across this distribution and throughout their spawning season. By assessing energetic allocation (lipid, energy density and total energy) in muscle, liver and gonad tissues, C. striata were identified as mixed breeders because while they mobilized somatic energy stores towards reproductive development, they also used energy acquired from their diet to sustain reproductive output throughout the spawning season. Unlike male fish, female fish both invested more energy into liver and gonad tissues and exhibited regional differences in energetic values. For both sexes, C. striata in the northern portion of the distribution had lower energetic values both in the somatic stores and towards gonadal development than the fish in the southern portion of the distribution, possibly because of longer migration distance. Overall, the authors found significant spatial variation in energetic constraints

that may affect reproductive output and success (recruitment), a relevant result as *C. striata* are a popular recreational and commercial species throughout this distribution.

Reference: Slesinger, E., Bates, K., Wuenschel, M., & Saba, G. K. (2022). Regional differences in energy allocation of black sea bass (*Centropristis striata*) along the U.S. Northeast Shelf (36 °N to 42 °N) and throughout the spawning season. *Journal of Fish Biology*, jfb.15023.

DOI: https://doi.org/10.1111/jfb.15023

North American diadromous fishes: Drivers of decline and potential for recovery in the Anthropocene

John R. Waldman & Thomas P. Quinn

Abstract: Diadromous fishes migrate between freshwater and marine habitats to complete their life cycle, a complexity that makes them vulnerable to the adverse effects of current and past human activities on land and in the oceans. Many North American species are critically endangered, and entire populations have been lost. Major factors driving declines include overfishing, pollution, water withdrawals, aquaculture, non-native species, habitat degradation, over-zealous application of hatcheries designed to mitigate effects of other factors, and effects of climate change. Perhaps, the most broadly tractable and effective factors affecting diadromous fishes are removals of the dams that prevent or hinder their migrations, alter their environment, and often favor non-native biotic communities. Future survival of many diadromous fish populations may depend on this.

Reference: Waldman, J. R., & Quinn, T. P. (2022). North American diadromous fishes: Drivers of decline and potential for recovery in the Anthropocene. *Science Advances*, 8(4), eabl5486.

DOI: https://doi.org/10.1126/sciadv.abl5486

Seasonal estuarine movements of green crabs revealed by acoustic telemetry

In the Marine Ecology Progress Series

Katrina A. Zarrella-Smith, Jessica N. Woodall, Athena Ryan, Nathan B. Furey, Jason S. Goldstein



Acoustic telemetry tag harness attached to a male green crab (carapace width: 66 mm).

Abstract: Green crabs Carcinus maenas are considered among the most influential invasive species in temperate estuaries worldwide. Yet management can be hindered by the lack of high-resolution data on green crab movement ecology. We addressed this knowledge gap by coupling passive acoustic telemetry and water quality monitoring to examine daily and seasonal movements of individual green crabs in the Webhannet River Estuary (Maine, USA). We tracked 22 adult green crabs (mean [±SD] carapace width = 63.8 ± 6.5 mm) between 2 successive tagging deployments from July 2018-January 2019, with one receiver maintained until mid-April 2019. Overall, our study demonstrated the viability of using acoustic telemetry to assess seasonal movements of green crabs, with an average (±SE) individual detection rate of 27.9 \pm 2.8 detections h⁻¹ from July-January. Most crabs remained localized to very

specific regions of the estuary, with each region representing a 300-600 m linear distance. Logistic regression models indicated that movements by green crabs to the downstream area were associated with a shift in temperature below 10°C, regardless of sex. From January-April 2019, 9 crabs were found to overwinter in the downstream area, potentially taking refuge in deeper waters. Movement patterns identified in this study further contribute to our understanding of the distances traveled and the areas used by green crabs, as well as further resolve overwintering behavior with consequences for mortality risk due to low temperatures. This additional knowledge of adult green crab movement and dispersal dynamics is valuable to resource managers considering intervention strategies.

Reference: Zarrella-Smith, K., Woodall, J., Ryan, A., Furey, N., & Goldstein, J. (2022). Seasonal estuarine movements of green crabs revealed by acoustic telemetry. *Marine Ecology Progress Series*, 681, 129–143.

DOI: https://doi.org/10.3354/meps13927

Have fishy news to share?

Contribute to the 2023 Northeast Fish Rapper!

NED OFFICERS

President

Patrick D. Shirey, PhD Certified Ecologist and Certified Fisheries Professional Assistant Professor Department of Geology and Environmental Science University of Pittsburgh, Pittsburgh, PA 15260-3332 Ecology Policy, LLC (Owner) Phone: 724-316-5167 Email: pds25@pitt.edu , patrickdshirey@gmail.com

President-Elect

Susan F. Cushman, PhD Director of Introductory Biology Laboratories Department of Biology Research Scientist, Finger Lakes Institute Hobart & Williams Smith Colleges 300 Pulteney Street Geneva, NY 14456 Phone: 315-781-3599 Email: cushman@hws.edu

Vice President

Heather A. Stewart, PhD

Mangrove Restoration Postdoctoral Associate Center for Marine & Environmental Sciences University of the Virgin Islands 2 John Brewer's Bay, St. Thomas, VI 00802 Phone: 217-649-2495 Email: <u>hadar.stewart@gmail.com</u>

Secretary-Treasurer

Rich Bell, PhD The Nature Conservancy South Ferry Rd Narragansett, RI 02882 Email: <u>rich.bell@tnc.org</u>

Edward A. Hale PhD

Past-President

Marine Advisory Specialist – Delaware Sea Grant University of Delaware College of Earth, Ocean and Environment 204H Cannon Lab 700 Pilottown Road Lewes, DE 19958 Phone: 302-645-4060 Email: <u>ehale@udel.edu</u>

ACKNOWLEDGEMENTS

Thank you for contributing to the 2022 Northeast Fish Rapper!

Atlantic International Chapter Harvard University Juanita College New York Chapter NYS DEC, NYS OPRHP NOAA Fisheries Pennsylvania Chapter Quebec Student Subunit Queens College Rutgers Student Subunit Rutgers University Southern New England Chapter UMass Amherst University of Maine Student Subunit University of New Hampshire Student Subunit



Meet the Editors





Matt Mensinger is a PhD student at the University of Maine and President of the UMaine Student Subunit. His research aims to understand the risk of predation during Atlantic salmon smolt migration. He has been editing the Northeast Fish Rapper since 2019. His email is mattthew.mensinger@maine.edu **Robert Jarrett** is a PhD student at the University of Maine and member of the UMaine Student Subunit. His research centers on the indirect effects of climate change on the American Lobster, focusing largely on their changing habitat use and interaction with non-native species. He can be reached at robert.jarrett@maine.edu. Kathryn Sloane recently graduate from the University of Maine with a MS in Marine Science. Her work focused on fishes' physiological response to increasing temperature. She now works for the National Institute of Health and can be reached at kathryn.sloane@maine.edu

This newsletter was produced for the Northeast Division of the American Fisheries Society by the University of Maine Student Subunit using Microsoft Publisher. All images not contributed by NED members were retrieved from Google Images



