WATERSHED CONSERVATION RESEARCH CENTER ALLEGHENY COLLEGE

April 2024 Newsletter

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Mission Statement

Our mission at the WCRC is to engage in strategic conservation activities and train future watershed stewards to protect, restore and enhance our land and water resources for future generations in the upper Allegheny River basin, focusing on the French Creek Watershed.

New Research Facility added at Bousson

This spring, construction began at Allegheny's Bousson Environmental Research Reserve (BERR) of a new work station, supported through funding by the Richard King Mellon Foundation. A new facility has been a long-term goal for WCRC staff and students, and will act as a work station for on-site research and storage. The facility will also act as a collaborative space among Allegheny faculty from a variety of departments. Projects include amphibian monitoring and vernal pool surveys, camera trapping, forestry work on the red pine plantation, disease ecology projects, and experiments utilizing the on-site mesocosms.

The work station at Allegheny's Bousson Environmental Research Reserve (BERR)

Introducing our Summer 2024 Research Team

Name: Lorenzo Tovanche
Job Title: Research Techician
Year: Class of 2026
Hometown: Cleveland, OH
Major/Minor: Environmental Science/ Community & Justice Studies
Clubs/Activities: Soccer Club, Student Government
Favorite Animal: Indigo Macaw

Name: Josephine Reiter
Job Title: Research Technician
Year: Class of 2026
Hometown: Pittsburgh, PA
Major/Minor: Environmental Science/English
Clubs/Activities: Allegheny Swim and Dive team, Kappa Kappa Gamma sorority
Favorite animal: Tardigrades

Name: Josh Huang
Job Title: Research Technician
Year: Class of 2025
Hometown: Fremont, CA
Major/Minor: Environmental Science/Biology
Clubs/Activities: Mountain Biking, Climbing, Video Games, Skiing, and Kayaking,
Favorite animal: Cuttlefish

Name: Lauren Dougherty
Job Title: Geospatial Intern
Year: Class of 2025
Hometown: Newcastle, PA
Major/Minor: Environmental Science/Studio art
Clubs/Activities: ARGO
Favorite animal: Otter

Name: Thia Ferderbar
Job Title: Research Technician
Year: Class of 2026
Hometown: Sewickley, PA
Major/Minor: Environmental Science/Writing
Clubs/activities: AC cheer, Civic Symphony, Kappa Alpha Theta sorority
Favorite Animal: Manatee

Name: Julia DeSanto
Job Title: Geospatial Intern
Year: Class of 2025
Hometown: Natrona Heights, PA
Major/Minor: Environmental Science/Chemistry
Clubs/Activities: ARGO, LAG, E-sports
Favorite animal: Western Hognose Snake

Allegheny College and the WCRC Co-Host the Spring Technical Meeting for the Pennsylvania Chapter of the American Fisheries Society

This past February, our Co-Director, Casey, and Allegheny College worked with AFS board members to host the 2024 technical meeting for the Pennsylvania Chapter of the American Fisheries Society. Agencies, scientists and educators from all across the state gathered on campus to share their research and participate in educational workshops. This was the first time the meeting had been held in the northwestern part of the state in many years, which was fun for the WCRC because we got to highlight French Creek! The meeting was well attended, with over 115 participants. Oral presentations ranged from a variety of topics including ecosystem community responses to environmental/climatic changes, restoration projects, invasive species, mussel population evaluations, and more.

Assistant Research Scientist, Meredith Barney, during her AFS presentation

WCRC student, Eden Brody '24, poses with his AFS award

Head research scientist, Mark Kirk, presented on "Effects of stream crossing type on fish assemblages and stream ecosystem conditions: Implications for culvert replacement" and assistant research scientist, Meredith Barney, gave a talk entitled, "Evaluating the long-term success of two stream-bank restorations within the French Creek Watershed. Eden Brody '24, participated in the student presentations, and earned third place for his work "Mechanisms behind the decline of a Class A Brown Trout fishery (Caldwell Creek)". The conference concluded with an evening poster session, and workshops focusing on the programming systems GIS and R, as well as mussel and darter identification.

Preparing for Summer Research: Keeping Invasive Species in Check

Round Goby (Neogobius melanostomus) from French Creek

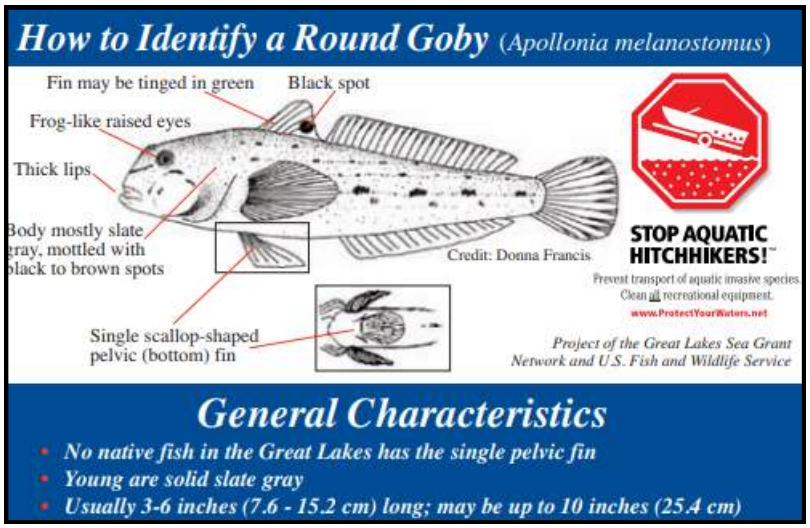
The upcoming summer will be packed full of research projects once again, and invasive round gobies (*Neogobius melanostomus*) are always on the radar. Soon, WCRC staff and students will work with Casey to continue her decade long research on impacts of round gobies on native fauna in the French Creek watershed. Projects will help predict and prepare for future anticipated round goby impacts and aid in any future management strategies.

Photo of French Creek while conducting goby surveys

Students and community partners, primarily PFBC, have been and continue to be heavily involved in all aspects of these projects. The WCRC is also working on outreach materials and participating in events to spread the word about round gobies.

Casey Bradshaw-Wilson will also be traveling to Nova Scotia in May to present collaborative work on the last 3 years worth of goby research at the International Conference for Aquatic Invasive Species (ICAIS).

Know how to ID a Round Goby!



Report all sightings of the round goby to the PA Fish and Boat Commission, or call 1-833-INVASIV

4th Graders as Scientists

This year, the WCRC continued their participation in the 4th graders as scientists program. Through this initiative, local schools are able to provide their young students with new hands-on learning opportunities that allow them to be curious, solve problems, and think critically. Assistant Research Scientist, Meredith Barney, led an activity focusing on the round goby. Students learned characteristics/dangers of invasive species, and played an interactive game simulating how many invasives are able to take over new ecosystems quickly, and often compete with native fish for available food and habitat.

4th Grade Students play the interactive game showcasing the relationships between native fish and round gobies

WCRC Highlight on Student Experience

Sophmore Libby Babcock poses with a Golden Redhorse (Moxostoma erythrurum)

WCRC Student Experience

By: Libby Babcock ('26)

I started working for the WCRC this past fall as a work study student, hoping to gain more experience in wildlife conservation and field work. Since then, I have worked on projects including pre/post restoration site surveys, assisted in student comps, collected and identified macroinvertebrates, and aided in amphibian and camera trapping projects. Working in this position has allowed me to practice skills involving species identification, electrofishing, taking water quality measurements, and gain experience working in a team setting. This opportunity will help me prepare for my comp, and any other future research endeavors.

Furry Friends: Senior Project Spotlight on Small Mammal Diversity

30 Sherman traps were set for 3 consecutive nights at 3 different FCVC sites during the fall and winter. Peanut butter was used for bait, and cotton balls were placed in the trap for warmth.

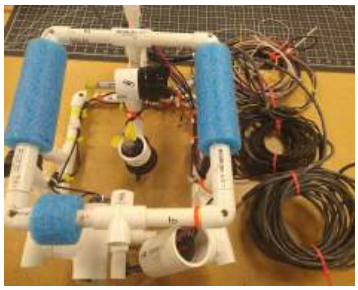
Small mammals play a critical role in our ecosystems, working to disperse seeds, act as prey for larger mammals, keeping invasive species in check. However, they are often understudied because they are not easily detected with camera traps. Working with Prof. Kelly Pearce, Heather Landis (24') focused her senior project on assessing small mammal diversity on French Creek Valley Conservancy (FCVC) properties to better understand small mammal diversity for future management and protection of these critical mammals.

Over the study period, 78 individuals were captured, including white-footed mice (Peromyscus leucopus) (pictured above) and deer mice (Peromyscus maniculatus).

Dive into Innovation: Creating an Underwater Robot for Water Quality Assessment

As part of our mini-grant program, the WCRC began a partnership with Prof. Janyl Jumadinova (Computer and Information Science Department), and Pallas-Athena Cain (25') and Trang Hoang (24'). Continuing on work that started in summer of 2023, the team is developing a robot that is able to traverse underwater and measure water quality.

This summer, the team aims to continue to make improvements to the robot, and work with watershed specialists to conduct trial deployments in local lakes. The creation of this robot will provide researchers with a more cost-effective way to conduct water quality measurements in deeper waters, and could be a regularly utilized tool by local organizations.



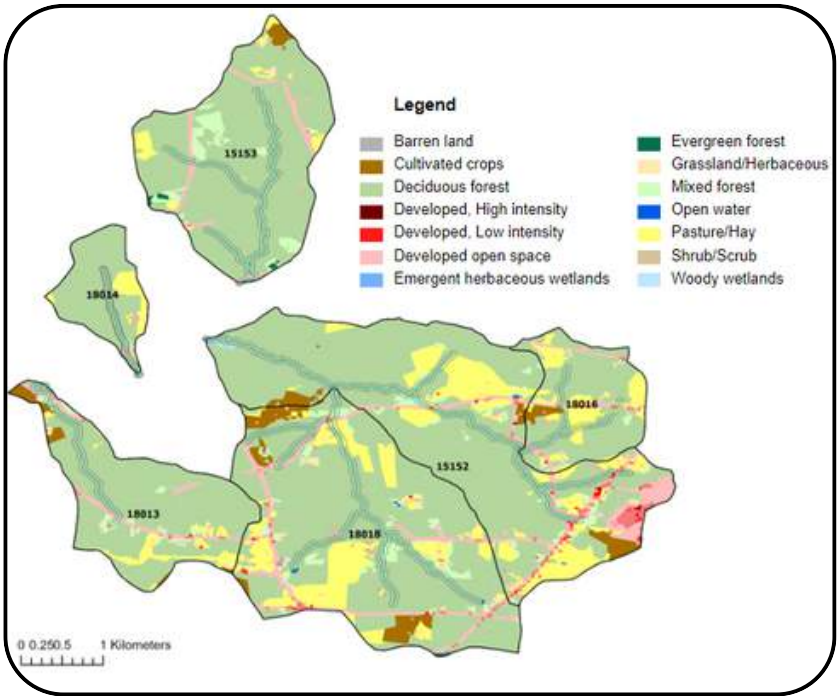
Pallas-Athena Cain (25'), and Crawford County Conservation District Watershed Specialist, Brian Pilarcik, get ready to deploy the robot in Pymatuning Lake (Left). The robot with the sensors (right).

WCRC teams up with GIS Class to Explore Connection between Land Cover, Watershed Structures, and Fish Diversity

Head research scientist Mark Kirk talks to Environmental GIS I students at a stream sampling site

This past fall, the WCRC collaborated with Professor Chris Shaffer's Environmental GIS class to offer an enriching on-site experience. The WCRC led the class to a stream previously sampled for the Pennsylvania Fish and Boat Commission's Unassessed Waters Initiative (UAW). During this excursion, students had the opportunity to observe various fish species inhabiting the French Creek Watershed, as well as were introduced to the importance of trout populations and diversity monitoring in existing streams.

Students were then tasked with analyzing nearly 60 streams sampled by the WCRC for UAW, levering GIS to create maps showcasing the surrounding watershed, and landuse types. This partnership showcased an example of how GIS can be used in a professional setting, and provided an avenue for students to practice their developing knowledge of the software, fostering a deeper understanding of watershed dynamics.



Landuse map created by students showcasing the sampled streams, surrounding watershed, and landcover types

Unveiling Hidden Worlds: WCRC Participates in “Seeing the Unseen”

This past summer in partnership with the Western Pennsylvania Conservancy and Great Lakes Media & Film, the WCRC filmed for the documentary “Seeing the Unseen: Aquatic Invaders & What’s at Stake.” The films focuses on different aquatic invasive species, their impacts to native species, and how we can help minimize their spread.

Co-director of the WCRC Casey Bradshaw-Wilson puts on her waders, ready for a day of fieldwork

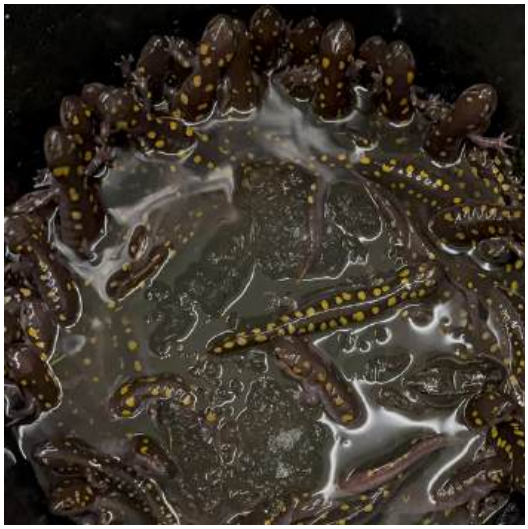
The WCRC’s segment focused on the round goby, and its introduction to Lake Erie and movement throughout the French Creek Watershed. The WCRC showcased basic electrofishing procedures, and highlighted the important fish and mussel species found within French Creek. Darters were specifically showcased due to their sensitivity to ecosystem changes, and diet/habitat overlap with the goby.

Co-director Casey Bradshaw-Wilson gave an informative interview on the history of the round goby, her work with the species, and future predictions on how the invasive could alter the French Creek Watershed. The documentary can be watched on the Western Pennsylvania Conservancy’s Youtube page.

Casey Bradshaw-Wilson, Mark Kirk, Meredith Barney, and students Marrin Crist ‘25 and Celia Cocca ‘25 prepare for electrofishing

Marching Towards Conservation: Amphibians Leading the Way

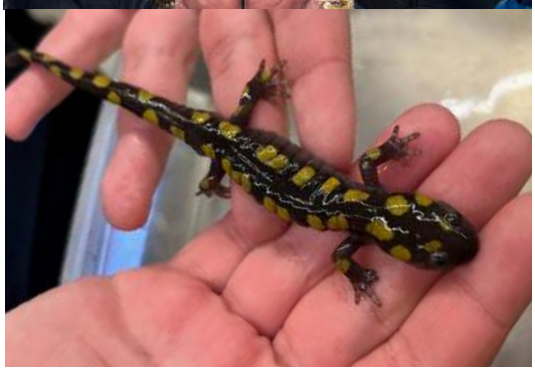
This year the WCRC added a third property to their spring amphibian monitoring work. Properties assessed by staff and students now include Allegheny's BERR, and the French Creek Valley Conservancy's Vernal Pool Preserve and Raup Wildlife Sanctuary.



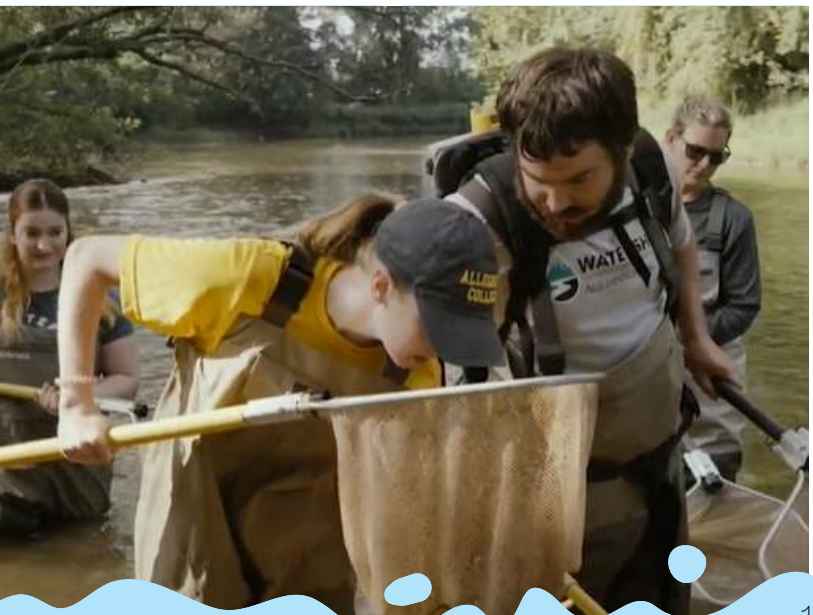
Hundreds of spotted salamanders wait to be measured

At each of these properties, surveys are conducted to record the presence of spring breeding salamander and frogs, primarily spotted salamanders and wood frogs. Warm rainy nights bring amphibians out of their burrowed winter habitats to vernal pools where they mate and lay eggs. These properties act as important educational tools, and this year the WCRC has partnered with professor Bradshaw-Wilson's Conservation Biology class.

Here, students are learning how to properly capture and measure amphibians in order to compare communities across all three properties. Amphibian monitoring at Bousson has occurred for decades, and this long-term data helps to better understand annual and temporal variations in body size, sex ratios, migration timing, and breeding dynamics. As of early April, data on just over 1,000 spotted salamanders have been recorded.



Top: Students from Conservation Biology pose with spotted salamanders after doing egg mass surveys with the WCRC
Bottom: A student holds and measures a spotted salamander



A note from our Co-Directors

As we begin our 4th year and gear up for another exciting summer of fieldwork and research, we've taken a moment to reflect on the remarkable achievements of the WCRC. From collaborating with students across various courses in our curriculum to engaging in hands-on conservation research with individual students, we've made a significant impact on over 145 students at Allegheny College. Additionally, we've worked alongside more than 13 community partners on vital projects and have made 25 presentations at local, regional, and national conferences. Together, we've explored new research projects, overcome challenges, and celebrated successes, all while fostering a deep-rooted sense of watershed stewardship.
As Co-Directors, we are immensely proud of the passion, dedication, and hard work demonstrated by each person within our WCRC community. Your commitment to our shared vision has been the driving force behind our accomplishments. Looking ahead, we are excited to continue prioritizing projects and partnerships that align with our mission statement, empowering more individuals with the knowledge and tools to become advocates for our watersheds.

Thank you for your continued support of the WCRC.

- Casey and Kelly

Find us on social media
instagram.com/wcrc_allegheny/
facebook.com/WCRCAllegheny/
sites.allegheny.edu/WCRC/