

APPLIED STEWARDSHIPS

The Beauty of the Biology Community



WCSU AND SCSU STEWARDSHIPS

KATHERINE CUNNINGHAM & INVERTEBRATE ZOOLOGY

During my stewardship, I catalogued and rehoused 83 epibiont specimens that had been housed in the Yale Peabody Museum Invertebrate Zoology Lab. These organisms were taken from sharks and large fish species of the Bahamas in 2018. I was particularly interested in the copepod epibionts from this lot, which currently remain unknown at the genus and species level. My initial stewardship proposal entailed identifying the copepod species within this collection, filling this particular gap of taxonomic information.

I aim to use this alongside the previously recorded taxonomic host data to study the host selection behaviors of epibiont species. Overall, I am very satisfied with the outcomes of my stewardship project. I feel that my stakeholders were reached through this work, benefitting both the Yale Peabody Invertebrate Zoology Lab and those who may wish to use the catalogued data for future epibiont research

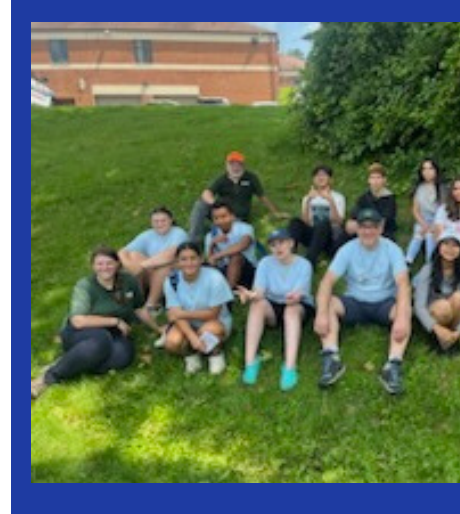


WCSU AND SCSU STEWARDSHIPS

➤➤➤ GREG LEWIS & LOCAL STUDENT ENGAGEMENT

My stewardship project was intended to increase student engagement in local environmental issues through authentic science experiences. Danbury High School students were exposed to a battery of authentic science experiences made possible through a National Oceanic and Atmospheric Administration (NOAA) grant that partners WCSU and Danbury High School, in conjunction with the City of Danbury, Candlewood Lake Authority (CLA), Housatonic Valley Association (HVA), CT Department of Energy and Environmental Protection (CT DEEP), and the United States Geological Survey (USGS).

I plan on using my participation in this summer program to supplement my own high school science curricula by incorporating similar experiences for my students. Connecting students to scientists in the field and related professions has afforded me a scaffold to implement similar experiences in my own classroom.



MICHAEL DESOUSA & THE MIANUS RIVER GORGE <<<



My applied stewardship project took place at the Mianus River Gorge, and my primary stakeholder was Mianus River Gorge Inc., a not-for-profit organization founded in 1953 whose mission is to preserve, protect and manage the Mianus River Gorge Preserve and the surrounding watershed. The 960-acre preserve was the nation's first registered Natural History Landmark designated by the federal government in 1964 due to its 400-year-old towering old-growth hemlocks forest, river, and great biodiversity.

I believe that Applied Stewardship, Bio506, is a valuable part of the Integrated Biological Diversity master's program for a variety of reasons. I appreciated the opportunity to work with Mianus River Gorge Inc. because it was the first time I have been partnered with a land-management organization and was able to absorb their knowledge to learn how these effective establishments preserve our environment. My time spent working alongside the Director of Land Management, Budd Veverka, has enhanced my education by teaching me to notice small identifying characteristics of plants that indicate whether they are invasive or native. As we navigated the site together, Budd labeled key features of the plants and ensured that I was able to accurately identify various species. I look forward to keeping in touch with Budd Veverka and the Mianus River Gorge Inc. to remain updated on the successional growth and health of the project site.

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»»» DAVID HERBERGER & NEXT GENERATION SCIENCE

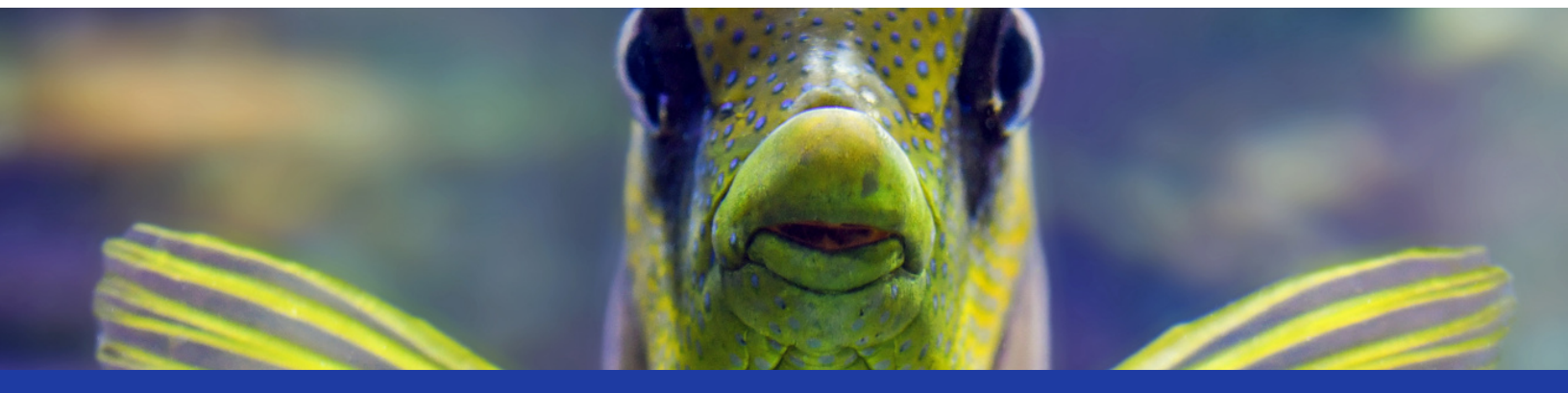


My applied stewardship "Take Action" focus was to measure the effect of carp feeding behavior on Candlewood Lake aquatic vegetation. The largest lake in Connecticut, Candlewood Lake is a host to a wide variety of both animal and plant species. The balance of biodiversity is important for a healthy lake ecosystem. In the 1970's, an invasive aquatic plant called Eurasian milfoil was accidentally introduced and spread around the shorelines of the lake. Many measures have been taken to control the spread but eventually milfoil was the dominant species of aquatic plant. Physical measures such as winter lake drawdowns and mechanical harvesting were voted unsuccessful measures and both public and state officials voted for biological measures to be used to control overpopulated milfoil.

I started the MS program at the beginning of COVID lockdown in the summer of 2020. Initially I predicted my stewardship would target box turtle education with a focus on embedded real-world applications in the Darien High School curriculum. Although my applied stewardship does not target the same species it does target the same stakeholder with the main purpose of biodiversity conservation.

MITCH MCDUNNA & CT DEEP <<<

Over the course of this summer, I participated in the applied stewardship course on path to completing my M.S. degree in Integrative Biological Diversity. This course benefitted me in many ways including allowing me to gain new experiences, run my own experiments, collect data, and analyze that data using excel. My project was very different from what I thought I was going to do from stewardship seminar, but still aligned with freshwater biodiversity. DEEP was a big help with my project because they allowed me to contribute with fishing events and changes to future events from the results of my study. I recommend applied stewardship for other students because it allows them to develop their own project on a topic of their choice. Being their own choice, it is easier for students to enjoy their work and makes them want to engage in the study even more. My stakeholder, DEEP, was very appreciative with the data I provided them because they had not recorded fish species and quantity caught at their events before as well as vegetation present at each site. DEEP can use my data to schedule future events where vegetation is not as severe as well as knowing which fish species are most prevalent. A large part of DEEP is stocking fish, specifically, Channel Catfish and the three Trout species, Brown, Rainbow, and Brook. My question was whether the stocking of fish in freshwater lakes and ponds altered the biodiversity of the native species. I was pleased to discover that there were no negative effects of stocking those species because once water temperatures become too warm in the late summer, there are either no more trout to catch due to harvest or death due to warm water temperatures. Overall, through my applied stewardship project, I developed relationships, learned a lot about freshwater ecosystems, and found new outdoor locations to enjoy. Applied stewardship was definitely beneficial to my future and I recommend it to others within this degree.



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➤➤➤ MIRANDA HOLLAND & STUDENT ENGAGEMENT IN FIELDWORK

When I participated in Stewardship Seminar in the fall semester of 2022, I proposed a project working with the Sound School in New Haven to create and monitor an oyster reef off the coast of their campus with their students. This project would primarily focus on conservation and education, as the reef would improve both local water quality and biodiversity while the planning, preparation, creation, and monitoring of the reef would provide practical experience for the students involved. This project would provide additional research opportunities in the future, depending on its success. As someone with an interest in teaching as a potential career path as well as an interest in oyster reefs and coastal restoration as research topics, I was very excited about the project I had designed. However, towards the end of the fall 2022 semester, I learned that a very similar project was already being conducted by the Sound School in conjunction with UCONN. I had mixed feelings about this, as I was disappointed that my project would be redundant, but felt validated and proud that my idea was so practical that it was already being implemented and good enough that someone several career stages ahead of me had thought of it as well. Soon after, I was offered the opportunity to travel to Iceland to assist with another one of Dr. Cross's research projects, and decided to pivot to conduct a stewardship project while abroad instead.

Through this project, I gained new experience with social sciences. As I was interviewing students about personal experiences and their feelings, I was required to get research approval from SCSU's Internal Review Board (IRB). Before I could submit my IRB application, I had to participate in multiple training courses regarding research ethics and responsible research with human subjects. Then, I wrote an in-depth research plan including details of the study, information security, and steps being taken to ensure the participant's welfare. Planning a social science study and submitting the IRB application was a new experience for me that I found very interesting.

I taught the participating students lab techniques for environmental DNA sampling, nutrient and chlorophyll analysis, and plankton tow processing. Seeing my students building a similar passion for marine fieldwork and research makes me remember why I love marine biology so much. I saw my group grow and take ownership over their work during my time with them, and the experience reaffirmed my passion for teaching.

