Megan Hoover

Ecosystem Science and Sustainability
Colorado State University
Fort Collins, CO 80523

Windsor, CO 80550
Ph: 616.312.3659
megan.hoover21@gmail.com

LinkedIn: https://www.linkedin.com/in/megan-hoover-9011a22a2/

CAREER OBJECTIVE

Motivated undergraduate student in the Ecosystem Science and Sustainability program at Colorado State University, with plans to participate in graduate studies. Placing an emphasis on an interdisciplinary systems approach to solving environmental problems, using a combination of open data science, policy, and scientific principles.

Education

May 2026 **Colorado State University, Fort Collins, CO**
B.S. in Ecosystem Science and Sustainability.
Minor in Watershed Science. Emphasis in ecology and hydrology.
GPA: 4.0
McNair Scholar, Deans list, Phi Theta Kappa, Financial Officer of Watershed, Ecosystem Science and Sustainability Club

Research and projects

2025-2026 **Senior Thesis Research**
McNair Scholar Research 2025
Estimating Above Ground Biomass Via Remote Sensing in Inundated Wetlands
Research Mentors: Dr. Jessica O'Connell & Dr. Carolina Barbosa

Abstract:
Wetlands provide important ecosystem services that are able to be tracked and measured via remote sensing. One method of tracking an ecosystem service is by monitoring above ground biomass (AGB) within wetlands. AGB supports carbon storage, erosion control, and critical habitat provision (Ballut-Dajud et al., 2022). Vegetation health and growth can be monitored using AGB estimates, with light using math formulas made of bands from within the light spectrum. However, in flooded areas, water acts as a sink, absorbing longer wavelengths of light, more so than shorter ones. Thus, flooded vegetation shows less spectral reflectance and could indicate less AGB or infer that it is unhealthy. Many researchers are using the NDVI vegetation index (VI) in inundated wetlands, which

contains NIR, a longer wavelength. We need a better index that's able to track biomass across water depth, for more reliable estimates. The main goal of this research was to compare three spectral indices across two different wetlands (playa and tidal salt marsh) and to find a more reliable index than NDVI in flooded areas. This was met by comparing spectral indices using linear models, spectral signature curves, as well as comparing the physical characteristics of both areas. These objectives involved obtaining satellite and field data for both wetlands, processing it, and making statistical analyses. The results showed that there were better vegetation indices than NDVI to use in inundated wetlands and that the two other ones tested alongside NDVI were more accurate. These findings will help improve AGB prediction models in these inundated scenarios to be able to quantify carbon sequestration and other ecosystem functions, and lead to better land management strategies.

2025 **Toxic Algae Blooms**

Karenia Brevis Algal Blooms

Co-authors: Undergraduate students, Megan Hoover, Lilly Zapalac and Tessa Davis.
Karenia Brevis algal blooms from the Western Florida coast modeled to find possible bloom correlations and trends.
Online quarto document: **https://meganhoover21.github.io/updated/**

2025 **Watershed Health Trends**

The Arkansas River Basin; Specific Conductivity, Discharge (cfs), and Elemental Ion Relationships
Co-authors: Undergraduate students, Megan Hoover, Will Selvidge and Owen Wroe.
Analyzed the relationship between specific conductivity, stream discharge, and elemental ions within the Arkansas River Basin, from upstream to downstream. Relationships were statistically and visually analyzed using R coding.

Relevant CourseWork

Statistical Analysis + Modeling
Courses: Introduction to Applied Statistical Methods, Quantitative Reasoning for Ecosystem Science, Introduction to Geospatial Science, Environmental Data Science Applications: Introduction, Information Management for Sustainability

Skills: R coding, Data Wrangling and Visualization, Map Making (ArcGIS Pro), Data Analysis, Critical Thinking

Watershed Health + Policy
Courses: Land Use Hydrology, Sustainable Watersheds, Water Law, Policy, and Institutions, Land Use and Water Quality, Watershed Measurements, Watershed Field Practicum

Skills: Hydrology Calculations and Modeling, Watershed Delineation, U.S. Water Law, Water Quality Parameters, Streamflow and Precipitation Measurements

Ecology + Biogeochemistry
Courses: General Chemistry, Biology of Organisms-Animals and Plants, Physical Geography, Ecology, Ecosystem Ecology, Sustainability Science, Foundations of Environmental Sustainability, Earth System Ecology, Introduction to Landscape Architecture, General Physics, Calculus for Biological Scientists

Skills: Biogeochemical Cycling Processes, Stoichiometry, Data Interpretation, Spatial Analysis, Sustainable Planning, Systems Thinking, Environmental Modeling Calculations

Professional Experience

2025 - Present Undergraduate Research Affiliate: Landscape Modeling Lab
Fort Collins, CO
Collaborating on research with lab members to produce professional presentations and reports. Creating research plans to ensure deadlines and goals are met. Developing wetland remote sensing techniques to improve accuracy of habitat assessments.

2022-2023 Land Stewardship Worker:
Larimer County Department of Natural Resources, Loveland, CO

Identified and treated noxious weeds using various methods, reducing competition for native plants. Restored habitats in restoration areas, bringing back to healthy state. Responsibly used equipment including herbicide packs, ATV, Gator, and truck to navigate and treat areas.

Honors and Awards

2024- Present **McNair Scholar**

Participating in activities designed to prepare for post graduate studies, including undergraduate research and workshops. Present research and attend networking events to gain professional experience. Developed wetland remote sensing techniques to improve accuracy of habitat assessments.

2023-2025 **Dean's List**

Recognized for academic excellence, holding a 3.75 or more GPA during Fall 2023, Fall 2024 and Spring 2025.

2023 **Employee of the Month**
Larimer County Department of Natural Resources, Loveland, CO

Recognized for commitment and dedication to carrying out job duties.

2015 **Michigan FFA Proficiency Award, Goat Production Entrepreneurship**

Michigan FFA Chapter

Recognized for achievement in meticulous record keeping of goat behavior, training, and production costs of student-run goat production project. Conducted a summer-long research project observing goat behavior and training for competitive showmanship. Maintained detailed records of feed, housing, veterinary costs, and sale outcomes to evaluate profitability.

Conferences and presentations

2025 **McNair Scholar Research Presentation,**

Colorado State University, Fort Collins, CO

Presented research on estimating aboveground biomass in inundated wetlands via remote sensing techniques.

2025 **American Geophysical Union (AGU) Conference**

New Orleans, LA

Attended career building activities, undergrad student hydrology workshop, and networked with other environmental researchers.

Leadership and service

2024 - Present **Watershed, Ecosystem science, and Sustainability Club**

Financial Officer

Colorado State University, Fort Collins, CO

Creating a budget analysis of planned activities and purchases to keep track of incoming and outgoing funds. Planning fundraising events to meet the organization's funding goals. Engaging with students and FoCo community members, to educate on watershed, ecosystem science and sustainability practices.

2025 **Poudre River Cleanup, Fort Collins, CO**

Organized members of the watershed, ecosystem science and sustainability club to volunteer cleaning up along the Poudre River in partnership with the Coalition for the Poudre River Watershed and Odell Brewing Company. Removed trash and broken glass along the Poudre River, ensuring a healthier watershed.

2025 **Native Plants Community Outreach, Fort Collins, CO**

Organized an educational outreach and fundraising event with the Fort Collins Nursery, to engage with community members and gain club funding. Educated the community on the importance of using native plants over non-native, by usage of visual posters and explaining the differences in biology that make natives more durable to the Colorado climate.Showcased drought tolerant native plant species that encouraged sustainable water practices and counted towards profit for the club, in partnership with the nursery.

2023 **Vindeket Foods and Serve 6.8, Fort Collins, CO**

Assisted in setting up a free marketplace, for those who needed food and clothing assistance. Met sustainability goals by pushing out donated food inventory and assisting shoppers, to prevent excess waste.

Training and skills

2025 **Group 2.SOCIAL / HUMANISTIC / BEHAVIORAL RESEARCH**

Citi Program through Colorado State University, issued February 2025, expires February 2028. Credential ID: 67893984

Certified to responsibly conduct research using sensitive information involving human subjects.

2025 **R Essential Training: Wrangling and Visualizing Data**

LinkedIn Training, issued February 2025.

Certified in courses utilizing good data management skills, to conduct reproducible workflows and visually pleasing graphs and tables.

2022 **ATV Rider Course Certification**

ATV Safety Institute, issued Jul 2022. Credential ID 2681250

Certified online and on-site training to handle all terrain vehicles in various conditions, safely, while performing field work.

2014 **OSHA 10 Hour Safety Certification**

OSHA, issued 2014

Certified in OSHA 10 hour safety training, ensuring adherence to safety and response protocols in field and lab environments.

Skills: Wetland sampling, Flux tower maintenance, herbicide application, data management, coding-r, remote sensing interpretation, noxious weed identification, open lands restoration, heavy equipment/vehicle.

MEMBERSHIPS

2025 **American Geophysical Union (AGU)**