



**ECOSYSTEM SCIENCE
AND SUSTAINABILITY
COLORADO STATE UNIVERSITY**

PhD-researcher for interdisciplinary study of international wetlands

Start Date: Fall 2024

A PhD-level graduate student is requested to help with an interdisciplinary project that combines remote sensing analysis of transboundary wetland hydrodynamics with integrated policy analysis.

Project Description: Global wetlands without adequate management and policy protections are at extreme risk of loss through land-use conversion, sedimentation, excessive water extraction or water diversion. In transboundary contexts, developing and implementing policies for internationally-shared wetlands is especially complex because models that serve as decision support tools require consistent datasets that cross borders, and these are often rare and difficult to acquire. Shared wetland management also depends on coordination at multiple levels of governance. Remote sensing informed open-source models can help reduce these knowledge gaps because they rely on global spatial data with consistent collection methods and regular returns.

For this research, the PhD student will create an open-source method for mapping wetland surface area and inundation patterns from freely-available satellite data, and then use this information to (1) characterize the transboundary wetland hydrodynamics and (2) understand the role of transboundary wetlands in providing shared ecosystem services. The student will also examine the landscape of institutional arrangements that address transboundary wetland governance and identify opportunities for improved wetlands management. This proposed interdisciplinary research will provide a first-step toward solving transboundary challenges through a combined eco-informatics, remote sensing and social science effort that will reduce gaps in our understanding of the role of wetlands in international water system sustainability.

Location: Department of Ecosystem Science and Sustainability, Colorado State University, Fort Collins, CO, USA

[Ecosystem Sustainability Graduate Program at CSU](#)

Many physical, ecological and social factors interact to shape the future of our ecosystems and societies. CSU's innovative graduate program in Ecosystem Sustainability enables students to develop core competencies in ecosystem science—the study of organisms and the environment from a systems perspective—and apply that knowledge to address real-world issues. We help develop leaders in sustainability science: a new generation of practitioners able to address complex, integrated social and ecological problems, in collaborative partnerships with researchers, resource users and decision-makers.

Our graduates have the tools to understand complex scientific questions in sustainability, and the leadership and collaborative skills required to address current and future issues in sustainability. The program serves as a foundation for a wide range of careers, including academic and scholarly professions, and work in government agencies, non-governmental organizations, and corporate and entrepreneurial environments.

Join us, and you will work at the cutting edge of new research on ecosystem sustainability. Collaborating with some of the world's leading ecosystem and sustainability scientists, you will explore solutions to global problems related to water resources, food supplies, energy, greenhouse gas management, land use change, climate change, and environmental justice, amongst others.

The Department of Ecosystem Science and Sustainability in the Warner College of Natural Resources is committed to inclusion in our instruction, research, service, and outreach. Warner College and ESS members hold themselves accountable for fostering a college community rooted in inclusive mindedness. Warner and ESS students, faculty, and staff uphold and embrace CSU's principles of community: respect, inclusion, integrity, social justice and service. Everyone is welcomed. The Warner and ESS communities recognize the disparities that exist within the field of natural resources and therefore call on individuals whose passions and work align with our college's effort to make change. Warner College and ESS supports an environment where identities, cultures, experiences, and ideas are recognized, valued, and appreciated.

Required Experiences and Skills: Master's degree or relevant work experience; Past experience with remote sensing or geospatial analyses; Interest or experience in building interdisciplinary skills at the intersection of biophysical and social sciences; An interest in gaining teaching experience related to subjects in ecosystem and watershed science topics.

Desired Experiences and Skills: Experience coding in R or Google Earth Engine; Experience with machine learning, reproducible research, git/code versioning; Experience with ecosystem evaluation of water or wetland environments; Experience in policy analysis or qualitative content analysis, Experience conducting research on international contexts, Knowledge of international water law frameworks; Experience writing scientific documents, such as journal articles; Prior teaching experience.

Position Funding: The PhD position comes with 3 years of TA support. As a TA, the student will be responsible for working 20 hours/week during the Fall and Spring semesters as a teaching assistant for assigned courses (to be determined) in CSU's Department of Ecosystem Science and Sustainability. Summer support will also be provided during the initial 3 years. The student will be co-advised by a team of interdisciplinary faculty (Dr. Jessica O'Connell and Dr. Tamee Albrecht).

Stipend: The Teaching Assistant stipend is \$1,969 monthly (subject to change at the University level), including summer, initially budgeted for 3 years, plus health insurance.

Application details:

To apply, please send the following documents (in a single pdf) by March 1 to tamee.albrecht@colostate.edu and jessica.oconnell@colostate.edu:

- Cover letter describing your interest in the position as well as relevant skills and experience (max 2 pages)

- CV or resume
- Writing sample (sole or lead author)
- Name and contact information for three professional references

The successful candidate will need to submit an official application via the CSU Graduate School Admissions portal at <https://gradadmissions.colostate.edu/apply/> after notification of selection for Fall 2024. Applicant may choose to apply under one of two programs offered by the ESS Department – either to the “Ecosystem Sustainability PhD” or to the “Watershed Science PhD.” Please visit <https://warnercnr.colostate.edu/ecosystem-sustainability-apply/> to view full application instructions. Please note that the GRE requirement has been waived.