



UNH Sustainability Institute

Sustainability Fellowship Coastal Groundwater Impacts Durham, NH

Sea levels rise predictions in NH and other coastal states have spurred crucial awareness of the need to protect coastal infrastructure; in NH, efforts are underway to protect coastal infrastructure from the projected sea level rise of up to 6.6 feet by 2100.

However, one indirect impact of coastal sea level rise that has *not* yet gotten the focus it warrants is the ability of sea level rise to drive changes in groundwater levels. Groundwater levels may change due to buoyant fresh water groundwater rising as deep saline water rises with sea level rise. Groundwater rise extends much further inland than the typical mapped inundation extent of sea level rise on the ground surface—resulting in potential impacts to ecosystem services, residential drinking water and wastewater treatment, as well as planning and zoning policies.

The Coastal Groundwater Impacts Fellow will work with a team of cutting-edge UNH researchers, using (existing) projections of future groundwater changes due to sea level rise to map changes to coastal wetlands. Deliverables will include the following:

- GIS maps of current and future wetlands in coastal New Hampshire
- Documentation of methods used
- Draft manuscript of article about the new wetlands maps
- Draft presentation about the new wetlands maps
- Some field work for validation may be conducted as well.

This project provides an opportunity to work on cutting edge new research that will have significant impacts for planning and policy in the New Hampshire study region, as well as helping to lay the foundation needed to extend this analysis to the entire eastern seaboard. Upon completion of the project, the Fellow will have enhanced knowledge of groundwater modeling, wetlands, and sea level rise; and will be able to include a refereed journal publication and a conference presentation as part of his/her CV.

Location: UNH Center for Infrastructure Resilience to Climate; Durham, NH

Time commitment: 40 hours per week, June 5-August 18, 2017

Compensation: \$6000 stipend

Desired Qualifications:

- Academic background in a related field (e.g. Engineering, Environmental Science, Math or Physics)
- Familiarity and experience with GIS tools and methods
- Excellent written and verbal communication skills.
- Previous research experience highly beneficial

UNHSI Sustainability program eligibility:

Graduate students, exceptional undergraduate students, and recent graduates are eligible. We will encourage, but not require, an academic sponsor or reference for each fellow, and where possible we will ask that course credits are awarded.

Supervision, Training, Mentoring and Evaluation

This fellow will receive supervision from Dr. Jennifer Jacobs and Jo Daniels, as well as mentoring and extensive professional development offerings from UNHSI.

Fellows will be expected to participate in three MANDATORY events:

- A three-day, two-night orientation in Durham, NH, May 31st- June 2nd. Lodging and food are provided; Fellows are responsible for any associated travel costs.
- Midterm project presentations to UNHSI staff, faculty and relevant project partners (can be done remotely).
- A summative evaluation and feedback session at the end of their placement.

Apply by February 17th at www.sustainableunh.unh.edu/sustainability-fellows