Natural Capital Project
Internship position
Hydrological analysis of the Cape Fear watershed, NC

The Natural Capital Project is a partnership among Stanford University's Woods Institute for the Environment, University of Minnesota's Institute on the Environment, The Nature Conservancy, and World Wildlife Fund developing approaches for modeling ecosystem service change across land- and seascapes. We seek a motivated and diligent intern to support work with The Nature Conservancy in North Carolina on a project in the Cape Fear watershed, NC. Concerns about water quality in this region have led planners to consider setting up a water fund, a financial mechanism for investing in watershed conservation. Our work aims to i) identify the largest sources of pollution (N, P); ii) assess the risk for water utilities to see further water quality degradation in the future; iii) assess the impact of alternative land uses on the water quality of the Cape Fear watershed. The InVEST (Integrated Valuation of Environmental Services and Trade-offs) tool will be used in tandem with extensive hydrological datasets, which provides the Natural Capital Project with a unique opportunity to validate and test our models in a real decision setting.

The successful candidate will process and summarize hydrological data (streamflow and nutrient concentration) available in the Cape Fear watershed, and use these observations to calibrate InVEST water yield and nutrient retention models for the whole watershed. If time permits, further analyses may be conducted including spatial and temporal trends in streamflow and water quality to better understand nutrient transport in the Cape Fear watershed.

Main tasks:
- Conduct brief geospatial analyses to select the monitoring points used in the study
- Extract time series (streamflow, precipitation and nutrient concentration) from the online databases
- Process and summarize the data at an annual time step (including spatial interpolation of precipitation data)
- Calibrate InVEST water yield and nutrient models over the whole study period
- Conduct further temporal and spatial analyses (if time permits)

Required qualifications:
- Bachelor's degree in Science or Engineering
- Experience with hydrological data management (processing time series of streamflow, concentration, etc.)
- Basic familiarity with hydrological modeling
- General knowledge of GIS software for spatial interpolation of data
- Experience working with collaborators from diverse backgrounds and the capacity and interest to work with interdisciplinary teams
- Strong interest in environmental management

Start date: September 21st (or earlier)
Duration: Two months
Compensation: Commensurate with experience
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