Collaborative Post-Doc Opportunity:
"Modeling community benefits of environmental restoration for coastal communities"

National Socio-Environmental Synthesis Center (SESYNC)
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Application deadline: **April 15, 2014**.

This is a research collaboration between the National Socio-Environmental Synthesis Center (SESYNC) and the U.S. EPA Office of Research and Development. Interested candidates should visit http://www.sesync.org/opportunities/postdoc-2014 for program and application details.

The U.S. Environmental Protection Agency, Office of Research and Development, Mid-Continent Ecology Division (Duluth, MN) is seeking a Collaborative Post-Doctoral Research Associate with expertise in social or economic valuation to join Dr. Joel Hoffman in an ongoing research project to model community benefits from sediment remediation and ecological restoration projects (www.epa.gov/med/tasks/task2-1-4-4.htm). The project is part of EPA's national research program on Sustainable and Healthy Communities (www2.epa.gov/aboutepa/about-sustainable-and-healthy-communities-research-program).

The candidate is expected to work with a diverse team of natural scientists (expertise in aquatic ecology, biogeochemistry, ecotoxicology, landscape ecology, GIS analysis) to develop valuation approaches for the ecosystem goods and services associated with coastal habitat restoration. As part of this effort, we wish to develop methods to predict both biophysical change and community-related outcomes from a potential restoration project, and to apply the method to one or more restoration projects proposed for Great Lakes coastal communities. The collaborative research entails geospatial modeling of the biophysical change from a proposed restoration project, evaluating the corresponding change in ecosystem goods and services (e.g., carbon sequestration, flood protection, recreational activity, fishing), and subsequently valuing those goods and services. Specific research responsibilities include leading the valuation aspect of the project to further develop this ongoing research program, and developing a framework that can enable decision-makers to use the projections and valuation in a real-world context. The research project can accommodate a variety of valuation approaches. The candidate is expected to participate in a case-study in the Great Lakes region that will provide the opportunity to model and evaluate various restoration scenarios, as well as to work with community and agency decision-makers to apply and test the framework. The abilities to work independently and collaborate are important. We seek an individual who welcomes

the opportunity to use diverse geospatial data (social, economic, ecologic) to develop a broad perspective on the rationale, effects, and benefits of ecological restoration.

Relevant questions include (but are not necessarily limited to):

- How do we best measure ecosystem goods and services to estimate benefits?
- How could we measure restoration success for communities?
- What geospatial and community data are needed to assess community benefits from ecosystem goods and services?
- How does the objective of stimulating community benefits change the structure and focus of remediation and restoration efforts?
- To what extent does the kind of remediation and restoration undertaken determine community benefits?

Collaborators at the Duluth lab are internationally recognized for their research in aquatic ecology, landscape ecology, and ecotoxicology. To date, the project has achieved the ability to map over 40 different ecosystem goods and services associated with ecological restoration. We expect that the candidate will participate in a case study of the St. Louis River restoration. The Duluth lab has compiled extensive geospatial data on the St. Louis River, one of the largest restoration sites in the Great Lakes region (targeting ca. 2,000 acres), including census, property, political, land use, land cover, amenities, and biophysical data. The St. Louis River is home to the largest freshwater estuary in the Great Lakes. The newest NOAA national estuarine research reserve (NERR), the Lake Superior NERR, is located in the St Louis River estuary. Goals of the restoration include improving habitat and water quality, reducing exposure to legacy contaminants, and recovery of species of concern (http://www.epa.gov/grtlakes/aoc/stlouis/index.html). Collaborators at the Duluth lab are able to provide access to federal, tribal, state, and municipal decision-makers involved in restoration planning. We seek a candidate who can engage in research questions surrounding the valuation of ecosystem goods and services (not necessarily a monetary valuation), and who has an interest in developing decision-making tools to aid sediment remediation and environmental restoration.