

**U-M Biosciences Initiative**  
**Biological Systems on the Edge: Leveraging Nature-based Solutions**  
**to Address Global Challenges**

Communities, societies, corporations, and governments confront unprecedented risks from accelerating climate change, which is impacting ecosystem services, economic output, biodiversity, ecosystem resilience, carbon and surface energy fluxes, and human health and well-being. These impacts are pushing vast areas of the planet into new and precarious socio-ecological states. These ‘*biological systems on the edge*’ act as the ‘canary in the mine’ —early warning signs of drastic and possibly irreversible changes.

**Nature-based Solutions (NbS)**, which involve coupled socio-ecological interventions to retain and enhance carbon (C) stores and sinks represent a key opportunity. However, effectiveness of NbS in reducing emissions is undermined by critical knowledge gaps in C cycle science, inadequate access to relevant data and experience, unpredictable effects of behavioral and institutional changes, injustices and inequalities in intervention design, and uncertainties about the resistance and resilience to climate change of the very coupled human-natural ecosystems proposed as solutions. **To better address these needs, the University of Michigan Biosciences Initiative (BSI) [biosciences.umich.edu](https://biosciences.umich.edu) is offering an Ideas Lab funding opportunity, seeking high-risk, high-reward ideas in the area of NbS and strategies used to mitigate climate change while minimizing biodiversity loss and social injustice.**

Through the 2023 BSI Ideas Lab, we aim to (1) understand and predict how climate change and other stressors interact with biophysical and socio-economic systems to alter the vulnerability and resilience of biological systems on the edge; (2) use this knowledge to generate effective ecosystem-based approaches to address climate mitigations while simultaneously providing benefits for people and the planet. These approaches operate at a range of scales and focus areas, including but not limited to: protection, restoration, or management of terrestrial and aquatic ecosystems; sustainable management of working lands such as croplands or timber lands; the creation of novel ecosystems in and around cities. The possible systems, solutions and strategies worth examining are diverse and numerous.

**BSI is seeking researchers from many different fields across campus to participate in this exciting funding opportunity.** At the Ideas Lab, researchers selected through this competitive program will form interdisciplinary teams and develop proposals detailing high-risk, high-reward cutting-edge research on NbS. Faculty from diverse disciplines are encouraged to apply. These include tenure-track and non-tenure-track faculty from across the natural sciences (including biological and physical sciences), social sciences, engineering, data and information science, business, humanities, architecture and planning, and more. Researchers will participate in a three-day workshop, Oct. 15-17, 2023, at the Eagle Crest golf course in Ypsilanti, Michigan. This intensive, interactive workshop is based on the National Science Foundation Ideas Lab paradigm and focuses on identifying key opportunities and forming effective interdisciplinary teams. **BSI has committed \$3 million for the ~3-5 transformative research programs developed by participants in this U-M Ideas Lab.**

**Apply to participate in the 2023 Ideas Lab summit via the following [link](#) by Sept. 11, 2023.** We encourage and welcome all U-M Ann Arbor faculty to apply, especially junior faculty and members of underrepresented groups. Prior work in nature-based solutions is not a requirement for acceptance. We are seeking novel rather than incremental approaches to these grand challenges.

To learn more about this 2023 Ideas Lab, contact Peter Reich ([preich@umich.edu](mailto:preich@umich.edu)) or Josh Newell ([jpnnewell@umich.edu](mailto:jpnnewell@umich.edu)) or **visit our website, where details can be found at [biosciences.umich.edu/funding-opportunities/ideas-lab/](https://biosciences.umich.edu/funding-opportunities/ideas-lab/).**