Coastal Resilience

The University of Virginia's Pan-University Resilience Initiative draws on strengths from all schools and catalyzes multi-disciplinary research with actionable outcomes.

Research and Impacts

- **Living Shorelines**: UVA's Virginia Coast Reserve Long Term Ecological Research Program has been collecting data on coastal change for nearly 30 years on Virginia's Eastern Shore. Research integrates long-term data and experiments with models to address how natural ecosystems (wetlands, lagoons, barrier islands) increase resilience of coastal communities to sea-level rise and storms, and support aquaculture.

- **Integrating Natural Systems Models with Management**: Models of ecosystem vulnerability to future scenarios of climate change are integrated with community adaptation decisions. The models are used to develop an on-line decision-support tool (The Nature Conservancy's "Coastal Resilience Tool") to assess vulnerability and resilience to sea-level rise and storms.

- **Resilient Urban Infrastructure**: UVA's Center for Transportation Studies has identified the 10 most critical roadways vulnerable to flooding from sea-level rise in Norfolk and Virginia Beach. "Smart" sensor and information networks are being developed to improve flood-warning systems. Integrated civil infrastructure and environmental system models are used to improve predictive capability, preparedness and resilience of urban communities.

- **Urban Design to Reduce Coastal Flooding Impacts**: Interdisciplinary teams of planners, architects, engineers, environmental and social scientists, and health professionals are redesigning urban landscapes to accommodate coastal flooding with minimal impact, reduce economic costs, and confer health benefits. Norfolk's Harbor Park is one example.

Community Engagement

- **Environmental Conflict Resolution**: UVA's Institute for Environmental Negotiation hosts community sessions and policy focus-group discussions on recurrent flooding, and potential relocation strategies in partnership with the Planning District Commissions of Hampton Roads, Accomack and Northampton Counties, Wetlands Watch, VIMS, ODU, and the city of Virginia Beach.

- **Participatory Simulations**: UVA's Center for Large-Scale Computational Modeling is a national leader in developing interactive multi-media game technology for visualization of environmental change and stakeholder collaboration. The Coastal Resilience game platform allows players to take roles of key stakeholders, make decisions based on their livelihoods or regulatory authority, and discover the economic and environmental impacts of their actions.

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