Flooding and the Built Environment: Green Infrastructure, A Different Way of Building

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OLD DOMINION UNIVERSITY

Mission

The Institute for Coastal Adaptation and Resilience advances the practice of coastal resilience and adaptation by engaging with communities, organizations, and businesses to develop and deploy solutions based on integrated, innovative, and applied research.

Vision

ICAR catalyzes the action needed to build vibrant communities, strong economies, and healthy ecosystems across the Commonwealth of Virginia despite natural hazards and climate change.

INSTITUTE FOR COASTAL ADAPTATION & RESILIENCE℠

Resilience Leadership at ODU

Positioning ODU toward applications as society moves to resilience and adaptation action

- Sea level rise and climate science
- Flooding and the built environment
- Health dimensions of resilience
- Social science and policy

Innovating Solutions in our Natural Testbed on Flooding and the Built Environment

- Working with communities to envision their future
- Examining adaptation & resilience challenges to develop synergistic solutions
- Connecting the Innovation/Commercialization components to Resilience Research, Outreach, Education, & Adaptation
- Educating adaptation & resilience professionals including Green Collar and Professional Workforce

Interinstitutional Partnerships for Science, Policy and Applications

Coastal Community Design Collaborative

- Partnership between **Hampton University and Old Dominion University**.
- A cross-disciplinary, cross-university concentration in the emerging field of adaptation to sea level rise.

Launching a Coastal Resilience and Adaptation Economy

Coastal Resilience and Adaptation Economy Project

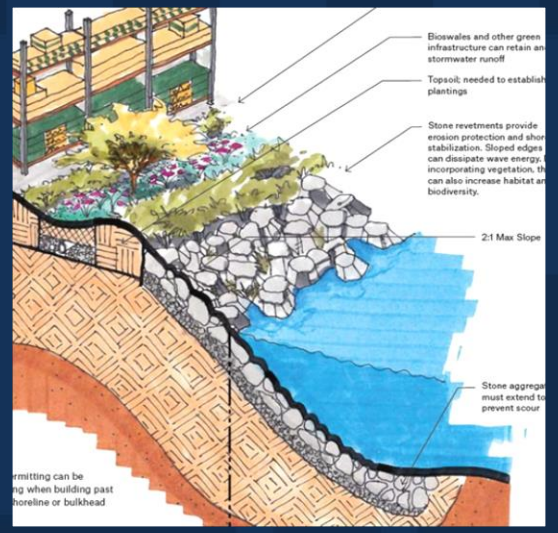
- Partnership between **Virginia Sea Grant, RISE, the Middle Peninsula Chesapeake Bay Public Access Authority, and Old Dominion University**.
- Targets entrepreneurial and business accelerator activities and engages business community in Go Virginia Regions 5 & 6 on building the resilience economy and preparing businesses for a future with water.

Coastal Community Design Collaborative: Adaptive Design at the Community Scale

- Guiding principles: focused on community, managing water at the neighborhood scale, preference for green infrastructure over gray infrastructure.
- Have completed projects Norfolk, Virginia Beach, Portsmouth and Hampton.
- Currently working in Aberdeen Gardens, Hampton collaborating with Wetlands Watch.

CoVA Adaptation & Resilience Consortium

- Engaging the **broader business** communities
- Providing opportunities for growth and diversification of the coastal adaptation & resilience sector
- Preparing businesses for a future with water thru **education and best practices**
- Catalyzing growth in new and existing firms.



Shoreline protection

Elevate electrical systems

ODU Green Infrastructure Implementation

- Adoption of green infrastructure across campus for co-benefits of TMDLs and stormwater control.
- Strategies include rain gardens, permeable pavements, cisterns, dry wells, tree canopy, and wetland restoration.
- Green infrastructure walking tour highlights implementation and has been used for the green infrastructure training.

Colley Bay Wetland Restoration Project

Supporting the Commonwealth's path forward through ICAR-CBF partnership

What is possible on resilience and adaptation?

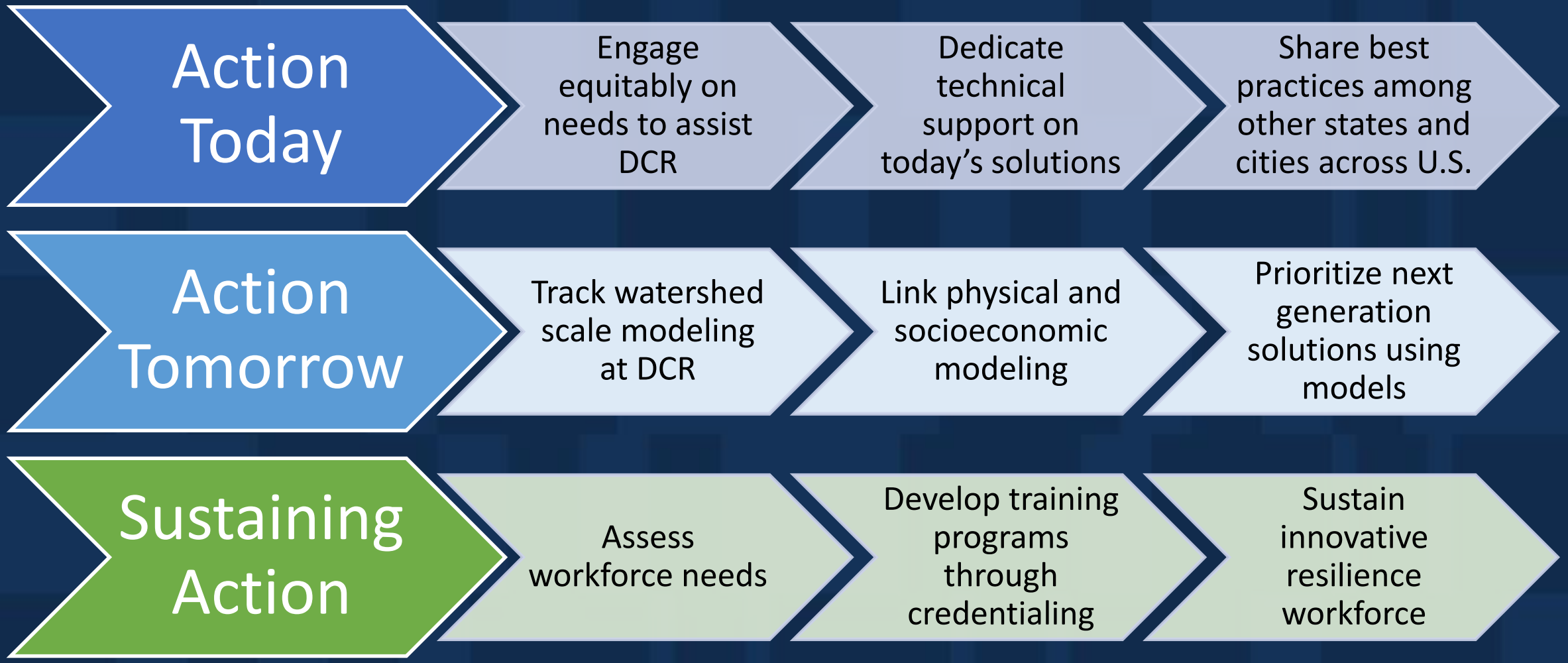
What is feasible - most judicious use of resources? Highest ROI?

What gives the most benefit - and benefits both people and the Bay?

(photo: John Mcray)

(photo: Nicole Hutton)

ICAR-CBF pathways to success



University-based technical assistance filling capacity gaps

- GIS/Geospatial Analysis (visualizing problems, finding local and regional solutions)
- Civil Engineering (natural based features, hydrologic modeling)
- Economics and financing (natural resource economics, impact studies, prioritization)
- Planning and integration (making plans and designs work together, working across political boundaries, ensuring equity and inclusion)

ODU and CBF Innovate Training for the Resilience Workforce

- Unprecedented funding needs public and private sector workforce to spend it - on pace and wisely
- Practice-based knowledge *and skills* of today and tomorrow:
  - Non-credit online credentials (degrees, certificates, badges, etc.) for practitioners who need to design and execute projects NOW
  - Traditional credit programs for traditional students to sustain future workforce
- Credentialing can become a sustaining revenue source for ICAR outreach activities in the Commonwealth

Building capacity for green infrastructure for a Resilient Commonwealth

- Catalyzing action today through building capacity for projects that balance people and the Bay
- Visioning the action of the future through innovation and prioritization
- Sustaining action through building resilience capacity of existing workforce and tomorrow's resilience professionals

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