Coastal Resilience Research to Support Policy

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Research to support coastal planning and decision making in the face of climate change & sea level rise

Examples:

I.   Blue Carbon ("Triple Win")

   a.   Salt marsh, mangroves and seagrasses sequester and store large amounts of carbon

   b.   Losing them (0.7-7% per year) →Impressive sinks become substantial sources when destroyed

   c.   Growing national and international attention on blue carbon and coastal conservation and restoration for climate mitigation

   d.   Incorporating blue carbon into US federal policies could improve outcomes

      a.   Higher mitigation ratios required to offset soil resources as well as living resources

      b.   Could result in more wetland conservation or restoration (Sutton-Grier et al., 2014, Pendleton & Sutton-Grier et al., 2013)

Priority Agenda
Enhancing the Climate Resilience
of America's
Natural Resources
COUNCIL ON CLIMATE PREPAREDNESS AND RESILIENCE

II. Green & Hybrid Infrastructure

a. Marshes, mangroves, beaches, dunes, barrier islands, and reef ecosystems plus combinations of green and gray (hybrid)

b. Reduce storm surge and erosion providing important disaster risk reduction

c. Provide many co-benefits not provided by built infrastructure and provide these benefits all the time (not just during a storm)

d. Should be a larger part of coastal management and risk reduction planning (Sutton-Grier et al., In Review)

III. Nature/Biodiversity-Human Health & Well-being Relationship

a. Range of positive health effects from exposure to nature

b. Some evidence to suggest exposure to more biodiverse nature leads to greater health benefits

c. "Biodiversity" or "Hygiene" hypothesis: lack of exposure to diverse nature is making us sick (improper immune system function, higher prevalence of disease and allergies)

d. Place human health at center of urban planning → double win because we can enhance human health and gain more support for biodiversity conservation and restoration (Sandifer, Sutton-Grier, and Ward, 2015)

Potential Uses at NCEP

- Many potential connections between climate predictions and anticipated impacts on ecosystems
  - Loss of ecosystem services
  - Impacts to economies
  - Human health impacts
- Many implications for the resilience of coastal communities & ecosystems, and therefore to policy, management, and decision making