SW Florida Climate and Community Initiative

Facilitation Topic: Improving the Resilience of Our Coastal Interface

Background:

The coastal interface can be thought of as where the land and ocean meet (e.g. estuaries, beach shorelines, tidal wetlands). This includes important coastal habitats that provide a suite of benefits that we value or depend on. For instance, mangroves provide important nesting and nursery grounds for birds and fish, contribute positively to water quality, and help to reduce coastal erosion. But many of these same habitats also provide invaluable functions related to storm protection and water management. Mangrove forest, oyster beds, sea grasses, and corals slow down incoming wave energy. Salt marshes filter runoff from the land and prevent associated excess nutrients from entering the ocean. Additionally, PEW Charitable Trusts found that one acre of a salt marsh is able to mitigate flood damage by absorbing up to 1.5 million gallons of floodwater.

Climate change exposes these coastal habitats - along with nearby upland habitats and human communities - to current and future stressors. Sea level rise can be associated with many issues surrounding the coast, including high tide flooding, and subsequent coastal erosion and introduction of saltwater into freshwater habitats and water supplies. Heavy rainfall events and intensifying hurricanes can result in wind and wave damage and additional flooding from stormwater and storm surge. Given the right conditions, some coastal habitats will keep up with impacts like sea level rise and shifting temperatures, while others will need to migrate inland to persist.

Many coastal communities are planning for these impacts and are searching for and implementing strategies designed to protect the coastline but often through the lens of prioritizing the preservation of built infrastructure. However, some of these solutions can further contribute to the loss of our natural coastal habitats that also provide additional protection along with a multitude of benefits we rely on. What options can we employ that can simultaneously and responsibly preserve and leverage our natural systems along with protecting our coastal communities and infrastructure? During our tabletop discussion, we will explore strategies that improve the resilience of our coastal interface and discuss and prioritize potential options.

Resources:
**Please review the resources below and explore two of the three that sound the most interesting to you.*

- NOAA's coastal green infrastructure tools interactive animation - This animation will introduce you to the idea of using green infrastructure (using natural ecological systems or components as living infrastructure to address community needs) to protect local shorelines and other resources like roads and buildings.
- Nature-based solutions to the hazards and impacts of climate change - YouTube video - While the tone is a little gloomy to start with, stick with this video to see some great visual storytelling. The video focuses on keeping natural systems healthy for protection against climate change and the additional services they provide.

- Southwest Florida Assesses Salt Marsh Vulnerability to Sea Level Rise | US EPA - This resource provides a local example of climate change impacts on salt marshes in Southwest Florida. Read the webpage to see how these marshes are affected and some recommendations for preserving/restoring them. A link to the full related study is available at the bottom of the page for more information.

Facilitation Questions:

- How do these impacts affect groups and communities differently?

**consider the loss of ecosystem services for coastal systems as part of those impacts*

- In your community, which of these strategies represent a good balance between protecting coastal systems and human communities/infrastructure?
- What would it take to get buy-in for these types of solutions for your community or for some of these different groups within your community?
- Out of the list of strategies we are discussing, which one(s) would benefit from pilot projects to demonstrate the success of a particular resilience strategy?

Strategy List:

- **Natural solutions**
  - Planting native trees/plants
  - Living Shorelines
    - Components can include: vegetation plantings, oyster shell, reef balls, etc.
  - Other versions of green or hybrid designs
    - Living seawalls
    - Reinforced sand dunes
  - Stormwater Best Management Practices
    - Biofilter
    - Rain gardens in parking lots
  - Pilot projects to show proof of concept
- **Restoration and modification of pre-existing coastal habitats**
  - Land conservation & acquisition
  - Options that allow for building up land/accretion
    - Thin layer placement
  - Exotic Species Removal- flora and fauna (e.g. Australian Pine, Melaleuca, Brazilian Pepper, wild hogs, berms, and coyotes)
    - Prescribed fire application on private lands
- **Policy**
  - Permitting cost reductions or exemptions for natural infrastructure restoration/maintenance
  - Ordinances
    - Limiting hardened infrastructure to particular locations or uses
    - Limiting zones of development
  - Building codes (Development and post construction)

        - Integration of tidal prisms into development requirements to reduce needs for restoration
    - Options that allow for migration of coastal habitats
        - Rolling easements
    - Innovative financing opportunities
        - Blue Carbon Credits
        - Insurance for Natural Capital