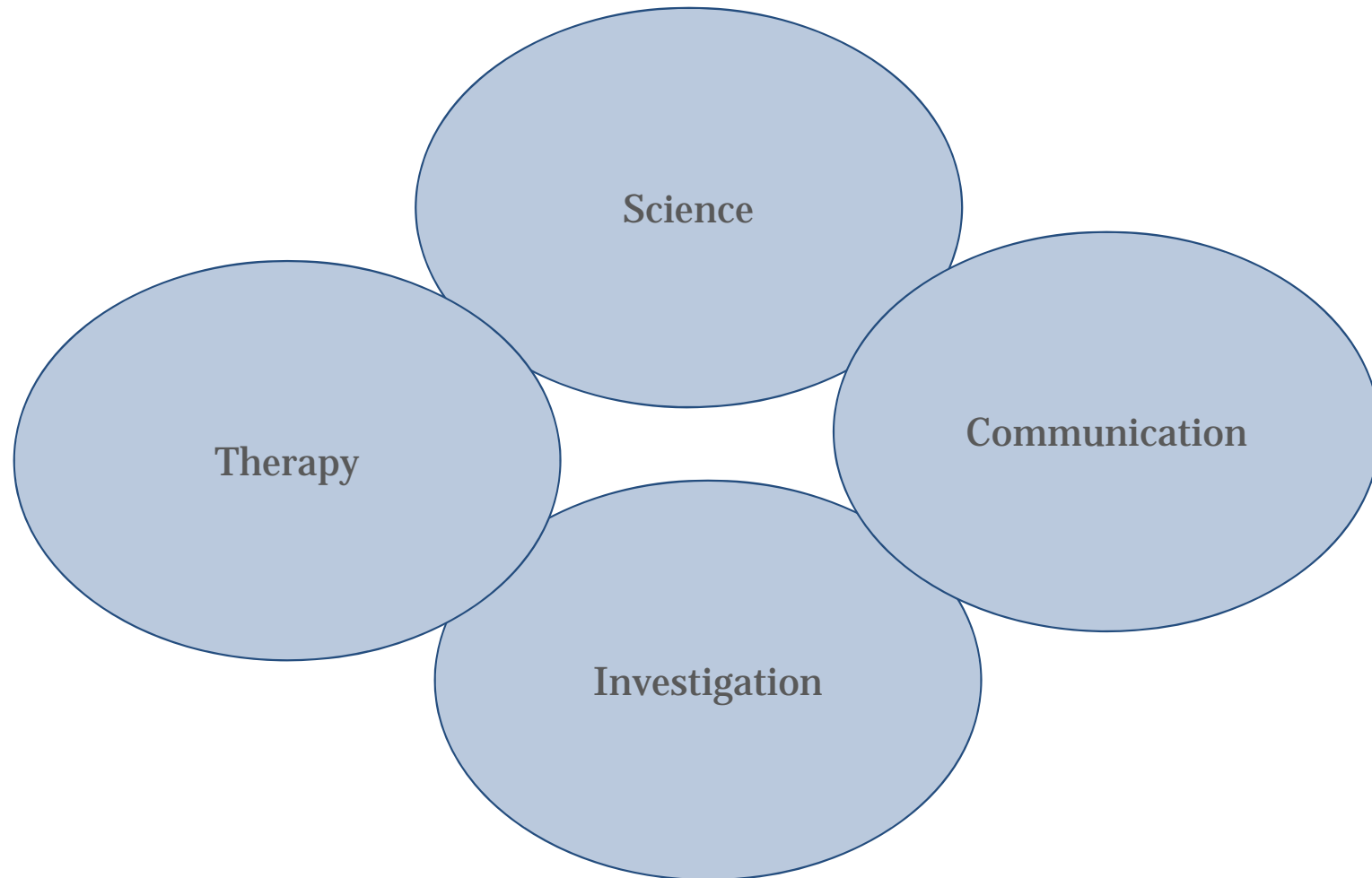




Wetlands and Shorelines

Jan Mackinnon

Public service = Interdisciplinary management



Shoreline management



LIVING SHORELINES SUPPORT RESILIENT COMMUNITIES

Living shorelines use plants or other natural elements—sometimes in combination with harder shoreline structures—to stabilize estuarine coasts, bays, and tributaries.



One square mile of salt marsh stores the carbon equivalent of **76,000 gal of gas** annually.



Marshes trap sediments from tidal waters, allowing them to **grow in elevation** as sea level rises.



Living shorelines improve **water quality**, provide fisheries **habitat**, increase **biodiversity**, and promote **recreation**.



Marshes and oyster reefs act as natural **barriers** to waves. **15 ft** of marsh can **absorb 50%** of incoming wave energy.



Living shorelines are **more resilient** against storms than bulkheads.



33% of shorelines in the U.S. will be **hardened** by **2100**, decreasing fisheries habitat and biodiversity.



Hard shoreline structures like **bulkheads** prevent natural marsh migration and may create seaward **erosion**.



Wetland monitoring and assessment

- Seasonal sampling of *Spartina* edge
 - Target - larval and juvenile finfish and invertebrates
 - Oyster habitat
- SLR monitoring
- Marsh dieback



Coastal Wetland Resiliency



Part of a larger programmatic effort to develop and support economically efficient beneficial use strategies for IWW throughout South Atlantic Division

Jekyll Creek Thin Layer Placement (TLP)



Research Needs

- ❑ Estuarine species and habitat vulnerability to SLR/climate change
- ❑ Mitigation
 - ❑ Ecosystem functional lift
- ❑ Estuarine shoreline management
 - ❑ Living shoreline alternative materials
- ❑ Thin Layer Placement
 - ❑ Is this really a resiliency strategy????
- ❑ Economic analysis of habitat ecosystem services
- ❑ Beach dynamics and profiling



20TH ANNIVERSARY