• Established in 1969 to help the USACE Civil Works Program analyze emerging water resource issues
• Not part of USACE Headquarters, or any specific Division or District
• Creative and forward-looking
• Provide research, problem-solving, and collaborative planning
• Decision-makers at all levels within USACE come to IWR for insight into a host of economic, environmental, and social challenges
IWR Coastal Initiatives

- Reduce coastal flood risks due to urbanization, erosion, sea-level rise, and severe storms
- Use a systems approach to build coastal resilience
  - Increase regional collaboration
  - Share expertise across disciplines
  - Maximize environmental and economic benefits
Systems Approach to Geomorphic Engineering (SAGE)

- Promotes the integration of green and gray solutions for coastal protection
- Understands shoreline changes in the context of natural coastal processes
- Builds partnerships to research, plan, design, and fund projects that increase the resilience of coastal communities
SAGE is a community of practice

• Collaborative effort between federal and state agencies, non-governmental organizations, academia, and private business & engineering firms

Among others…
National Work Groups

- Science and Engineering
- Metrics
- Policy
- Finance
- Communications
Regional Pilots

• Develop communities of practice that advance a regional approach to living shorelines and other natural features
  • Expand knowledge base of practitioners
  • Demonstrate the value of collaboration
  • Lead to increased number of projects

• Locations:
  • San Francisco Bay
  • Barnegat Bay
  • Chesapeake Bay
Barnegat Bay, New Jersey

- 75 mi² estuary, located in Ocean County
- Situated between the mainland and barrier islands
- Part of the National Estuary Program since 1995
- Open shallow water environment with ecologically valuable eelgrass beds
- Surrounded by freshwater and saltwater wetlands
Issues

• Wetland loss and shoreline erosion
• Reduced habitat for important species
• Shallow and poorly flushed, with high nutrient load
• Point and non-point source pollution
• Impacted by Hurricane Sandy
Barnegat Bay SAGE Pilot

• Coordinated with stakeholders to understand existing work in the region

• Assembled a Community of Practice

• Developed a regional strategy that identifies priority areas and funding needs

• Received a FHWA Green Infrastructure Grant to conduct research in one of the priority areas
Project Partners

- USACE- Institute for Water Resources
- USACE- Philadelphia District
- Stockton University Coastal Research Center
- Barnegat Bay Partnership
- New Jersey Department of Environmental Protection- Division of Fish & Wildlife
- New Jersey Department of Transportation- Office of Maritime Resources
- Jacques Cousteau National Estuarine Research Reserve
- Rutgers University Marine Field Station
Great Bay Boulevard Project

- Investigate physical conditions that initiate flooding
- Determine influence of the natural wetland system in protecting the highway
- Provide recommendations for use of green infrastructure solutions to lessen frequency and severity of flooding
Questions?

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SAGE Website:
http://sagecoast.org/index.html