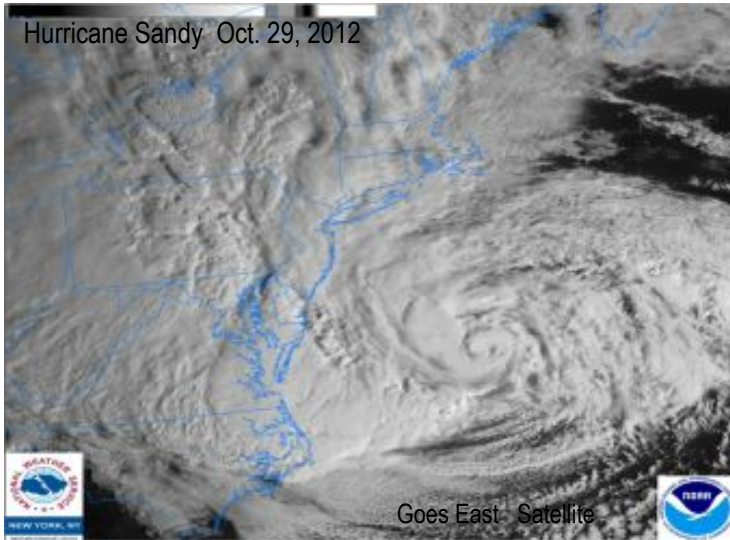


Weather, Water and Resiliency

Hurricane Sandy



After the Storm: Recovery

- Immediately after:
 - Hundreds of consultations
 - Corps and FEMA primary agencies
 - quick and informal,
 - focused on life, health and safety,
 - breach closures, debris (including houses, cars, boats) and sediment removal,
 - teamwork and cooperation among agencies
- FEMA – Natural Disaster Recovery Framework
 - Several recovery support functions: Community Planning and Capacity Building, Economic, Health and Social Services (HSS), Housing, Infrastructure Systems, Natural and Cultural Resource (NCR)



Recovery Planning

- Unified Federal Review – Sandy Recovery Improvement Act of 2013
 - <http://www.fema.gov/unified-federal-environmental-and-historic-preservation-review-presidentially-declared-disasters>
 - Expedited and unified interagency Environmental and Historic Preservation review
- Sandy Recovery Task Force – 2013 Rebuilding Strategy
 - Sandy Regional Infrastructure Resilience Coordination Group
 - Apply Infrastructure Resilience Guidelines to all Federal infrastructure investments and projects for Sandy recovery
 - Agency coordination – monthly, technical coordination teams.
- U.S Army Corps of Engineers North Atlantic Coastal Comprehensive Study
 - address flood risks of vulnerable coastal populations,
 - promote resilient coastal communities
 - support a sustainable and robust coastal landscape system, considering future sea level rise and potential impacts of climate change.
- HUD- Rebuild By Design, Community Development Block Grants

What is Resiliency?

- the ability to become strong, healthy, or successful again after something bad happens; the ability of something to return to its original shape after it has been pulled, stretched, pressed, bent, etc. (Merriam-Webster).
- Community resiliency is not the same as ecological resiliency
- Often, actions proposed to improve “resiliency” are intended to protect infrastructure, homes, etc. These actions can have negative effects on EFH and other aquatic resources.
 - Flood walls, tide gates, fill to raise infrastructure , sand dredging for beach nourishment
- Ecological resiliency considerations:
 - Marsh migration, sea level rise, subsidence

- Department of Interior/ National Fish and Wildlife Foundation – Hurricane Sandy Coastal Resiliency Competitive Grant Program
 - Over \$100 Million awarded to projects to assess, restore, enhance or create wetlands, beaches and other natural systems to help better protect communities and to mitigate the impacts of future storms and naturally occurring events on fish and wildlife species and habitats.
- NOAA Grants
 - NOS – Regional Coastal Resilience Grants
 - Focused on regional-scale projects that enhance the resilience of coastal communities and economies to effects of extreme weather, climate hazards, and changing ocean conditions.
 - NMFS- Coastal Ecosystem Resiliency Grants
 - dedicated to the development of healthy and sustainable coastal ecosystems through habitat restoration.
- SAGE – Systems Approach to Geomorphic Engineering a community of practice dedicated to protecting coastlines using both green (natural and nature-based) and gray (hard, structural engineering) approaches to make our coasts more resilient

Post Sandy Activities:

Beach Nourishment



Living Shorelines

“Thin Layer” placement of dredged material



Lessons learned

- Sandy resulted in a shift in thinking by many agencies
- Greater awareness of the impacts of extreme weather, climate change, and sea level rise.
- Results are mixed
 - Planning efforts/consultations are looking long term
 - Regulatory consultations do not
- Early coordination and communication is important
- Be open to new approaches, but keep expectations in line with reality.