



Coastal Adaptation to Climate Change

Background

The National Park Service (NPS) manages 12,000 miles of shoreline across 86 ocean and coastal parks. These areas currently experience effects from climate change, including reduced water levels in the Great Lakes, changing storm patterns, increasing ocean acidity, and melting permafrost. Parks in the coastal zone will be vulnerable as sea levels change. Climate change will amplify the existing dynamic nature of coastal and shoreline areas, threatening park resources, infrastructure, and public recreational opportunities. “Anticipatory planning” and engagement with local communities to consider new, more sustainable ways to provide visitor services and protect heritage resources in these dynamic environments are critical. Even if plans are not in place before storm events, recovery actions can employ new sustainability concepts. For example, implementing new ways of “doing business” is underway now as part of NPS recovery actions following Hurricane Sandy. Lessons learned from this effort, and projects underway in a variety of coastal and Great Lakes parks will inform next steps for climate change adaptation in these dynamic areas.

Approach

The NPS is working with scientists and other partners to develop local, landscape, and ecosystem-scale adaptation strategies that protect coastal resources and promote their long-term sustainability. The science-based and collaborative approach draws on goals and objectives outlined in the servicewide *Climate Change Action Plan*. Development of these coastal adaptation strategies entails:

- Support scientific research, inventory, and monitoring activities to gather data and improve understanding of climate and weather phenomena affecting coastal parks.
- Conduct risk and vulnerability assessments to identify projected impacts of climate and other stressors on park resources and operations.
- Develop guidance and tools to help NPS managers understand vulnerability and take actions that will increase sustainability, including actions that are compatible with the dynamic coastal environment.
- Develop educational materials to inform the public about the need for comprehensive, swift, and effective measures to help the NPS conserve ocean and coastal park resources for future generations.

Adaptation in the coastal environment involves cultural and natural resources as well as recreational, and transportation facilities. In undertaking this work, the NPS is leveraging servicewide assets and programs and collaborating with other agencies, jurisdictions, and external partners.



Shoreline erosion at West Ship Island, near Fort Massachusetts in Gulf Islands National Seashore. Coastal erosion is an on going issue in the Northern Gulf of Mexico barrier islands, exacerbated by stronger storm seasons associated with climate change.

Status and Next Steps

- Vulnerability assessments for sea and lake level changes published for 22 parks through a partnership with the USGS, in addition to **decision-support tool development** at Assateague Island National Seashore
- The NPS is developing a Coastal Adaptation Strategies Handbook for coastal area park response to effects associated with storms and sea level rise.
- Dr. Robert Young and Katie Peek completed **exposure to 1m of sea level rise assessments** for facilities in 40 coastal parks. Another 30 parks are under study.
- Dr. Maria Caffrey is leading a **project** to provide historical data and projections for sea level and storm surge for 118 park units.
- The NPS continues to evaluate construction projects in the coastal zone after Hurricane Sandy for adaptation to climate change.

More Information

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