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Climate Change Adaptation Resource Center (ARC-X)

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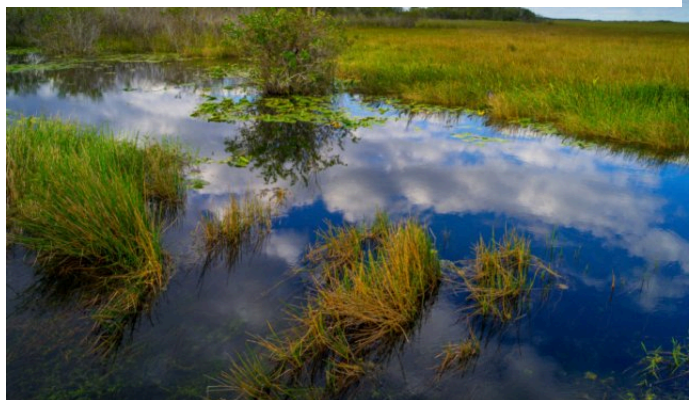
Southwest Florida Assesses Salt Marsh Vulnerability to Sea Level Rise

Salt marshes are vitally important to Southwest Florida. They serve as storm surge buffers, shoreline stabilizers and breeding grounds for wildlife. The 2018 National Climate Assessment projects that salt marshes are at risk both in Florida and around the country from anticipated climate impacts including relative sea level rise, coastal erosion, and more intense storms. The Charlotte Harbor National Estuary Program and Southwest Florida Regional Planning Commission, supported by an EPA

assistance grant, collaborated to assess the historic and current range of salt marshes in this region, and identify their vulnerability to changing climate conditions.

The Climate Change Vulnerability Assessment and Adaptation Opportunities for Salt Marsh Types in Southwest Florida study determined that the current pace of sea level rise appears to allow some locations for marsh migration on mainland shores, however “in other locations salt marshes are drowning where there is no location to move to.” The study further mapped these areas to better determine the barriers to movement and understand where salt marshes are able to, and in the future expected to, move as they adapt to higher sea levels. By providing information on expected migration and isolation areas, the report helps local governments identify priority conservation areas to preserve salt marshes and their associated benefits under current and future conditions. The study included recommendations that governments, stakeholder groups or the public could take as part of their adaptation strategies (e.g., protecting or armoring of shorelines).

<<https://epa.gov/sites/production/files/styles/large/public/2016-04/marsh.jpg>>



- Salt marshes <<https://epa.gov/wetlands/classification-and-types-wetlands>>
- 2014 National Climate Assessment [↗](http://nca2014.globalchange.gov/report/sectors/ecosystems) <<http://nca2014.globalchange.gov/report/sectors/ecosystems>>
- 2018 National Climate Assessment [↗](https://nca2018.globalchange.gov/chapter/7/) <<https://nca2018.globalchange.gov/chapter/7/>>
- 2023 National Climate Assessment [↗](https://nca2023.globalchange.gov/chapter/8/) <<https://nca2023.globalchange.gov/chapter/8/>>

How Did They Do It?	Applicable EPA Tools
<p>Identified climate vulnerability to salt marsh wetlands</p> <ul style="list-style-type: none">• Identified key climate risks to marshes including sea level rise, more intense hurricane and storm surges, saltwater intrusion, and greater levels of sedimentation or erosion.• Identified the most at-risk marsh land using a sea level response map scenario that considered the likelihood of land use protections (e.g. conservation designation) and residential adaptation responses (e.g., protecting or armoring shorelines).	<p>Being Prepared For Climate Change Workbook helps develop a risk-based climate change adaptation plan consisting of a vulnerability assessment and an action plan to reduce the most pressing coastal risks.</p> <p>Being Prepared For Climate Change Workbook <https://epa.gov/cre/being-prepared-climate-change-workbook-developing-risk-based-adaptation-plans></p>

How Did They Do It?	Applicable EPA Tools
<p>Developed actionable adaptation recommendations</p> <ul style="list-style-type: none"> Specific recommended actions for municipalities were to: <ul style="list-style-type: none"> Identify existing marsh migration corridors for maintenance and conduct further research to identify the highest priority corridors to protect from future development. Support restoration of existing salt marshes by removal of exotic vegetation, removal of barriers to tidal connection, and degradation of exotic dominated adjacent uplands. Discourage or stop shoreline hardening including seawalls, bulkheads, rip-rap, and "living shorelines" backed by rip-rap. Restore impaired water flows to enhance sediment supply for marsh deposition. Back-fill mosquito control ditches, borrow pits, and agricultural pits to reduce depth and sediment loss and facilitate salt marsh establishment and migration. 	<p>Synthesis of Adaptation Options for Coastal Areas Guidebook <https://epa.gov/cre/synthesis-adaptation-options-coastal-areas> helps identify climate risks to coastal ecosystems and review adaptation options available to coastal managers.</p> <p>The Rolling Easements Primer <https://epa.gov/cre/climate-ready-estuaries-rolling-easements-primer> provides a more in-depth review of a adaptation option applicable to protecting coastal marshes.</p>

Similar Cases and More Information

To see another example of how a coastal community assessed their vulnerability view the San Juan Estuary Programs Vulnerability Assessment Case or the Southeast Florida Climate Compact. Many coastal communities in the southeast may have to account for other climate vulnerabilities, such as threats to drinking and wastewater services. Saltwater intrusion, sea level rise and more intense hurricanes can threaten coastal infrastructure. To learn more about how another southeastern community adapted to saltwater intrusion and potential water quantity considerations see how Tampa Bay Water diversified their source water to promote resiliency to current and future conditions.

- San Juan Estuary Programs Vulnerability Assessment Case <<https://epa.gov/arc-x/san-juan-bay-estuary-program-assesses-vulnerability-and-targets-adaptation-measures>>
- Southeast Florida Climate Compact <<https://epa.gov/arc-x/southeast-florida-compact-analyzes-sea-level-rise-risk>>
- Tampa Bay Water <<https://epa.gov/arc-x/tampa-bay-diversifies-water-sources-reduce-climate-risk>>

References

- Climate Change Vulnerability Assessment and Adaptation Opportunities for Salt Marsh Types in Southwest Florida <<https://epa.gov/arc-x/climate-change-vulnerability-assessment-and-adaptation-opportunities-salt-marsh-types>>

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[EPA Contacts & State Websites <https://epa.gov/arc-x/epa-regional-climate-adaptation-contacts-state-websites>](https://epa.gov/arc-x/epa-regional-climate-adaptation-contacts-state-websites)

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