



Padre Island National Seashore

Project Descriptions

The Gulf Coast Network (GULN) conducts long-term ecological monitoring on four indicators of ecosystem health –called vital signs– at Padre Island National Seashore.

Water quality is measured with continuous autonomous sampling at two sites in the Laguna Madre: Bird Island and Baffin Bay. Autonomous measures are collected every 15 minutes and include water temperature, specific conductance, pH, dissolved oxygen and turbidity. Grab samples are taken every other month and analyzed for variables such as nutrients and chlorophyll, consistent with those used by the Gulf of Mexico Alliance.

Coastal geomorphology is monitored every other year in late spring. Shoreline position is recorded using ground-based GPS surveys of the entire gulf-side shore. GPS is also used to measure elevations across gulf-side beach/dune transects in five areas along the length of the island. These measurements can be compared over time to identify changes in island morphology.

Seagrass communities are monitored at 64 permanent stations in the shallow aquatic habitats of the Laguna Madre. At each station, four 0.5 x 0.5 m quadrats are visually assessed for percent cover and canopy height of all seagrass species present. Data are also recorded on environmental variables such as light availability, salinity, turbidity and depth. Fieldwork is completed through a cooperative agreement, in conjunction with the state-wide monitoring program.

Terrestrial vegetation is sampled within fixed 20 meter x 20 meter plots to determine the composition and condition over time of vascular plant communities. All plant species are identified, and in nested subplots, the relative frequency and percent cover of each species are recorded. All plots are sampled once every four years in the fall.

Across all vital signs, the network collects data at 98 permanent points and 23 permanent transects in the park. These locations are mapped on the next page.



The hypersaline Laguna Madre is a major natural feature of the park. In the Laguna's Nine-mile hole (pictured above), the network conducts seagrass monitoring.



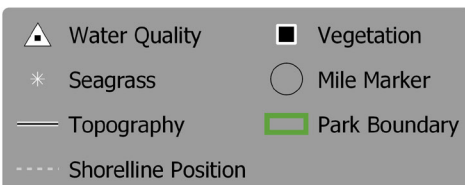
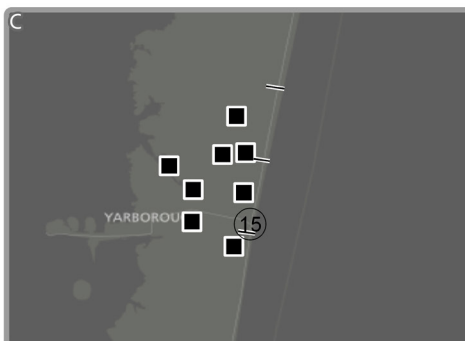
The beaches and adjacent habitats of the park are monitored through the coastal geomorphology protocol and the terrestrial vegetation monitoring protocol.

GULN Vital Sign	Number of Sampling Points	Sampling Frequency	Monitoring Start Year
Water Quality	2	15 Minutes, Every Other Month	2008
Coastal Geomorphology	23 transects, ~100km shoreline	Every Other Year	2017
Seagrass	64	Every 3 Years	2011
Terrestrial Vegetation	32	Every 4 Years	2019

Gulf Coast Network

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Inventory and Monitoring Division
National Park Service
U.S. Department of the Interior



For more information, visit <https://www.nps.gov/im/guln/index.htm>

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