Geomorphology and Depositional Subenvironments of Gulf Islands National Seashore, Perdido Key and Santa Rosa Island, Florida:

Tile 3: Eastern Santa Rosa Island

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The U.S. Geological Survey (USGS) is studying coastal hazards and coastal change to improve our understanding of coastal ecosystems and to develop better capabilities of predicting future coastal change. One approach to understanding the dynamics of coastal systems is to monitor changes in barrier-island geomorphology and coastal-erosion rates. Several studies have documented the effects of hurricanes and other disturbances on the geomorphology and sediment budgets of barrier islands. National research programs, such as the USGS Geomorphology and Depositional Subenvironments of Gulf Islands National Seashore, Perdido Key and Santa Rosa Island, Florida, are providing important insights into the processes that are responsible for coastal change. This report is a digital map that describes the following: (1) the study area, (2) the data collection methods, (3) the data analysis methods, (4) the data description, and (5) the data product. The study area is located on the northeastern coast of Florida, between the southern tip of Santa Rosa Island and the northern tip of Perdido Key (Figure 1). The study area includes the entire width of the barrier island and extends seaward to the 5-meter contour. The data collected during this study were used to create a comprehensive database of the geomorphic and depositional features of the barrier island.

The data were collected using various techniques, including aerial photography, LiDAR, and ground-based surveys. The aerial photography was used to map the barrier-island features, and the LiDAR data were used to create a digital elevation model (DEM) of the study area. The ground-based surveys were used to collect more detailed information about the barrier-island features, such as the location and extent of surficial features. The data were analyzed using a Geographic Information System (GIS) to create a digital map of the study area.

The data product is a digital map that includes a geomorphologic map and a depositional-subenvironment map. The geomorphologic map shows the location and extent of surficial features, such as the beach, dunes, and marsh. The depositional-subenvironment map shows the location and extent of depositional subenvironments, such as the active dune complex, the vegetated barrier core, and the inactive overwash zone.

The data product is a valuable resource for understanding the dynamics of coastal systems and for predicting future coastal change. The data can be used by scientists, engineers, and policymakers to develop better strategies for managing coastal hazards and improving the sustainability of coastal ecosystems.