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 changes. This approach to understanding the dynamic of coastal systems is to monitor changes in barrier-island subenvironments through time. This involves examining morphological and topographic change at temporal scales ranging from minutes to years and spatial scales ranging from tens of kilometers to meters. Of particular interest are the processes that produce those changes and the determination of whether or not these processes are likely to persist into the future. In these analyses of hazards and change, both natural and anthropogenic influences are considered. Quantifying past magnitudes and rates of coastal change and knowing the principal factors that govern those changes are critical to predicting what changes are likely to occur under different scenarios, such as short-term impacts of extreme storms or long-term impacts of sea level change.

Mississippi; The formation and disappearance of the Isle of Caprice: Gulf Coast Association of Geological Societies Transactions, v. 38, p. 343-349.


Further Reading


Project Description

Geomorphic and Depositional Subenvironments of Gulf Islands National Seashore: Title 1, Cat Island, Mississippi

By Robert A. Morton and Bryan Rogers


Jacobs Technology, Contracted to USGS, New Orleans, LA

Geomorphic and Depositional Subenvironments

- Active Dune Complex
- Stable Dune Complex
- Active Overwash Zone
- Inactive Overwash Zone
- Beach Ridge Complex
- Beach Ridge Spits
- Beach Ridge Swale
- Water
- Man Made Features
- Natural Features

Data Description

The barrier-island classification was referenced and mapped using September 2007 high-resolution enhanced aerial photography from the National Agriculture Imagery Program (NAIP). October 2007 low-altitude color videos of the Mississippi barrier islands acquired from Great Divide Pictures under contract to the National Park Service, and June 2007 1-meter-pixel resolution Experimental Advanced Airborne Research Lidar (EAARL) collected by National Aeronautics and Space Administration (NASA) and the USGS. Each geomorphic layer is stored in standard shapefile format viewable in any GIS software.

Classification Extent

Map Area

- Title 1, Cat Island, Mississippi

Classification Table

<table>
<thead>
<tr>
<th>Feature Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Dune Complex</td>
<td>Beach ridge-forming sand or dunes that are typically vegetated and lack significant vegetation.</td>
</tr>
<tr>
<td>Stable Dune Complex</td>
<td>Dunes that typically form in areas where dunes are not influenced by wind, waves, or tides.</td>
</tr>
<tr>
<td>Active Overwash Zone</td>
<td>Beach ridges that are subject to overwash by storm waves.</td>
</tr>
<tr>
<td>Inactive Overwash Zone</td>
<td>Beach ridges that are not subject to overwash by storm waves.</td>
</tr>
<tr>
<td>Beach Ridge Complex</td>
<td>Complexes of beach ridges that are typically vegetated and are subject to storm overwash.</td>
</tr>
<tr>
<td>Beach Ridge Spits</td>
<td>Spits that are parallel to the shoreline and are typically vegetated.</td>
</tr>
<tr>
<td>Beach Ridge Swale</td>
<td>Swales that are parallel to the shoreline and are typically unvegetated.</td>
</tr>
<tr>
<td>Water</td>
<td>Bodies of water that are not connected to the ocean.</td>
</tr>
<tr>
<td>Man Made Features</td>
<td>Features that are man-made and include buildings, roads, and other structures.</td>
</tr>
<tr>
<td>Natural Features</td>
<td>Features that are natural and include vegetation, topography, and hydrology.</td>
</tr>
</tbody>
</table>

Additional Notes

This map is not intended for use in navigation.