

Chandeleur Islands, LA

29°51'28.4"N 88°49'16.1"W

1. This location features a large barrier island, a tidal inlet to the south, a flood tidal delta landward of the inlet, and a back barrier marsh on the landward side of the island.
2. The dominant process in this location is from waves and storms, because the barrier is directly exposed to wave energy from the Gulf of Mexico. The island shows clear signs of chronic washover, there are washover fans and sand deposits along the whole beach. Additionally, there are portions of the seaward shore where water has breached through the island, connecting to the other side through shallow channels. When examining the timelapse of this location, there is evidence of transgression as the island moves slightly landward.
3. There are many probable hazards in this location. There is a popular fishing spot, Redfish Point, located just off the landward side of the island. This habitat area may be disturbed by further transgression or breaching of the island. Additionally, the barrier island chain plays a key role in protecting the Biloxi Marsh. The islands shelter the marsh from wave swells, and help regulate salinity levels in the estuary. If the island were to deteriorate, it would have dramatic impacts on wildlife in the marsh. Furthermore, the islands serve as one of the first lines of defense protecting the city of New Orleans from tropical storms.

Fort Myers, FL

27°33'10.8"N 82°44'42.9"W

1. This location features a large tidal inlet at the mouth of the Tampa Bay tidal estuary, with two ebb deltas in the middle of the inlet, the smaller Passage Key and the large Egmont Key. There are also two barrier islands acting as shoals on either side of the inlet.
2. This location is dominated by strong tidal currents. This is evident by the ebb tidal deltas that have formed at the mouth of the bay. The strong tidal energy also fuels the longshore transport along the southern barrier island, which moves sand towards the mouth of the bay, resulting in a spit that is growing out seaward from the northern tip of the barrier island. This also shows evidence of inlet bypassing, the sand from the growing spit appears to break off and merge with the ebb deltas further north, and sand from these deltas appear to be moving even further north and attaching to the southern end of the northern barrier island.
3. The bypassing of sand across the inlet may pose a threat to the beaches located updrift because the sand has to be coming from somewhere, leaving these systems sand starved. Additionally, the ebb deltas act as groins/breakwaters in protecting Tampa and St. Petersburg from strong tide/wave energy. If Egmont Key were to continue the migration of sand further north and attach to the northern barrier island it would change the overall circulation patterns within the bay and impact wildlife and human infrastructures.

Morgan City, LA

29°29'14.8"N 91°21'23.5"W

1. This location features a bay between the Wax Lake Delta on the West and the Atchafalaya Delta to the East. There are numerous distributaries branching from both of the river mouths, and a distinct channelization can be seen extending seawards. On the landward side, there is a growing delta plain, and on the seaward side the delta front can be seen amid the muddy water.
2. This system is river dominated. The Atchafalaya River carries a lot of sediment from the Mississippi River to the ocean, leading to accretion. The westward facing nature of the system likely contributes to the river dominance because wave and tidal energy is refracted and dissipated before it reaches the coast.
3. This accretion process could have potential drawbacks that impact other regions. The outlet feeding the Wax Lake Delta was artificially diverted from the Atchafalaya river, which means that sediment that was being distributed further downstream has been taken out of the equation. Without the necessary sediment to regenerate land lost to subsidence and sea level rise, existing deltas may start to flood heavily. This would definitely have an impact on many Louisiana residents living along these deltas.

The Hague, Netherlands

52°02'54.9"N 4°10'51.0"E

1. This location features an experimental large-scale beach nourishment project. There are two moderately sized tidal pools, an exposed longshore bar with some channelization between it and the foreshore, and a second sandbar submerged in the nearshore. There is also a fairly established foredune/backdune present, and what appears to be a series of groins towards the south moving towards a canal.
2. This system is dominated by wave energy. The Hague shoreline faces out towards the open North Sea, which means that the coast is constantly bombarded by waves. The Hague sediment budget didn't have the sand input needed to sustain the coastline, so the Sand motor project was initiated to combat rising sea levels. With the sand added into the system, a new peninsula was created. The peninsula stuck out from the natural shoreline, resulting in a harsher wave environment, however the wave energy is redirected toward spreading the sand out evenly with the goal of widening the whole shoreline and elevating the beach above sea level.
3. The sand motor project could have many negative impacts, The addition of such a large quantity of sand would definitely destroy some offshore wildlife habitats. Additionally, the newly formed sand bars could cause waves in the trough between the bars or between the bar and the shore that collide with each other resulting in rip currents. Also, the increased sand quantity inherently raises the risk of sand being blown in your face while you're trying to relax on the beach.