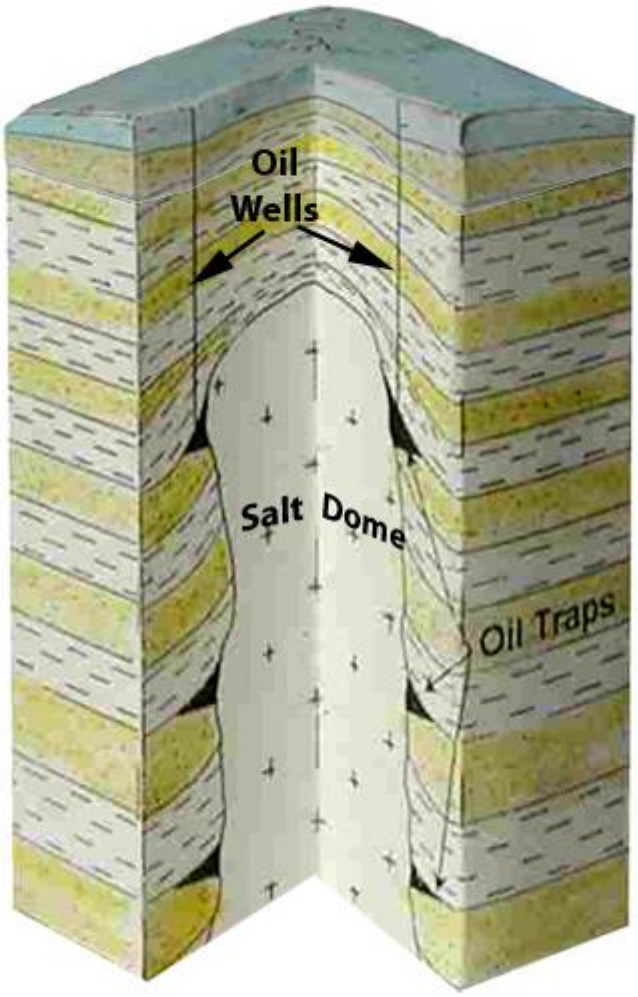
High Island, Atop a Salt Dome

High Island is an unincorporated community on the Bolivar Peninsula, northeast of Galveston Island. It gets its name from the fact that it's located above a salt dome, causing a mound that rises about 38 feet above the rest of Bolivar Peninsula. This makes it the highest point on the Gulf Coast, between Alabama and the Yucatán Peninsula. The term "island" is a figure of speech used to describe this and other Gulf Coast salt domes.

The High Island dome has been an important geological formation throughout the history of the Gulf Coast. Artifacts found on Bolivar Peninsula indicate hunter gatherers roamed the region for thousands of years, collecting shellfish and hunting the abundant wildlife. These Native Americans may have also visited the mineral springs which used to exist on High Island. These springs resulted from salt dome minerals mixing with groundwater. The mineral springs were an attraction to visitors in the late 1800s. Water from the springs was bottled and sold widely in Texas as an elixir.

Crowds of birdwatchers come to High Island during the spring migration when the beaches and woods of High Island are sometimes covered with birds migrating back to the U.S. from wintering in Central and South America.



Formation of Salt Domes

Salt deposits form when the sea rises and then recedes, trapping seawater in inland basins/bowls/lakes. Since the water cannot flow out of these bowls (or flows out very slowly) it evaporates, leaving the salt. Over time this happens again and again causing thick beds of salt to build up. Millions more years pass and these beds of salt become covered by layers/strata of rocks and soil. The High Island salt bed begins six miles underground, but salt is lighter that rock and soil, so it tends to rise (float up) in the layers of earth that cover it. This pushes the strata (layers of rock and earth) up forming a bulge or dome. As this dome pushes it way upward it bends the strata of rock it passes through and the layers above it. If the dome rises close enough to the surface it pushes the surface up causing a bump. High Island is such a bump. During hurricanes, the storm surge can be so high that High Island becomes and actual island.

As the salt dome pushes up it tends to tear different strata apart, creating traps for oil to pool. Thus, oil wells are often drilled around the perimeters of the domes and sometimes on their crests in the

caprock (like at Spindletop). Oil Field Road rings High Island in a rough circle where wells have been drilled.

The rising salt dome has pushed up Pleistocene and Recent sediments into the surf zone where they are eroded and the hard parts including fossils are washed on to the beach. There is also a lot of industrial junk washed in including hard hats, buckets, and cabinets from offshore rigs. The primary formation for seeing fossils is the Beaumont Clay and if you walk the beach at low tide (see https://tidesandcurrents.noaa.gov/noaatidepredictions.html?id=8770808&legacy=1) you will see extensive mud flats that frequently contain vertebrate material - particularly bison. Note that is ILLEGAL to collect vertebrate material from public lands. The beach area is also the most prolific producer in Texas of Clovis points (also illegal). The Beaumont Clay is a notorious trap for cars and trucks. You are encouraged to park your car and walk the beach as far as you care to go - you will also see a lot more things that way. Remember that during the last ice age (only 15,000 years ago), a great deal of water was locked up in glaciers and the shore line was 100 miles out into the Gulf of Mexico. This provided a great deal of space for animals and Indians to populate (and drop things for us to see, all these millennia later).

Many wonderful and large shells are frequently washed up on the beach (particularly after storms) and there is a continuous supply of limestone concretions. A complete history of the McFadden Beach area is at https://texasbeyondhistory.net/mcfaddin/

A collection from McFadden beach borrowed from the science museum.

Top row - left to right - Mammoth or Mastodon, axis bone (neck) of a horse

Middle row - Horse astragalus (ankle), armadillo, Glyptodont, horse tooth, bison tooth, bison tooth

Lower row - rib bone, tibia, femur fragment, oyster, oyster drill (Neverita)