

The
Midnight Pass



SOCIETY, INC.

"MIDNIGHT PASS - PASS IT ON!"

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MIDNIGHT PASS POSITION PAPER

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SAFETY VALVE ASPECT
OF MIDNIGHT PASS

SYNOPSIS

It is likely that an inlet has existed for at least several hundred years between Casey and Siesta Keys. Perhaps for as long as the barrier islands themselves. Closing Midnight Pass in 1983 has substantially increased the risk that a storm event will create a new inlet, perhaps through a developed portion of the barrier island.

Early history/pre-history. The earliest government documentation of a connection between the Gulf of Mexico and Little Sarasota Bay are bathymetric survey charts from 1883. At that time the inlet mouth was located just south of Point of Rocks on Siesta Key. The inlet was referenced Little Sarasota Pass, presumably to differentiate it from Big Sarasota Pass, which is still open and flowing today at the northern end of Siesta Key. The inlet was connected to Little Sarasota Bay by a long, deep waterway which entered the embayment by the Bird Islands some 2½ miles to the south. The remaining remnants of this historic waterway are Blind Pass Lagoon which leads to the public boat launching facility at Turtle Beach and Heron Lagoon, a fifteen foot deep land-locked body of water in the Sanderling section of Siesta Key. Heron Lagoon is technically not land-locked as it's connected to Little Sarasota Bay by means of installed culverts.

Early navigation charts show that Casey Key extended north nearly to Point of Rocks, some 2½ miles above its current boundary. Siesta Key was east of Casey Key with the above described Gulf-to-Bay waterway in between. Casey Key and sometimes both land masses were regularly subjected to overwash during severe storm events. Historic overwash areas can be noted in the Sanderling area, north of the trailer park, by Midnight Pass Marina and several spots at and below the Turtle Beach public facility which includes beach, picnic grounds, a wading area for youngsters, docks and boat launching ramps. Several spots on North Casey Key have also experienced overwash during storm events.

The Bird Islands have retained their basic shape and location throughout recorded history. There's little doubt they represent an historical bay mouth flood tide delta created by the flushing action of an active inlet. The size and configuration of the Bird Islands

.....more

SAFETY VALVE
PAGE TWO

evidence the existence of a large, natural tidal inlet at the Midnight Pass situs for long before recorded history; perhaps for as long as the barrier islands themselves. The large indian mounds at Spanish Pointe also suggest the existence of an historical Gulf-to-Bay doorway in this area.

We can only speculate as to the creation of the curious configuration of the inlet as it appeared back in 1883... a 2½ mile waterway connecting Gulf to Bay. One possibility is that the ebb flow from the northern bay was impeded by an unidentified blockage. Such an occurrence would allow the southern ebb flow to dominate, pushing the inlet farther and farther north until the outcroppings at Point of Rocks was reached.

Later history. From some point prior to 1883 until 1921 this curious configuration of a thin, fragile-seeming waterway survived several major hurricanes. Then, in October of 1921 a severe storm breached the Casey Key spit creating a new inlet near what is today the northern end of Blind Pass Lagoon. Anecdotal data suggest it was first called Dawn Pass. By 1924 it was officially recognized as Musketeer's Pass. Both inlets remained open between 1921 and 1926. In September, 1926, a hurricane pinched shut the waterway leading to Little Sarasota Pass just north of the present trailer park location. A second storm in 1926 filled in the mouth of the inlet proper... using material from its own ebb tide delta.

The new inlet was called Musketeer's Pass as late as 1937. Soon after its creation it began a steady migration to the south. By 1943 it was below the eastern finger of Siesta Key (the present location of the Pointe condominium). The southern migration was apparently caused by the restoration and influence of ebb tidal flow through the northern channel. By 1950 the inlet, now recognized as Midnight Pass, had found equilibrium opposite the lower half of the Bird Islands.

The 1955 hydrographic survey chart identifies Midnight Pass as one of the strongest inlets along this portion of the Florida coast. Actually, the Pass may have been even stronger than described. If the location of the current meter was as indicated, only the northern channel flow was measured! In any event, Midnight Pass was a strong, stable, natural tidal inlet which confined itself to boundaries of about 1,000 feet. However, the dredging of the ICW (see separate paper) along with other factors upset the equilibrium. By 1972 Midnight Pass began to migrate northward and shrink in both size and flushing influence. By 1982 it was responsible for only 16% of the tidal exchange for Little Sarasota Bay. However, a July, 1982 dye tracer study conducted by Camp, Dresser McKee revealed that a normal flood tide influenced the embayment through the northern channel all the way eastward to the Intracoastal Waterway.

By 1983 the Pass had migrated northward so as to pose a serious threat to two Gulf front homeowners. The responsible governmental agencies responded by issuing emergency authorization to close the inlet and

.....more

SAFETY VALVE

PAGE THREE

to relocate it south of the affected properties. The inlet was closed and after five vain attempts at relocation, the restoration effort was abandoned. The direct result of the project was to create approximately 1,000 linear feet of MAN-MADE LANDS some 200 feet wide the elevation of much of which was substantially different from the adjoining shorelines. Several thousand cubic yards of sand were placed by the homeowners in front of their homes. A man-made plug was inserted between two barrier islands. The alteration of the shoreline topography was by no means normal, natural or pre-ordained.

Inlet hydraulics. Storm events striking our coastline strike first at the barrier islands. If the storm surge is sufficiently strong it can even overwash the islands at low points. Several such overwash points have been identified in this area. But the storm surge energy coming onshore tends to be dissipated either up and down and/or over the shoreline. The potential for inlet creation is far greater from the waters trapped on the bay side that are working to force their way back to the gulf of Mexico.

During a storm event extremely large volumes of water can be pumped into the bay... from storm tides, tidal surges, direct rainfall and stormwater runoff. Once the storm passes, the bloated Gulf tides will return to normal. But the volumes of water pumped into the bay are trapped there; in seeking the lowest level, these waters develop tremendous hydraulic pressures... pushing north, south and against the barrier islands. The pressure tends to be vented through the existing inlets. But if the hydraulic pressure is greater than the capacity of the existing passes, the trapped waters will attempt to break through the barrier island by focusing the amassed energy at the weakest point. It is the force of the water returning TO the Gulf and not the storm impact FROM the Gulf that creates new inlets.

While Midnight Pass was open and flowing, the hydraulic pressures associated with storm events were vented through the inlet. Huge volumes of water were passed through to the Gulf of Mexico, frequently expanding the inlet and scouring its channels.

However, since the closing of Midnight Pass in 1983, the hydraulic pressures historically relieved through this doorway must now be diverted to the north and south. But, should the waters trapped landward of the fourteen plus mile stretch of barrier island become sufficiently strong, a new inlet would be blown right through the Casey/Siesta Key. As the original pass in this area may have formed. Or Little Sarasota Pass. Or Musketeer's Pass as it did in 1921. Coupling history with common sense would suggest it is more a question of WHEN will a new inlet be formed, not IF. The big unanswered question is WHERE. Based on history... where an inlet was... it could be anywhere between Point of Rocks and opposite the southern end of the Bird Islands. Based upon current data it would appear that a new inlet would most probably form anywhere between Turtle Beach and the southern end of Siesta Key.

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SAFETY VALVE

PAGE FOUR

BEACH PROFILES. We have reviewed beach profile data for this area from the late 1950's to the current period. We've also performed our own rudimentary profile analysis. Since Pass closure, approximately 2,000 linear feet of shoreline south of the Pass situs has experienced beach accretion... 100 feet on the average. However, since 1983... the same period of time... the shoreline from Midnight Pass north to the trailer park has eroded an average of 50 feet. North Casey Key, throughout history suffering erosion pressures, is now enjoying bigger beaches. Clearly, the north Casey Key beach accretion is at the expense of the south Siesta Key beaches. Put another way, since the closing of Midnight Pass, the area shoreline has straightened; Casey Key advanced while Siesta Key retreated.

Coastal Zone Monument marker #76, approximately 2,000 feet north of Midnight Pass is evidencing severe erosion; it's an area that may be breached. the Pass situs itself has recently come under substantial erosion pressure. Four year old clumps of Sea Oats have been falling into the Gulf of Mexico. Other areas that may be breached: most of the Blind Pass Lagoon area, the site of Musketeer's Pass in the 1920's and 1930's; by the trailer park immediately north of Turtle Beach--- an area of historic overwash coupled with steep offshore contours; the Sanderling area just south of Point of Rocks--- the location of historic Little Sarasota Pass. During Hurricane Agnes in 1972 an area just south of Point of Rocks was seriously breached right across Heron Lagoon. Approximately $\frac{1}{4}$ mile of this shoreline is now armored in rock revetment.

CONCLUSIONS.

1. For all of recorded history there has been a naturally formed inlet in this vicinity.
2. Natural evidence indicates an inlet functioned in this locale for several hundred years, if not for as long as the existence of the barrier islands themselves.
3. Past hydrographic survey charts depict Midnight Pass and its predecessor passes as substantial tidal inlets with high current velocities.
4. The closing of Midnight Pass was a man-made event. Man disrupted the historic tidal flow through the Pass causing the inlet to lose its equilibrium; it became an unstable, wave-dominated inlet. Man then bulldozed approximately 1,000 linear feet of shoreline into a most unnatural land mass with no likeness to historic shoreline topography.
5. As long as Midnight Pass remains closed there's increased risk a storm event will carve a new inlet through the barrier island at a location that may threaten the safety & welfare of Key residents.
6. The new inlet could be formed anywhere along the $2\frac{1}{2}$ miles of shoreline where passes had historically been located... from the Bird Islands to just south of Point of Rocks. However, the breach would most probably occur between Turtle Beach and the southern end of Siesta Key.

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SAFETY VALVE
PAGE FIVE

REFERENCES.

- A. Chiu, T.Y. 1979. A Study of the North End of Casey Key and Midnight Pass.
- B. Chiu, T.Y. 1982 Beach Profile Analysis.
- C. Coastal Planning & Engineering, Inc. Beach Profile material developed as part of permit application data accumulation.
- D. Coastal Engineering Laboratory 1958 Coastal Engineering Study at Casey Key.
- E. Clark, Ralph R., P.E. Dept. of Natural Resources 9-27-83 letter to T. Reese.
- F. Discussions with various coastal engineers including Per Bruun, R. Dean, C. Truitt, J. Adams and J. Parks.
- G. Set of historic slides and charts.