

Managing Big Marco / Capri Pass

A White Paper

By

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Waterways Advisory Committee

City of Marco Island, Florida

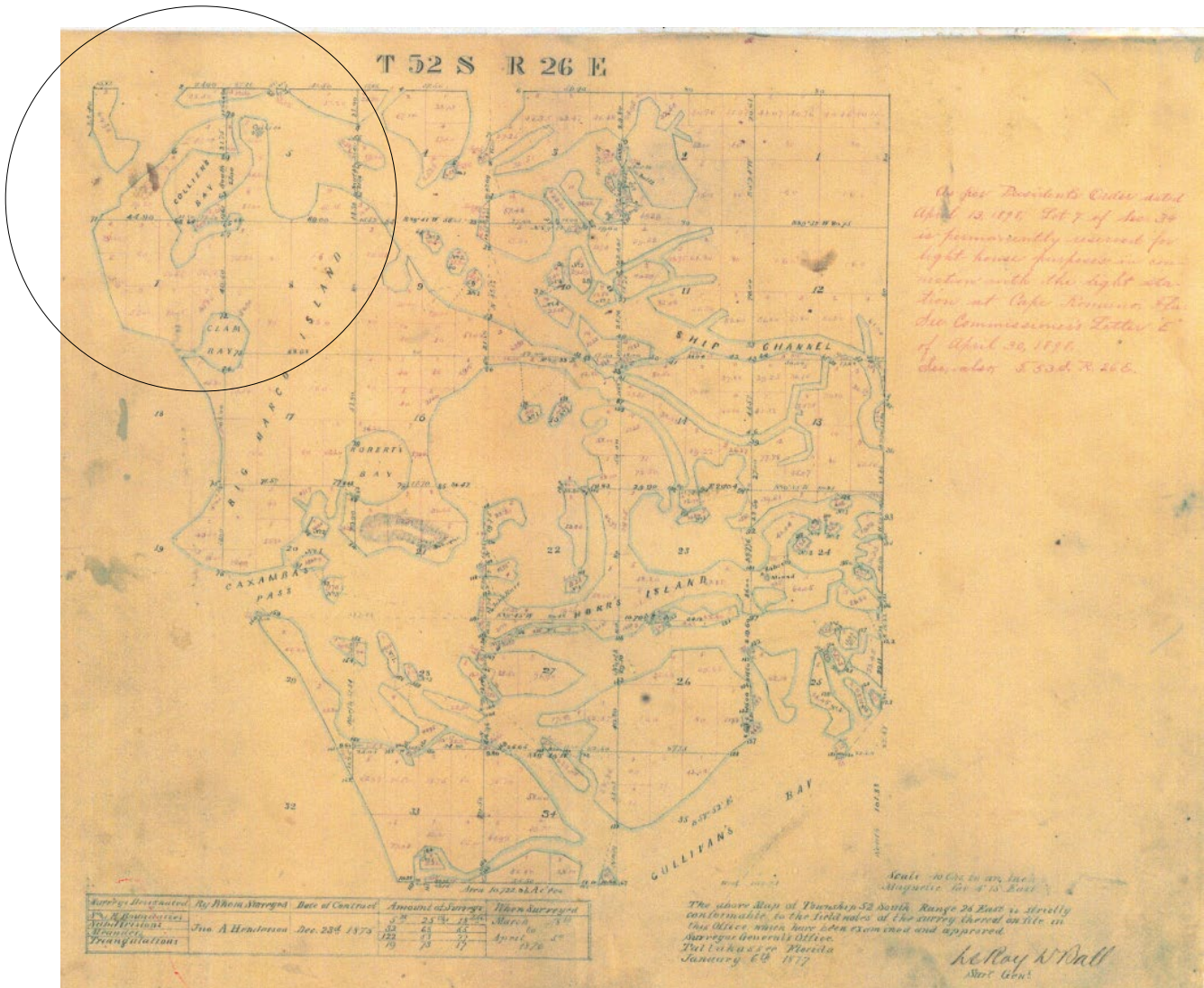
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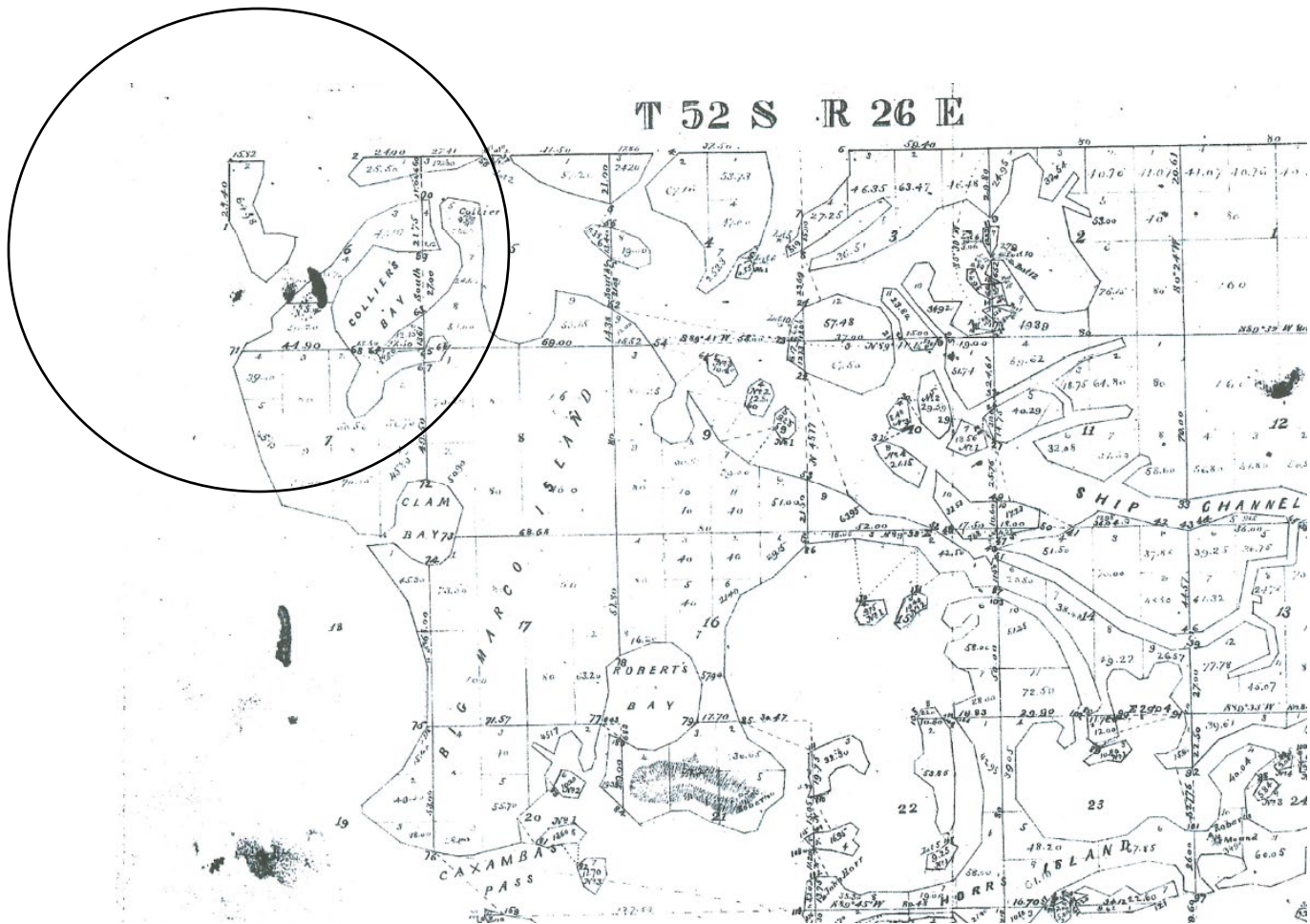
Introduction

I bring forward a critical community issue to my fellow committee members in this “White Paper” from the perspective of both a resident of Marco Island for 15 years and as an employee of a Marco Island marina (for the same length of time). The issue is simple; we have too much sand accumulating in sections of the main navigational channel to Marco Island and have not yet identified a solution. This white paper and your affirmative vote to my motion at the conclusion of its presentation will set us on course to address the issue in the timeliest and most cost-effective fashion.

History of Big Marco Pass

The Big Marco River has enjoyed relatively deep water with a defined "ship channel" for at least 150 years as evidenced by the 1877 survey of the island. The inlet was bordered by Sea Oat Island to the north and Big Marco Island to the south.

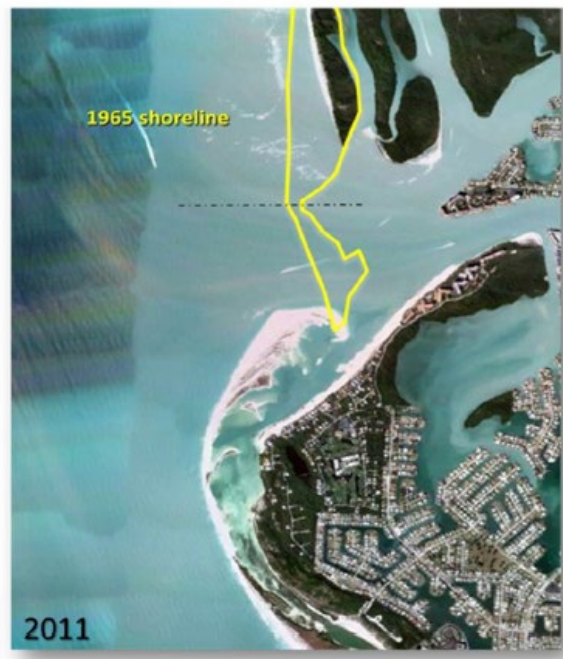




The protected inlet and relatively deep Marco River persisted for generations until the mid-1960's when Sea Oat Island developed a breach, perhaps triggered by hurricane Donna (Cat. 3) in 1960. This breach later became Capri Pass. Ever since this breach the pass seems to have lost its stability.



Natural inlet migration up-drift
Up-drift erosion and downdrift sand spit growth
(Dabeels and Moore 2014)



Since 1960 Southwest Florida has experienced several major named storms which have affected Big Marco & Capri Pass, such as hurricanes Donna, Andrew, Charley, Wilma, Irma, Ian, Helene and Milton.

The atrophy of Sea Oat Island and the complete destruction of its remaining southern tip, Coconut Island by 2005, has allowed storm surge from the Gulf to progress inland with more force than ever before. Due to these significant changes without any human interference, the Big Marco / Capri Pass Complex has now reached a point where it seems reasonable to finally manage Collier County's last remaining unmanaged inlet.

The concept of pursuing an Inlet Management Plan (IMP) was contemplated by the author of this white paper as a solution for the navigational issues affecting the Big Marco / Capri Pass Complex only to learn IMPs are primarily to address "critically eroded inlets", which according to the Florida DEP, the Big Marco Capri Pass is not. An IMP could be pursued but because the inlet does not meet some of their requirements it could take as long as 5 years to get permitted and cost \$300,000 to \$500,000 in permitting fees alone. If approved, an IMP does make a project cost share eligible, where the state of Florida would contribute to the cost of the project.

The Current Situation

In the early hours of a foggy February in 2021 I wrote the following email to City and County officials;

"...there is an 85' vessel hard aground, partially submerged and now a hazard to navigation in the Capri Pass Channel to the Big Marco River due to shoaling. The Coast Guard is on scene. From my initial conversations with Boat US Tow Services the boat is in the marked channel. This is the second grounding today in this same location. Last week another similar sized vessel grounded but was able to limp back to port sustaining massive running gear damage. This same shoaling condition was a factor in the December 2020 capsizing of a Tow Boat and the 42' sailboat it was attempting to assist. Thankfully in all these events there has been no loss of life and hopefully with swift action further crisis can be avoided."

After several vessel groundings in 2020 - 2021 and only after persistent emails and phone calls, the U.S. Coast Guard moved the Big Marco / Capri Pass Navigational markers several hundred feet south to deepest water on July 26, 2023. This helped immediately, however at Mean Low Tide there is still less than 8' of water in two locations within the marked channel. In comparison, Gordon Pass in Naples has a designed minimum channel depth of 12' and a width of 150' in the Gulf to 10' of depth and 100' of width in Gordon Pass to a point 400' south of the U.S. Highway 41 bridge. The dangers of shallow areas in any inlet along the Collier Coastline are magnified by northwest winds. The waves created by the strong northwest winds can force boats deeper than their static draft which is likely why Gordon Pass is designed to have a depth of 12' at Mean Low Tide although most boats in our area have a draft less than 10'. While most knowledgeable mariners with deeper draft vessels transit the pass at higher tides those seeking shelter from a storm or who may be experiencing an emergency do not have the luxury of timing their approach with higher tides.

Despite persistent navigational concerns, dredging for navigation has never occurred in the Big Marco / Capri Pass.

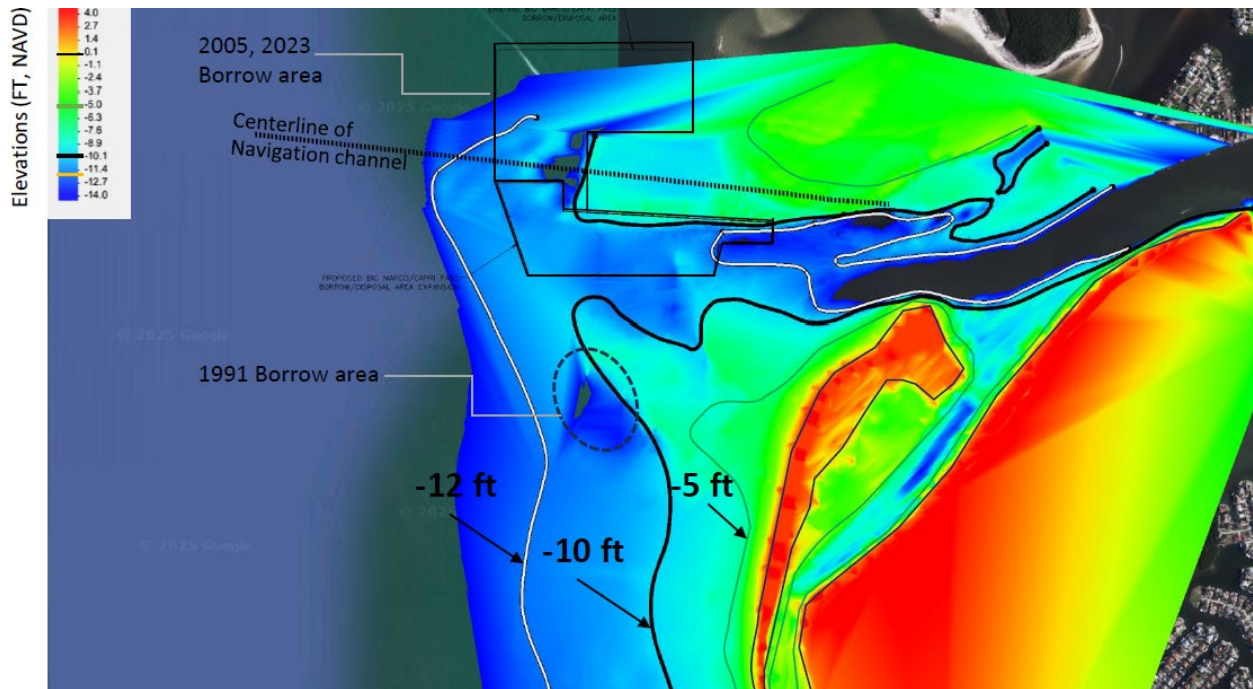
The Immediate Solution

A modification to existing permits that would align the borrow areas for beach renourishment to be in the navigational channel rather than the current borrow area which is outside of the navigational channel. This is an immediate path forward that will be a win-win for navigation concerns and will provide Marco Island with a new source of beach quality sand for future beach renourishment projects.

1. The City of Marco Island Public Works Department modifies the existing city dredging permit associated with the Tigertail Lagoon/ Sand Dollar Island Ecosystem Restoration Permit to add the navigation channel dredging to the authorized borrow area adjacent to the navigation channel.
2. A permit modification proposal would have to be requested from the City of Marco Island to the Engineers of Record for that permit, Humiston and Moore. The cost of the permit modification is driven by geotechnical analysis of the sand in the shallow area of the pass to determine its suitability for beach/berm sand and for professional fees in the permitting process. All-in costs for a permit modification are estimated to be \$85,000 to \$95,000.
3. The City of Marco Island Public works Dept. can then follow its procurement process to get the permit modification request submitted to the state. This may include getting proposals from the City's authorized vendors / permit agents.
4. Prepare a request for County TDC funds to support the permit modification.

In a research meeting held on September 25th, 2025 with representatives from the FL DEP (Office of Resilience and Coastal Protection, Beaches Inlets and Ports Program), the City of Marco Island Public Works Director and Collier County Director of Coastal Zone Management, the FL DEP indicated support for granting such a request which only requires limited scope of data collection and a minor permit modification requested by the City of Marco Island.

If a proposal to modify the Tiger Tail/Sand Dollar permit was approved now, this modification could be in place as soon as the next scheduled hydraulic dredging window occurs, in 2026-2027.



If we can address the shoaling yet are unable to ensure proper channel marker placement the entire effort would be a waste. Therefore, as part of this effort we need to mandate the U.S. Coast Guard spare no expense in marking the Big Marco Pass to the Gold Standard; properly driven piles, a corresponding rectangle for every triangle, which are well maintained and illuminated. Maintenance of the markers in the Gulf is currently performed by the U.S. Coast Guard Sector Ft. Lauderdale (despite not being a federal channel the USCG does repair markers in certain areas with elevated levels of commerce).

As noted previously; after being notified of the seriousness of the Big Marco Pass Shoaling situation it took the U.S. Coast Guard over 800 days to move the channel to deepest water and change out temporary can buoys with driven wooden pile channel markers. While neither the City nor the County had to pay the USCG directly for their work it did take over 26 months to substantially fix the problem. In that time the USCG installed several temporary buoys that frequently drifted off station (further confusing mariners) and when they did finally install a driven pile, about a week later 2 of the newly installed markers dislodged and floated away. So, while we don't have to pay directly for the services provided by the USCG...it can be said with some degree of accuracy, we get what we pay for.

In my research of this issue I found there is a process by which the US Coast Guard will "gift" markers to a requesting jurisdiction. It is my final recommendation on this issue the Big Marco/Capri Pass Channel Markers be gifted equally to the City of Marco Island and Collier County and an interlocal agreement be drafted sharing such expenses to install new markers and maintain them.

Sources

Dabees, Fleming and Damon: Natural and Nature-Based Features for Environmental and Coastal Storm Risk Management: A Case Study on Marco Island, Florida, United States. Published Aug. 29, 2022

William “Guy” Weeks, Planning Manager, Florida Department of Environmental Protection,
Office of Resilience and Coastal Protection, Beaches, Inlets and Ports Program