

Final Order Adopting Stump Pass - Inlet Management Plan

WHEREAS on June 29, 2016 the Florida Department of Environmental Protection (Department) adopted the Stump Pass - Inlet Management Plan, which established inlet sand bypassing objectives, calling for restoration of critically eroded adjacent beaches, complete construction of a terminal groin and calling for implementation of a comprehensive beach and offshore monitoring program that would be used to identify beach placement locations for future bypassing efforts, and

WHEREAS in 2008, the Florida Legislature amended Section 161.142, Florida Statutes, finding, “It is in the public interest to replicate the natural drift of sand which is interrupted or altered by inlets to be replaced and for each level of government to undertake all reasonable efforts to maximize inlet sand bypassing to ensure that beach-quality sand is placed on adjacent eroding beaches. Such activities cannot make up for the historical sand deficits caused by inlets but shall be designed to balance the sediment budget of the inlet and adjacent beaches and extend the life of proximate beach-restoration projects so that periodic nourishment is needed less frequently”, and

WHEREAS in 2015, Charlotte County obtained a Joint Coastal Permit (0194790-017-JC), that included an updated sediment budget for Stump Pass, and

WHEREAS, the Department has developed an inlet management plan that contains corrective measures to mitigate the identified impacts of the inlet, and

WHEREAS, Charlotte County is the entity that is responsible for the maintenance dredging and sand bypassing at Stump Pass and therefore responsible for implementation of the inlet management plan, and

WHEREAS, this inlet management plan is consistent with the Department’s program objectives under Chapter 161, Florida Statutes,

THEREFORE:

The Department does hereby adopt the following implementation strategies, as set forth in the attached *Stump Pass - Inlet Management Plan*. Future inlet management activities shall be consistent with the following seven strategies:

- 1) **Continue the comprehensive beach and inlet hydrographic monitoring program** to evaluate the performance and impact of existing bypassing and nourishment projects and to periodically update the inlet sediment budget.

- 2) **Complete the initial construction of the beach restoration project to the design specifications authorized by Joint Coastal Permit No. 0194790-017-JC**, with a minimum fill placement of 200,000 cubic yards of sand dredged from Stump Pass and

placed between R26 and R40.5 on Knight Island and Don Pedro Island, and with a minimum fill placement of 180,000 cubic yards of sand dredged from both the Stump Pass channel and the authorized offshore borrow area and placed between R9 and R21.2 on Manasota Key, and with a minimum fill placement of 70,000 cubic yards of sand dredged from the Stump Pass channel and placed from 1,500 feet north of R23 to R26 on Palm Island and Knight Island.

- 3) Continue to bypass sediment from Stump Pass, including the Stump Pass channel, ebb and flood shoals, to the adjacent gulf-fronting beaches both to the north and to the south of Stump Pass within areas designated as critically eroded between R9 and R40.5.** Sediment may be placed within the Shorebird Fill Area on Knight Island near R25. The quantity of fill to be placed in each area shall be based on observed erosion patterns and beach erosion quantities documented through the monitoring protocol of Strategy #1. Should each of the beach fill placement areas contain sufficient fill material to maintain their authorized design template through the next maintenance event, then inlet dredge material may be placed within the active ebb shoal of Stump Pass.
- 4) The initial target Stump Pass bypassing quantities shall be the placement of 25,000 cubic yards per year to the south and 6,000 cubic yards per year to the north.** These target quantities may be changed based on a minimum of three years of monitoring. These target bypassing quantities shall not be considered limitations on sediment removal from Stump Pass, including the channel and the ebb and flood shoals. The county may be allowed to remove additional sediment from Stump Pass as necessary to mitigate impacts consistent with Strategy #5 or to extend the life of the beach restoration projects adjacent to Stump Pass so that periodic nourishment is needed less frequently.
- 5) The source of sediment for meeting the target bypassing quantities in Strategy #4 shall be the Stump Pass channel and borrow area.** Acceptable beach quality sand may also be obtained from inland sand mines or offshore sources to supplement the target bypassing quantities or to facilitate development and growth of the Stump Pass ebb shoal.
- 6) Sediment dredged from Stump Pass may also be placed within the Palm Island Fill Area** along the south shoreline of Stump Pass north of R22 to mitigate critical inlet

shoreline erosion. The quantity of sediment to be placed at this location shall be determined by the monitoring surveys in Strategy #1 and shall not be included as part of the target bypassing quantity or division of material placed both north and south of Stump Pass in accordance with Strategy #4.

- 7) **Complete the construction of the approved terminal groin on Manasota Key** located at approximately R21.2. Monitor the effects of the groin and determine the need for adjustments to the bypassing protocol.

Inlet management actions that implement the strategies contained in this plan are subject to further evaluation, and subsequent authorization or denial, as part of the Department's permitting process. Activities that implement these adopted strategies shall be eligible for state financial participation pursuant to Section 161.143, Florida Statutes, subject to Department approval and an appropriation from the Florida Legislature. The level of State funding shall be determined based on the activity being conducted and the Department's rules. The Department may choose not to participate financially if the proposed method of implementation is not cost effective or fails to meet the intent of Section 161.142, Florida Statutes, and this final order. Nothing in this plan precludes the evaluation and potential adoption of other strategies for the effective management of Stump Pass and the adjacent beaches.

Execution of this Final Order constitutes agency action. Any Florida corporation not for profit which meets the requirements of Subsection 403.412(6), Florida Statutes, and any person whose substantial interests will be determined or affected by the Final Order may petition the Department for a formal or informal administrative hearing pursuant to Section 120.569 or 120.57, Florida Statutes, as set forth in the attached Notice of Rights, to challenge the provisions of this Final Order.

If the Department proposes to issue a permit that implements the strategies in this Final Order, any Florida corporation not for profit which meets the requirements of Subsection 403.412(6), Florida Statutes, and any person whose substantial interests will be determined or affected by the proposed permit may petition the Department for a formal or informal administrative hearing pursuant to Section 120.569 or 120.57, Florida Statutes, as set forth in the Notice of Rights attached to the permit. The scope of a challenge to a permit approval or denial is limited to whether the agency action complies with the permitting criteria. Agency action previously subject to challenge or administrative review will not be subject to challenge at the time of permit approval or denial.

Approval of Adoption



John A. Coates, P.E.

Director of Division of Water Resource Management

Florida Department of Environmental Protection

6/29/2016

Date

Filing and Acknowledgement

FILED, on this date with the designated Department Clerk, pursuant to
Section 120.52, F.S., receipt of which is hereby acknowledged.



Deputy Clerk

6/29/2016

Date

Notice of Rights

The Department's proposed agency action shall become final unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, Florida Statutes, before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the Department's proposed action decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received by the clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000. Petitions must be filed within twenty-one days of receipt of this written notice.

Under Rule 62-110.106(4), Florida Administrative Code, a person whose substantial interests are affected by the Department's action may request an extension of time to file a petition for an administrative hearing. Requests for extension of time must be filed (received by the clerk) with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the end of the time period for filing a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), Florida Statutes, must be filed within twenty-one days of publication of the notice or within twenty-one days of receipt of the written notice, whichever occurs first. Under Section 120.60(3), Florida Statutes, however, any person who asked the Department for notice of agency action may file a petition within twenty-one days of receipt of such notice, regardless of the date of publication.

The failure of any person to file a petition or request for extension of time within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, Florida Statutes, or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information:

- (a) The name and address of each agency affected and each agency's file or identification number, if known;
- (b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;

- (c) A statement of when and how the petitioner received notice of the agency decision;
- (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;
- (e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action;
- (f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts on which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, Florida Administrative Code.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation under Section 120.573, Florida Statutes, is not available.

Once this decision becomes final, any party to the final agency action has the right to seek judicial review of it under Section 120.68, Florida Statutes, by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department in the Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within thirty days after this decision is filed with the clerk of the Department.

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STUMP PASS - INLET MANAGEMENT PLAN

Introduction

Pursuant to Subsection 161.101(2), Florida Statutes, the Florida Department of Environmental Protection (Department) is the beach and shore preservation authority for the State of Florida. As part of the Department’s statewide beach management plan adopted pursuant to Section 161.161, Florida Statutes, the Department is adopting this inlet management plan for Stump Pass in Charlotte County, Florida (Figure 1).

Stump Pass - Inlet Management Plan (2016) updates strategies for Stump Pass adopted in the *Strategic Beach Management Plan* (FDEP, 2015) to be consistent with current statutes and observed erosion¹ conditions. As a first step towards adoption of this inlet management plan, in 2012, Charlotte County sponsored a study of Stump Pass to compile new and historical data and information regarding beach and inlet changes and the dynamic coastal littoral processes in this area. In 2015, a Joint Coastal Permit application was completed by Coastal Engineering Consultants, Inc. (CEC, 2015), on behalf of Charlotte County, that included an updated sediment budget for the inlet for the 8-year period between 2007 and 2015.

Program Objectives and Statutory Responsibilities for Inlet Management

In 2008, the Florida Legislature amended Section 161.142, Florida Statutes, finding,

“It is in the public interest to replicate the natural drift of sand which is interrupted or altered by inlets to be replaced and for each level of government to undertake all reasonable efforts to maximize inlet sand bypassing to ensure that beach-quality sand is placed on adjacent eroding¹ beaches. Such activities cannot make up for the historical sand deficits caused by

¹ As used in this document, the term “erosion” means wearing away of land or the removal of consolidated or unconsolidated material from the coastal system by wind or wave action, storm surge, tidal or littoral currents or surface water runoff. As used in this document, the term “accretion” means the buildup of land or accumulation of unconsolidated material within the coastal system caused by wind and wave action, storm surge, or tidal or littoral currents. The descriptions of coastal processes in this document are not intended to affect title to real property or real property boundaries.

inlets but shall be designed to balance the sediment budget of the inlet and adjacent beaches and extend the life of proximate beach-restoration projects so that periodic nourishment is needed less frequently.”

Pursuant to Section 161.143, Florida Statutes,

“Studies, projects and activities for the purpose of mitigating the erosive effects of inlets and balancing the sediment budget on the inlet and adjacent beaches must be supported by separately approved inlet management plans or inlet components of the statewide comprehensive beach management plan.”

Charlotte County has been the entity responsible for maintenance dredging of the Stump Pass navigation channel and consequently, mitigating the extent of erosion caused by the inlet, as specified in Subsection 161.142 (6), Florida Statutes.

History of Stump Pass

Stump Pass is located in Charlotte County on the southwest Gulf of Mexico coast of Florida separating the barrier islands of Manasota Key to the north and Knight-Don Pedro Islands to the south (Figure 2). The inlet connects the Gulf of Mexico to Lemon Bay. It is important to understand the history of Stump Pass, its geomorphological evolution and the recent dredge and fill activities, to gain a perspective for its dynamics and the need for changing inlet management strategies over time. With growing demands on small craft navigation between interior tidal waters and the gulf, and the need to maintain navigable depths through the inlet, sediment management has become essential to offset the natural and man-made erosion to the adjacent beaches.

At its current location, Stump Pass is thought to have opened during a hurricane in 1910 (Reynolds, 1976). Previously, an inlet described as Stump Pass existed roughly 1.3 miles to the north as located on surveys dated 1883 and 1895. Figure 3 documents shoreline and inlet changes between 1895 and 1975. A U.S. Coast and Geodetic Survey in 1925 indicates the current location of Stump Pass and revealed the prior location having been closed. Another inlet also existed a few thousand feet to the south breaching Knight Island. A 1939 aerial photo

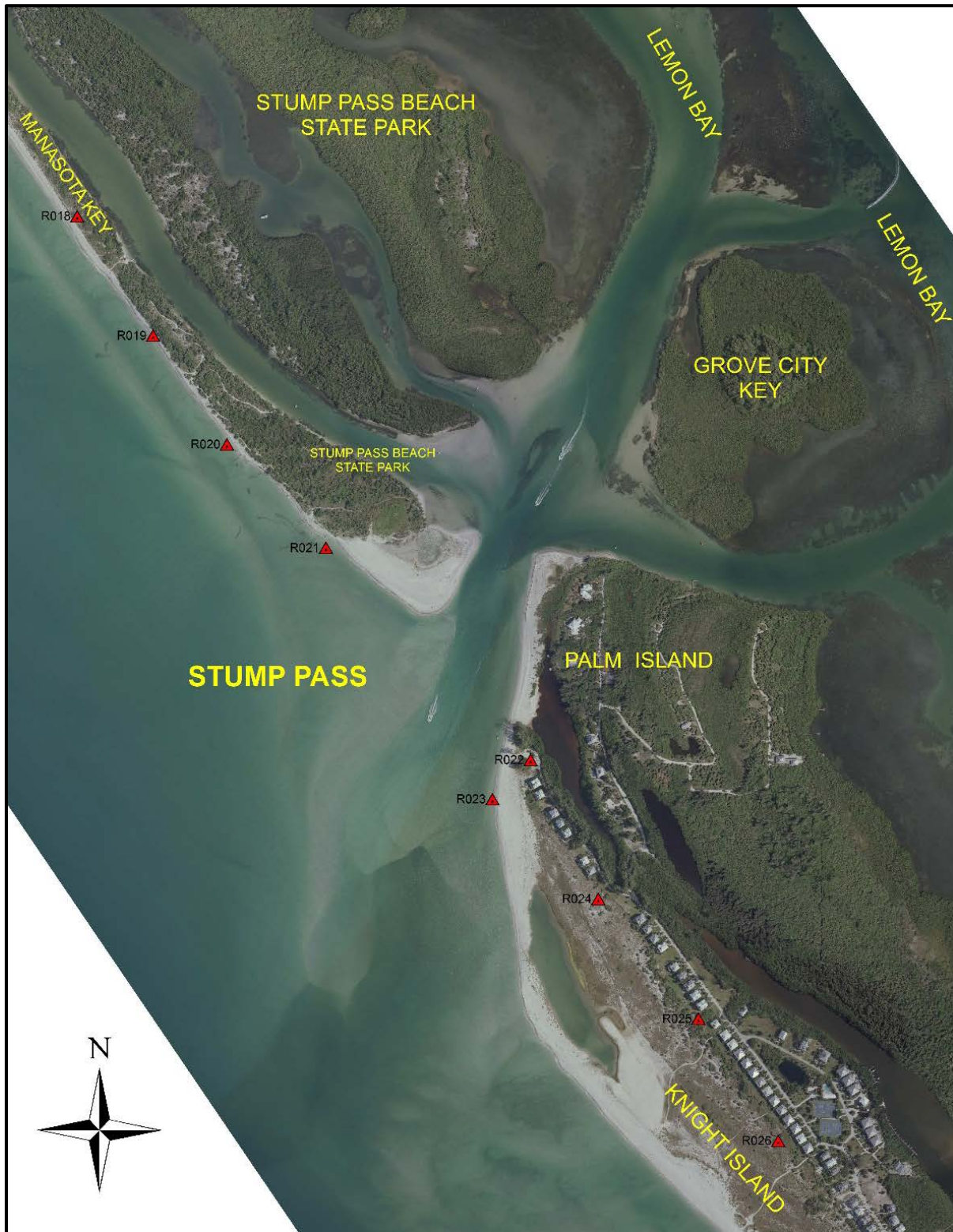


Figure 1. Aerial image of Stump Pass, Charlotte County (2013).

indicates Stump Pass shifted to a northeast to southwest orientation, and Thornton Key behind Knight Island was separated by a lagoon that connected to Stump Pass. In addition, the breach in Knight Island south of Stump Pass was closed. An aerial photo in 1943 revealed little direct change at Stump Pass; however, the opening between Knight Island and Thornton Key had closed and the northern gulf beach of Knight Island had prograded a couple hundred feet westward.

Between 1943 and 1952, storms had a major impact on Stump Pass and the adjacent barrier islands. The October hurricane of 1944 breached Manasota Key less than a mile north of Stump Pass. In 1947, another hurricane entering the gulf from the east caused another breach between Stump Pass and the 1944 breach to the north. The segment of Manasota Key between Stump Pass and the breach of 1947 migrated southward and slowly closed the original Stump Pass channel. The 1947 breach grew causing Stump Pass to reorient to a northwest to southeast alignment as seen in aerial photography of 1952. By 1956, both the breach of 1944 and the original Stump Pass channel had closed. Over the next 10 years, as seen in 1966 photography, Manasota Key grew southward resulting in a narrowing of Stump Pass to about 400 feet wide and taking an east to west orientation. By 1975, Stump Pass had reoriented back to the southwest and had substantially shoaled with depths of -2.5 feet in the marked channel.

The US Army Corps of Engineers conducted a county wide feasibility study to address beach erosion conditions for Charlotte County but the federal project was not authorized (USACE, 1980). In 1980, Charlotte County and the West Coast Inland Navigation District sponsored a local navigation channel dredging project, which involved the excavation of approximately 140,000 cubic yards of material along three channel segments between the gulf and the Intracoastal Waterway. Approximately 109,000 cubic yards of beach compatible sand from this project was used to nourish 4,000 feet of the state park beach along Manasota Key to the north. Sediment that was too fine for beach nourishment was placed in an upland spoil area on Grove City Key to the east of the inlet (CEC, 1991). During the 1980's, while the shoreline of Stump Pass remained relatively stable, the dredged navigation channel migrated to the south and reoriented from a southwesterly alignment to one which was due south aligning with northern Knight Island. The County conducted some monitoring leading up to a request for authorization



Figure 2. Stump Pass and adjoining beaches showing beach fill placement areas (2013 aerial).

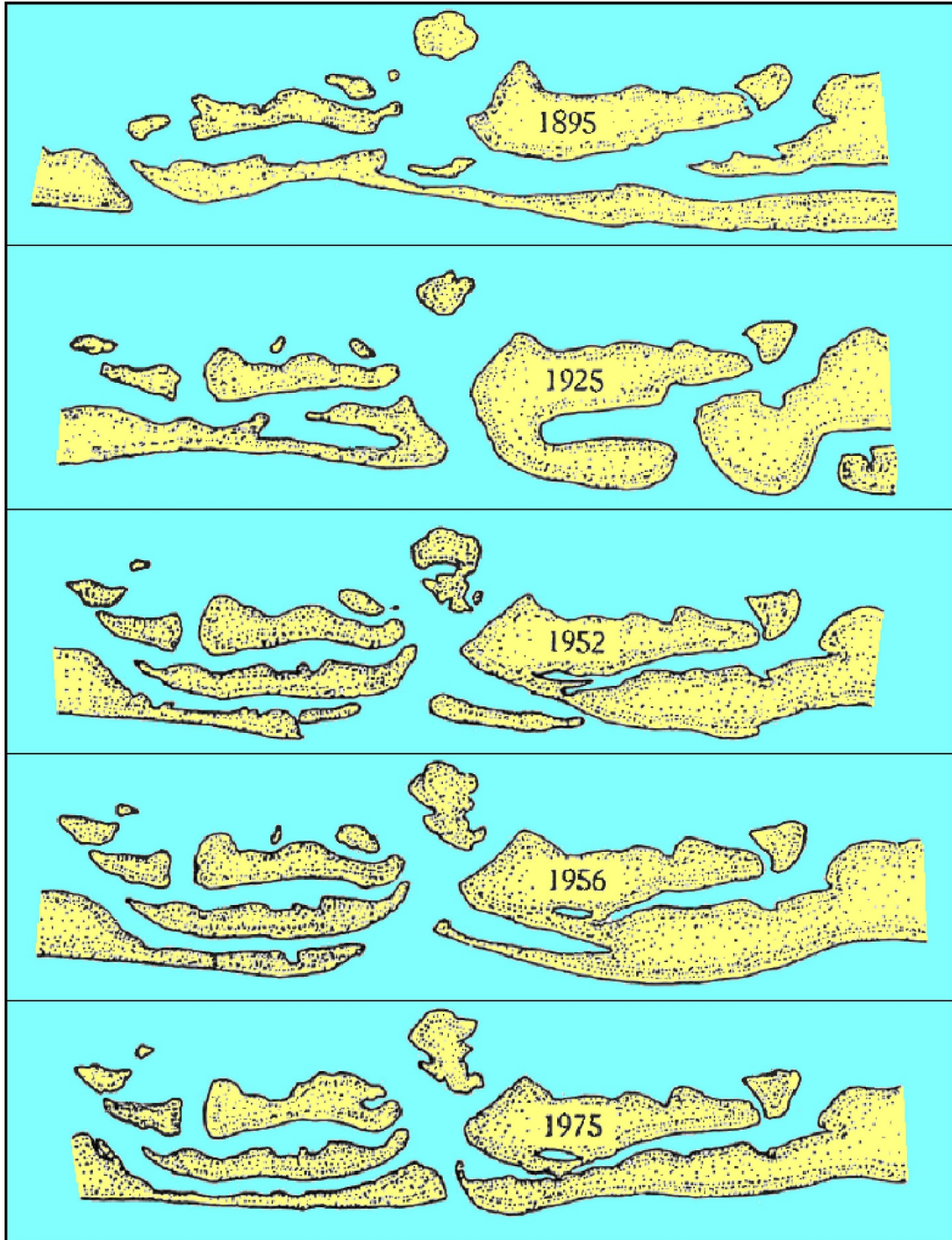


Figure 3. Shoreline and inlet changes between 1895 and 1975 (Reynolds, 1976).

for a long-term maintenance dredging permit and a consent of use for sovereign submerged lands. In 1992, the Board of Trustees of the Internal Improvement Trust Fund denied the consent of use of state lands because there was local opposition to the project, specifically, there was a lack of consensus for the recommended inlet management alternative.

Unmanaged, Stump Pass migrated southerly with an elongated spit extending southward a couple thousand feet from the 1980 channel location (Moore, 1994). Due to severe erosion conditions on northern Knight Island, the Palm Island Property Owners conducted a beach restoration project in 1994, involving the excavation of 260,000 cubic yards of sand from the Stump Pass ebb shoal. In 1998, Charlotte County excavated 175,000 cubic yards of sand from the Stump Pass channel and placed the material along the inlet shoreline of Knight Island and along the gulf beaches over a mile south of the pass.

In 1999, Charlotte County initiated an inlet management study with grants from the West Coast Navigation District and the Department. The study, conducted by Coastal Engineering Consultants, Inc., was completed in 2001, and compiled new and historical data and information regarding beach and inlet changes, and the dynamic coastal littoral processes in this area (CEC, 2001). From this study, an area of inlet impact was determined to be 9,900 feet to the north (R12) and 17,100 to the south (R39). The Department did not adopt an inlet management plan resulting from this study; however, an inlet management strategy was previously adopted in the *Strategic Beach Management Plan* (2000), which stated, “Place available beach compatible maintenance dredged material on the downdrift shoreline or an acceptable inshore location that ensures bypassing.”

CEC (2001) recommended realignment of the channel back to its 1980 alignment. In 2003, the inlet realignment project was conducted by dredging through the Manasota Key spit that had grown southward across the 1980 inlet channel alignment. Approximately 628,000 cubic yards of sand was excavated from Stump Pass and the spit and placed along the Knight Island and Don Pedro Island beach to the south (R29-R40). Another approximately 100,000 cubic yards of sand was excavated from the inlet and ebb shoal and placed on Englewood Beach and the state park beach to the north of the inlet (R14.5-R17). A maintenance dredging project was conducted in

2006, which included the placement of 148,000 cubic yards of sand to the north between R14 and R18, and 298,200 cubic yards to the south between R29 and R40.

With the adoption of the *Strategic Beach Management Plan* in 2008, the Department adopted inlet management strategies for Stump Pass to, “Place available beach compatible maintenance dredged material on the updrift and downdrift shorelines; investigate the feasibility of a terminal groin to stabilize the south end of Manasota Key; monitor.” In 2011, an inlet maintenance project was conducted, which included the excavation of 373,720 cubic yards of sand. The project placement areas included four beach locations, the first being 156,250 cubic yards of sand along the Manasota Key beach between R14.5 and R20, the second being 128,860 cubic yards along Knight Island and Don Pedro Island between R31.5 and R39, the third being 12,590 cubic yards on the Shorebird Fill Area between R24 and R26 on Knight Island and finally the fourth beach location being north of R22 with placement of 47,690 cubic yards along the inlet shoreline of Palm Island Fill Area from R22 to the north 1,300 feet in February 2011, and again in April 2011, 28,330 cubic yards was placed on the Palm Island Fill Area north of R22 between 500 feet to 1,300 feet..

Updated Sediment Budget through 2015

Pursuant to Section 161.142, Florida Statutes, dredging within an inlet system, including its shoals, should result in the placement of sediment on adjacent eroding beaches in order to balance the sediment budget between the inlet and adjacent beaches. A sediment budget is a balance of the volumes (or volume rate of change) for sediments entering and leaving a tidal inlet system and its adjacent beaches. A sediment budget quantifies the natural longshore sediment transport by waves and tides to and from the inlet, the entrapment of longshore sediment by the inlet channel and the ebb and flood shoals, and the mechanical “bypassing” of sediment, typically by a hydraulic dredge, from one side of the inlet to the other. Sediment transport volumes and pathways are unique to each inlet as influenced by regional geology, morphological characteristics, wave and tide conditions, and sediment characteristics and supply.

Inlet sediment management requires implementation of sediment bypassing protocols that are based on the latest available data and analysis in developing a balanced sediment budget. Charlotte County developed an updated sediment budget for Stump Pass for the 8-year period

between 2007 and 2015 (CEC, 2015). This period represents a post-realignment period for the inlet channel when sufficient monitoring data is available to develop a sediment budget. One beach nourishment event occurred during this period in 2011. For this sediment budget, the coast directly affected by Stump Pass has been divided into five distinct littoral cells as shown in Figure 4. Beach erosion and accretion has been measured by comparing the surveys of 2007 and 2015, which has yielded the volume losses and gains for each of the littoral cells.

Cell 1 extends approximately 10,000 feet along Manasota Key north of Stump Pass between FDEP reference monuments R4 and R14. Based on prior sediment budgets, it was assumed that 50,000 cubic yards per year of sand entered this littoral cell from the north. As determined from monitoring surveys of 2007 and 2015, this segment of Manasota Key beaches had no measureable volume change which would indicate that the inlet had no discernable influence on this portion of the shoreline during the surveyed time period. Therefore, 50,000 cubic yards of sediment per year leave Cell 1 and enter Cell 2.

Cell 2 extends approximately 6,000 feet immediately north of Stump Pass between FDEP reference monuments R14 and R20. The volume of sediment that was placed within the state park in Cell 2 during 2011 is equivalent to approximately 20,000 cubic yards per year for the 8-year period. Over this 8-year period, 280,000 cubic yards of sediment was lost due to erosion, which is equivalent to an annualized loss of 35,000 cubic yards per year. This results in 105,000 cubic yards per year leaving Cell 2 and entering Cell 3. With 50,000 cubic yards per year entering from Cell 1 to the north, Cell 2 has a net loss rate of sediment of 55,000 cubic yards per year after accounting for erosion and fill placements.

Cell 3 spans from R20 north of Stump Pass to R24 south of the inlet, and includes the inlet shorelines, channel and the ebb shoals. Dredging in the inlet in 2011 removed 373,720 cubic yards of sediment that was bypassed to the beaches to the south of the inlet, which is 48,000 cubic yards per year annualized over the 8-year period. Annualizing the placement of sediment on the Palm Island Fill Area on the south inlet shoreline equals 10,000 cubic yards per year, which yields a total mechanical removal of 38,000 cubic yards per year annualized over the 8-year period. During this period the inlet shoreline and ebb shoal were measured to have gained

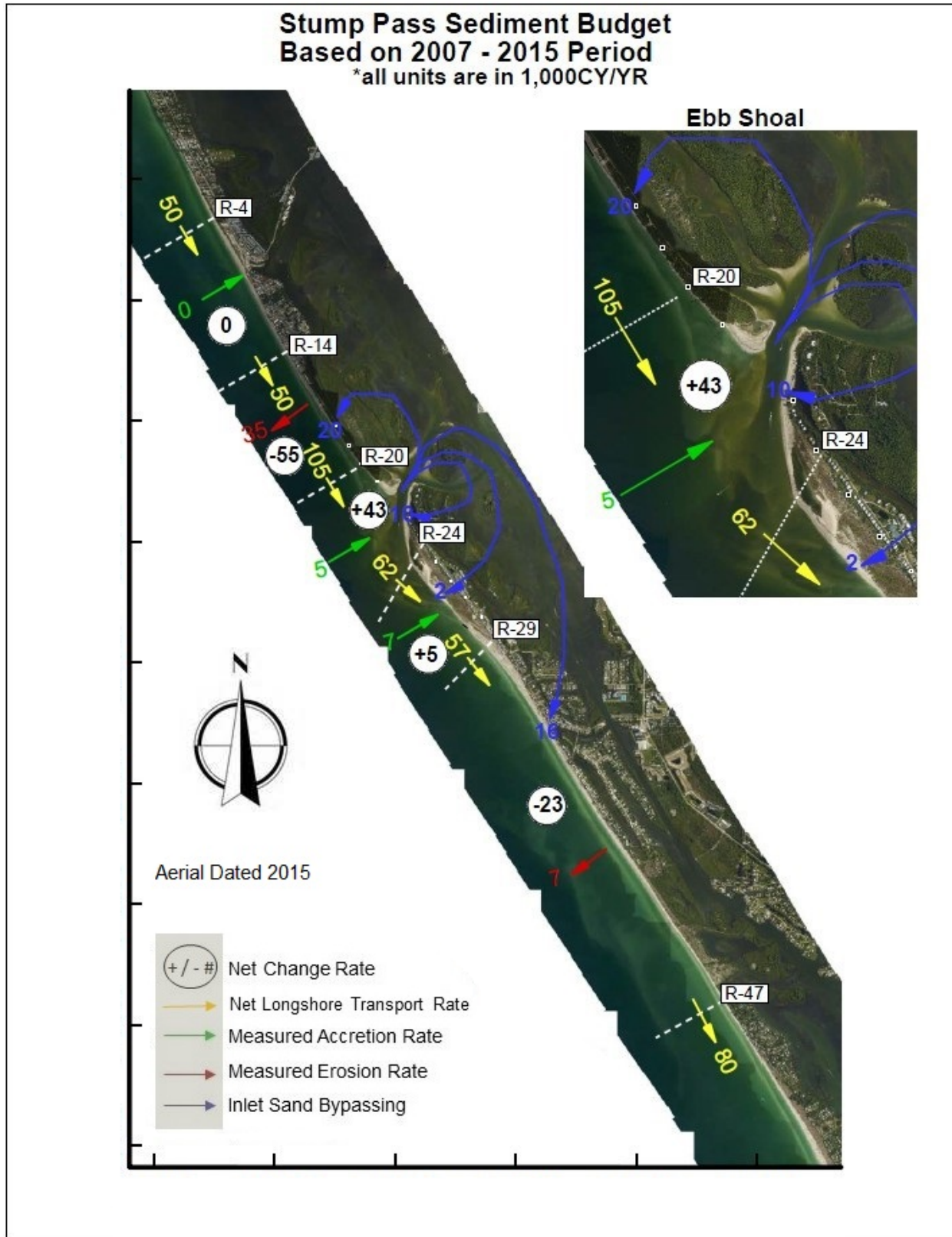


Figure 4. Updated sediment budget for 2007-2015 (CEC, 2015).

5,000 cubic yards per year annualized over the 8-year period. With the mechanical removal of 38,000 cubic yards per year, this results in a net change of 62,000 cubic yards per year leaving Cell 3 and entering Cell 4. With 105,000 cubic yards per year entering Cell 3 from Cell 2 to the north and 62,000 cubic yards per year of natural bypassing leaving Cell 3 to Cell 4 to the south, the net change rate in Cell 3 is an annualized gain of 43,000 cubic yards per year after accounting for measured accretion and sand bypassing.

Cell 4 extends approximately 5,000 feet immediately south of Stump Pass between FDEP reference monuments R24 and R29 on Knight Island. Fill placement within Cell 4 during the 8-year period is equivalent to 2,000 cubic yards per year annualized over the 8-year period. Over this 8-year period, a gain of approximately 56,000 cubic yards was measured, which is 7,000 cubic yards per year annualized over the 8-year period. Therefore, an annualized 57,000 cubic yards per year leave Cell 4 and enters Cell 5. The net change rate in Cell 4 is a gain of 5,000 cubic yards per year annualized over the 8-year period after accounting for measured accretion and fill placement.

Cell 5 extends approximately 18,000 feet along Knight Island and Don Pedro Island south of Stump Pass between FDEP reference monuments R29 and R47 and encompasses the beach segment where sediment is placed from excavation in Stump Pass. Sediment placement in Cell 5 was equivalent to 16,000 cubic yards per year annualized over the 8-year period. As measured from monitoring surveys of 2007 and 2015, Cell 5 experienced an erosion loss of approximately 7,000 cubic yards per year annualized over the 8-year period, which when added to the annualized longshore transport rate of 73,000 cubic yards per year to the south, yields 80,000 cubic yards per year leaving Cell 5 at R47. The net change rate in Cell 5 is a loss of 23,000 cubic yards per year annualized over the 8-year period after accounting for measured erosion and fill placement.

Recommended Inlet Management Plan Strategies

The Department staff recommends the following inlet management strategies be adopted to meet the requirements of Chapter 161, Florida Statutes. Future inlet management activities shall be consistent with the following seven strategies.

- 1) Continue the comprehensive beach and inlet hydrographic monitoring program** to evaluate the performance and impact of existing bypassing and nourishment projects and to periodically update the inlet sediment budget.

Discussion – A comprehensive beach and inlet hydrographic monitoring program is the most important element to managing the future sediment budget at Stump Pass. Topographic and bathymetric surveys provide the most reliable data to estimate the volumetric impact of Stump Pass on adjacent beaches and to establish a sand placement protocol that complies with Section 161.142, Florida Statutes. The current approved inlet monitoring program conducted by Charlotte County provides sufficient monitoring data.

- 2) Complete the initial construction of the beach restoration project to the design specifications authorized by Joint Coastal Permit No. 0194790-017-JC**, with a minimum fill placement of 200,000 cubic yards of sand dredged from Stump Pass and placed between R26 and R40.5 on Knight Island and Don Pedro Island, and with a minimum fill placement of 180,000 cubic yards of sand dredged from both the Stump Pass channel and the authorized offshore borrow area and placed between R9 and R21.2 on Manasota Key, and with a minimum fill placement of 70,000 cubic yards of sand dredged from the Stump Pass channel and placed from 1,500 feet north of R23 to R26 on Palm Island and Knight Island.

Discussion – The beach restoration project north and south of the inlet, authorized by Joint Coastal Permit No. 0194790-017-JC, will mitigate recent erosion since 2011.

- 3) Continue to bypass sediment from Stump Pass, including the Stump Pass channel, ebb and flood shoals, to the adjacent gulf-fronting beaches both to the north and to the south of Stump Pass within areas designated as critically eroded between R9 and R40.5.** Sediment may be placed within the Shorebird Fill Area on Knight Island near

R25. The quantity of fill to be placed in each area shall be based on observed erosion patterns and beach erosion quantities documented through the monitoring protocol of Strategy #1. Should each of the beach fill placement areas contain sufficient fill material to maintain their authorized design template through the next maintenance event, then inlet dredge material may be placed within the active ebb shoal of Stump Pass.

Discussion – There are currently two designated critically eroded beach segments and one critical inlet shoreline segment north and south of Stump Pass located between R9 and R40.5 (FDEP, 2016). The gulf beach between R9 at the north end of Englewood Public Beach and R21.2 within the Stump Pass Beach State Park is designated as critically eroded. Although the Stump Pass effects do not appear to extend north of R14, the segment between R9 and R19 is a “proximate beach restoration project” in need of periodic nourishment pursuant to Section 161.142, Florida Statutes. Critically eroded beaches north of R9 are not currently part of a defined beach restoration project area and are not within the influence of Stump Pass, and therefore, are not eligible or appropriate for nourishment using sediment from Stump Pass. The south shoreline of Stump Pass is critically eroded and the erosion is threatening residential development on Palm Island. To the south of Stump Pass along Knight Island and Don Pedro Island, critical erosion is designated between R28 and R40.5. In the future, areas that are not currently identified as critically eroded may become designated critically eroded, or areas currently designated critically eroded may lose that designation. However, priorities at the time of fill placement will be those areas designated as critically eroded at the time of the Stump Pass dredging project. Should the beach fill placement areas contain sufficient fill material to meet their design performance expectation through the next maintenance event, then Stump Pass dredge material shall be placed within the active ebb shoal. The development of the ebb shoal may facilitate natural bypassing across Stump Pass and reduce shoaling within the navigation channel.

- 4) **The initial target Stump Pass bypassing quantities shall be the placement of 25,000 cubic yards per year to the south and 6,000 cubic yards per year to the north.** These target quantities may be changed based on a minimum of three years of monitoring. These target bypassing quantities shall not be considered limitations on sediment removal from Stump Pass, including the channel and the ebb and flood shoals. The county may be

allowed to remove additional sediment from Stump Pass as necessary to mitigate impacts consistent with Strategy #5 or to extend the life of the beach restoration projects adjacent to Stump Pass so that periodic nourishment is needed less frequently.

Discussion – The bypassing quantities of Implementation Strategy #4 represent minimum initial target placement quantities that are projected to balance the sediment budget between Stump Pass and the adjacent beaches. These target quantities are based upon the expected effects of the terminal groin and performance of the beach fill placements. The actual Stump Pass sediment budget will be expected to vary somewhat over time as the beach project with the terminal groin equilibrates. Because the shoreline north of the terminal groin should become more stable, the total volume and/or the proportion of fill placement may need to be modified from that adopted in Implementation Strategy #4. A minimum of three years of monitoring data is selected as necessary to represent the latest trend in Stump Pass sediment processes following construction of the terminal groin and the beach fills. The target bypassing quantity does not limit the excavation of additional material from Stump Pass when it may be necessary for mitigating the effects of the navigation improvements on the adjacent beaches.

- 5) **The source of sediment for meeting the target bypassing quantities in Strategy #4 shall be the Stump Pass channel and borrow area.** Acceptable beach quality sand may also be obtained from inland sand mines or offshore sources to supplement the target bypassing quantities or to facilitate development and growth of Stump Pass ebb shoal.

Discussion – The area typically dredged for bypassing is the authorized navigation channel in Stump Pass. This does not exclude inland sand mines or offshore sources when determined necessary to supplement or facilitate the target bypassing quantities or develop the Stump Pass ebb shoal.

- 6) **Sediment dredged from Stump Pass may also be placed within the Palm Island Fill Area** along the south shoreline of Stump Pass north of R22 to mitigate critical inlet shoreline erosion. The quantity of sediment to be placed at this location shall be determined by the monitoring surveys in Strategy #1 and shall not be included as part of the target bypassing quantity or division of material placed both north and south of Stump Pass in accordance with Strategy #4.

Discussion – Material placed in the Palm Island Fill Area along the critically eroded south shoreline of Stump Pass will not factor into the division of material bypassed to adjacent beaches because this shoreline fill placement is within Stump Pass and not on the open beach areas adjacent to Stump Pass. The removal and placement of inlet material onto the interior shoreline of Stump Pass does not affect the sediment budget between Stump Pass and affected gulf-fronting beaches.

- 7) **Complete the construction of the approved terminal groin on Manasota Key** located at approximately R21.2. Monitor the effects of the groin and determine the need for adjustments to the bypassing protocol.

Discussion – Joint Coastal Permit No. 0194790-017-JC has authorized the construction of a terminal groin near R21.2. The construction of the groin is intended to reduce spit growth into the Stump Pass channel and provide stability to the shoreline within the state park.

References

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