

Mexico Beach Inlet Management Plan

Office of Resilience and Coastal Protection

Florida Department of Environmental Protection

April 2024



Final Order Adopting Mexico Beach Inlet Management Plan

WHEREAS, pursuant to Section 161.161, Florida Statutes, the Florida Department of Environmental Protection (department) shall “evaluate each improved, modified or altered inlet and determine whether the inlet is a significant cause of beach erosion. With respect to each inlet determined to be a significant cause of beach erosion, the plan shall include the extent to which such inlet causes beach erosion and recommendations to mitigate the erosive impact of the inlet, including, but not limited to, inlet sediment bypassing; improvement of infrastructure to facilitate sand bypassing; modifications to channel dredging, jetty design and disposal of spoil material; establishment of feeder beaches; and beach restoration and beach nourishment.”

WHEREAS in 2008, the Florida Legislature amended Section 161.142, Florida Statutes, finding, “The Legislature recognizes the need for maintaining navigation inlets to promote commercial and recreational uses of our coastal waters and their resources. The Legislature further recognizes that inlets interrupt or alter the natural drift of beach-quality sand resources, which often results in these sand resources being deposited in nearshore areas or in the inlet channel, or in the inland waterway adjacent to the inlet, instead of providing natural nourishment to the adjacent eroding beaches. Accordingly, the Legislature finds 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, the department adopted the *Strategic Beach Management Plan*, which contained the current corrective measures to mitigate the identified impacts of Mexico Beach Inlet; and

WHEREAS in 2023, the department authorized the City of Mexico Beach to construct an east jetty at Mexico Beach Inlet, which compiled new survey data and information regarding its coastal processes and inlet and shoreline dynamics and updated its sediment budget; and

WHEREAS, in April 2024, the department finalized the development of an inlet management plan that contains corrective measures to mitigate the identified inlet erosion impacts to adjacent beaches; and

WHEREAS, the City of Mexico Beach is responsible for dredging and sand bypassing at Mexico Beach Inlet and, therefore, responsible for implementation of the inlet management plan; and

WHEREAS, this inlet management plan (attached) 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 **Mexico Beach Inlet Management Plan**. Future inlet management activities conducted by the Town of Mexico Beach shall be consistent with the following five strategies:

- 1) **A comprehensive beach and inlet hydrographic monitoring program** shall be conducted to evaluate the performance and impact of existing sand bypassing and nourishment projects and to periodically update the inlet sediment budget. Beach and nearshore surveys between FDEP Range/ Reference Monuments R123 to R144 shall be conducted. Periodic inlet hydrographic surveys to include the inlet channel and the ebb shoal shall also be conducted. Along with topographic and hydrographic surveys of the inlet system and adjoining beaches, dredge records shall be maintained for all sand bypassing activities.
- 2) **Sand bypassing shall be performed from the inlet system, including from the inlet channel, the ebb shoal and the west beach sand trap, with stockpiled placement on the adjacent gulf-fronting beach to the east of the inlet between the east jetty and approximately FDEP Range/ Reference Monument R128.** The stockpiled material may be trucked to the critically eroded beach between R132 and R137.8. The quantity of material to be bypassed shall be based on available inlet reservoir quantities documented through the monitoring protocol of Strategy #1 above.

- 3) On an average annual basis, the target inlet sand bypassing quantity shall be 32,400 cubic yards per year to the east.** This target quantity may be modified or updated based on a minimum of four years of additional monitoring data indicating a change in the sediment budget. However, the sediment budget should cover a time period of at least 10 years.
- 4) The source of sediment for meeting the target sand bypassing quantities in Strategy #3 may be the Mexico Beach Inlet channel, the ebb shoal, the west beach sand trap, or as otherwise authorized by permit.** Acceptable beach quality sand may also be obtained from inland sand mines or offshore sources to achieve the target sand bypassing quantities.
- 5) Complete the construction of the authorized east jetty.**

Inlet management actions conducted by the City of Mexico Beach 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 of a funding request 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. Activities ineligible for cost sharing include, but are not limited to navigational construction, operation, and maintenance activities, except those elements whose purpose is to place or keep sand on adjacent beaches. Nothing in this plan precludes the evaluation and potential adoption of other strategies for the effective management of Mexico Beach Inlet and the adjacent beaches.

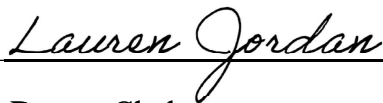
Approval of Adoption



Alex Reed
Director of the Office of Resilience and Coastal Protection
Florida Department of Environmental Protection

Filing and Acknowledgement

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



Deputy Clerk

04/19/2024

Date

Electronic Copies Furnished to:

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Lainie Edwards, Ph.D., Deputy Director, Office of Resilience and Coastal

Protection 2600 Blair Stone Road Tallahassee, Florida 32399-2400

Crystal Anderson, Office of General Counsel

Greg Garis, Beaches, Inlets and Ports Program

Guy Weeks, Beaches, Inlets and Ports Program

Shamim Murshid, Coastal Engineering and Geology Program

Ralph Clark, P.E., Coastal Engineering and Geology Program

Michael Isaacson, Beaches Funding Program

DEP Agency Clerk

CITY OF MEXICO BEACH

Chris Hubbard – City Administrator

Tommy Davis – Public Works Director

Captain Joseph Morrow, P.E., MRD Associates, Inc.

Michael Dombrowski, P.E., MRD Associates, Inc.

BAY COUNTY

Lisa Armbruster – consultant for Bay County

Notice of Rights

This action is final and effective on the date filed with the clerk of the department unless a petition for an administrative hearing is timely filed under Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. On the filing of a timely and sufficient petition, this action will not be final and effective until further order of the department. Because the administrative hearing process is designed to formulate final agency action, the hearing process may result in a modification of the agency action or even denial of the request for a variance or waiver.

Petition for Administrative Hearing

A person whose substantial interests are affected by the department's action may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. Pursuant to Rule 28-106.201, F.A.C., a petition for an administrative hearing 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, telephone number and any e-mail address of the petitioner; the name, address, telephone number and any email address 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, including an explanation of how the alleged facts relate to the specific rules or statutes; 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.

The petition 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. Also, a copy of the petition shall be mailed to the applicant at the address indicated above at the time of filing.

Time Period for Filing a Petition

In accordance with Rule 62-110.106(3), F.A.C., petitions for an administrative hearing must be filed within 21 days of receipt of this written notice. The failure to file a petition 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, F.S., 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, F.A.C.

Extension of Time

Under Rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the department's action may also request an extension of time to file a petition for an administrative hearing. The department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, FL 32399-3000, before the applicable deadline for filing a petition for an administrative hearing. 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.

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Introduction

Pursuant to Subsection 161.101(2), Florida Statutes, the Florida Department of Environmental Protection (Department or FDEP) 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 Mexico Beach Inlet in Bay County, Florida.

Mexico Beach Inlet Management Plan updates strategies for Mexico Beach Inlet that were adopted in the *Strategic Beach Management Plan* (FDEP, 2023b) to be consistent with current statutes and observed erosion¹ conditions. The *Strategic Beach Management Plan* (FDEP, 2023b) called for – “Continue the authorized sand bypassing project by excavating sand from the beach west of the inlet, from the ebb shoal at the inlet entrance, and from the channel within the inlet, and by transferring the material to the downdrift shoreline east of the inlet through the authorized discharge points; continue to monitor the dredge records of the authorized bypassing project to achieve a target annual bypassing quantity of 32,400 cubic yards; replace, sand-tighten, and extend the east jetty to a point comparable with the west jetty; develop a sediment budget and adopt an inlet management plan.”

See the general location of Mexico Beach Inlet in **Figure 1**.

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.

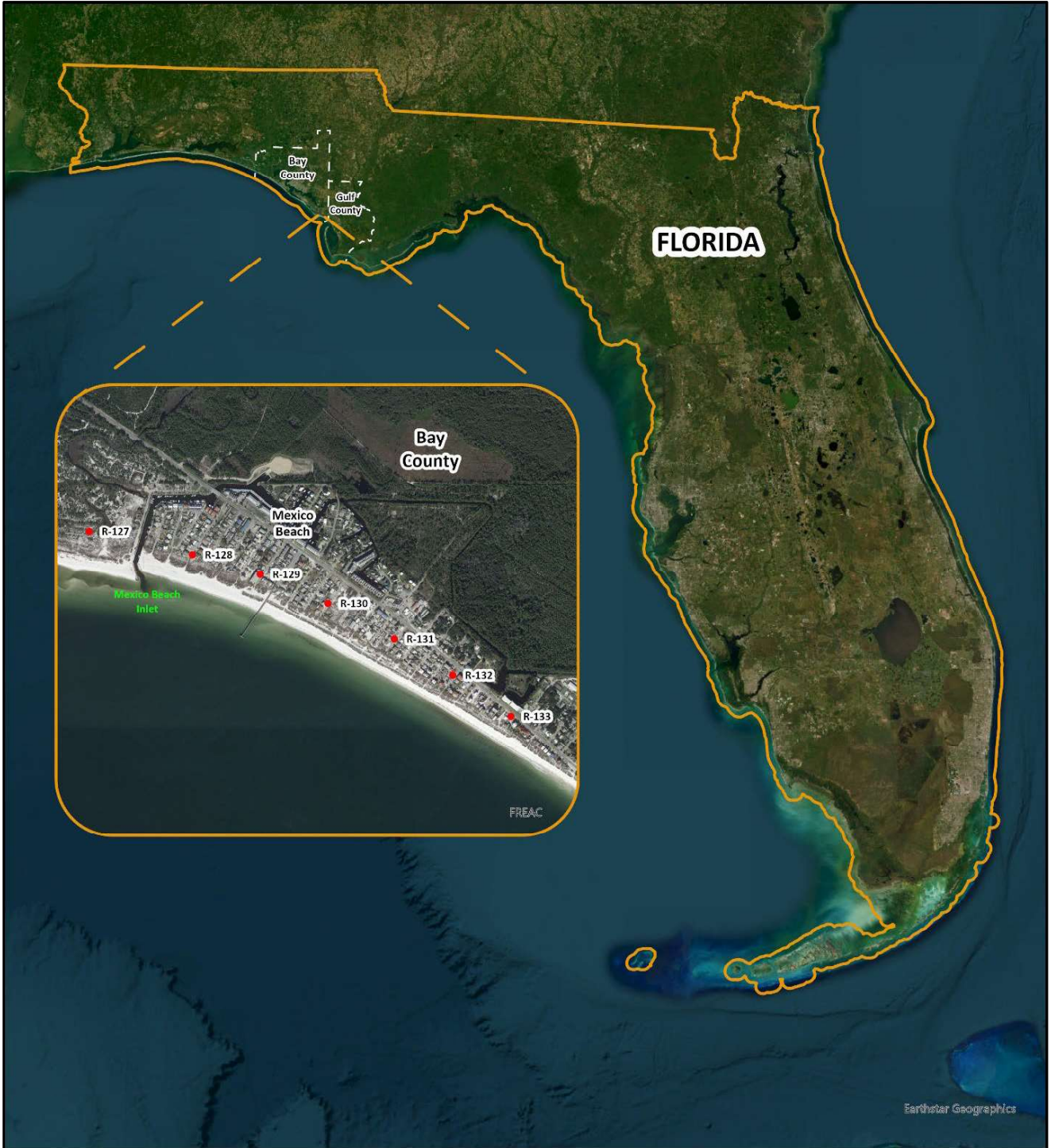


Figure 1. 2017 aerial photograph showing the location of Mexico Beach Inlet.

Program Objectives and Statutory Responsibilities for Inlet Management

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

“The Legislature recognizes the need for maintaining navigation inlets to promote commercial and recreational uses of our coastal waters and their resources. The Legislature further recognizes that inlets interrupt or alter the natural drift of beach-quality sand resources, which often results in these sand resources being deposited in nearshore areas or in the inlet channel, or in the inland waterway adjacent to the inlet, instead of providing natural nourishment to the adjacent eroding beaches. Accordingly, the Legislature finds 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.”

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 of the inlet and adjacent beaches must be supported by separately approved inlet management plans or inlet components of the statewide comprehensive beach management plan.”

The Town of Mexico Beach has been the entity responsible for dredging Mexico Beach Inlet and consequently, mitigating the extent of beach erosion caused by the inlet, as specified in Subsection 161.142 (6), Florida Statutes.

History of Mexico Beach Inlet and Adopted Inlet Management Strategies

Mexico Beach Inlet is in eastern Bay County on the northwest gulf coast of Florida between Tyndall Air Force Base to the west and the City of Mexico Beach to the east and is located between FDEP range/ reference monuments R127 and R128 (**Figure 2**). Mexico Beach Inlet connects the Gulf of Mexico with a canal system within the City of Mexico Beach. The channel leading to the inlet entrance follows the historic path of Salt Creek, a tidal creek that was periodically open that connected to Bear Swamp to the north.

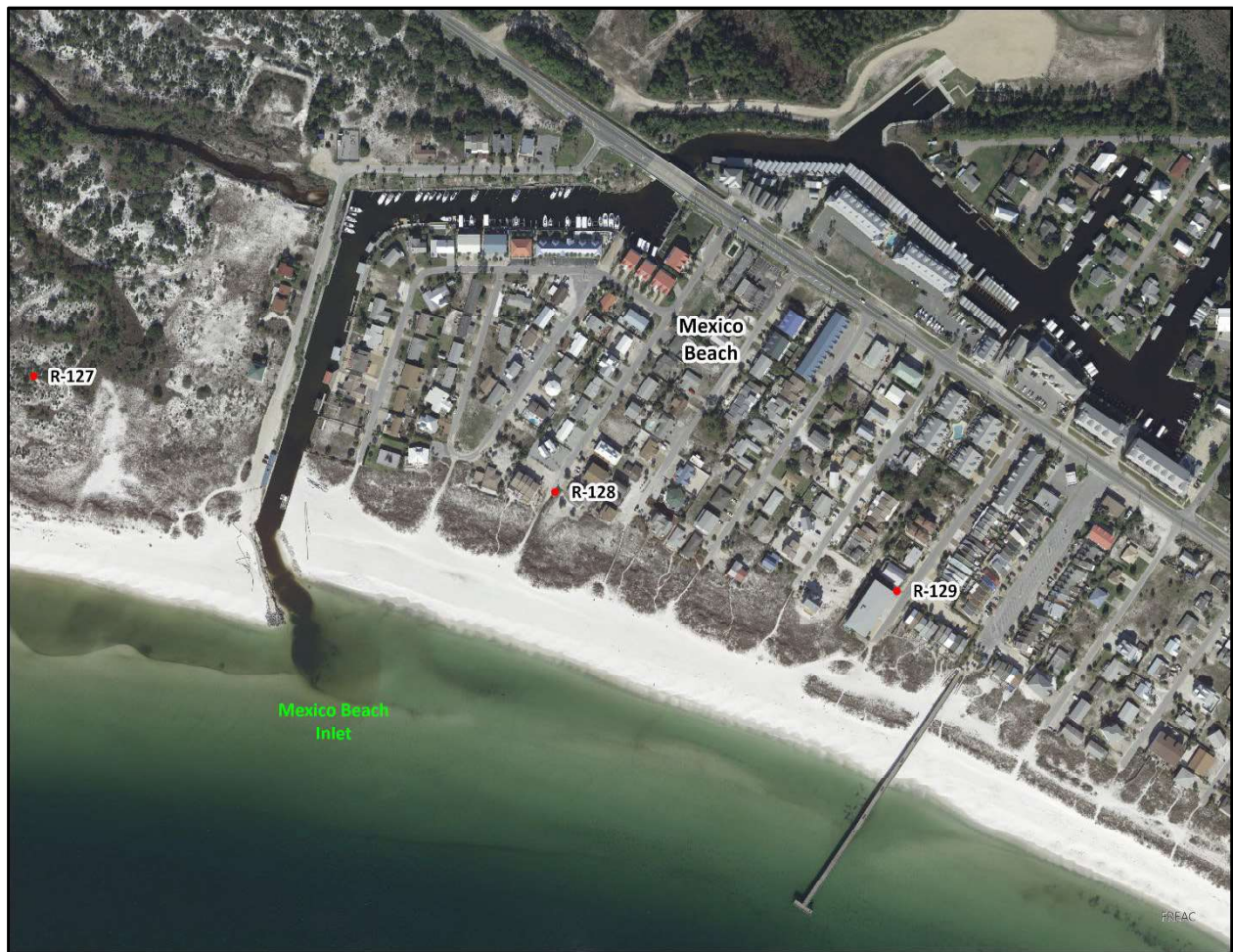


Figure 2. Aerial photograph from 2017 of Mexico Beach Inlet.

It is important to understand the history of Mexico Beach Inlet, its evolution and prior inlet management activities, and beach erosion control activities along the adjacent beaches, to gain a perspective on the inlet's dynamics and the need to change inlet management strategies over time. The Mexico Beach Inlet channel and inlet dredging initially occurred in the late 1950's by

local interests seeking small craft navigation access to the Gulf of Mexico for recreational fishing (**Figure 3**). The interior canal system is aligned generally west to east along the northern limits of the city for approximately 10,000 feet and has an unmaintained eastern gulf connection that drains Cypress Creek located at FDEP range/ reference monument R138.



Figure 3. The Mexico Beach Inlet dredge in 2010.

Dredge records are not available during the 1960's as locals removed sand at the inlet's entrance to gain navigable access to the Gulf of Mexico. At some point during the early 1970's, two short rock jetties were constructed at the inlet's entrance and bulkheads were constructed along the interior channel. In 1971, the Florida Department of Natural Resources (FDNR) authorized the removal of 100,000 cubic yards of sand by dragline over a four-year period (FDNR permit DBS 71-10). The city placed the dredged material on the beach west of the inlet, but the actual dredged volumes are unknown. A permit modification was authorized in 1974, which provided for recurring maintenance dredging at the inlet (FDNR permit DBS 71-10M). During the

summer of 1974, the Coastal Engineering Research Center (U.S. Army Corps of Engineers) conducted a field experiment at Mexico Beach Inlet to evaluate a truck mounted jet pump sand bypassing system. The operation excavated approximately 20,000 cubic yards of sand that was placed on the beach east of the inlet.

Following the Corps' jet pump tests at the inlet, with a grant from the state, the City of Mexico Beach purchased a fixed twin jet pump system in 1975 with installation commencing in June. Prior to conclusion of construction, category 3 Hurricane Eloise made landfall to the immediate west causing major erosion and damage throughout Bay County. The storm effectively destroyed the jet pump system with damage estimates reaching \$75,000. Emergency maintenance dredging was conducted by the Mobile District Corps of Engineers following Hurricane Eloise. 11,700 cubic yards of sand were dredged at the inlet with the placement area unknown.

The city rebuilt the twin jet pump system, which became operational in April 1976; however, the city did not maintain accurate records of the quantity of sand dredged. Jones (1977) estimated a bypassed volume of 26,850 cubic yards between June and December 1976 based upon electric power consumption rates at the pumping station. In 1977, the jet pump system failed when the two pumps buried themselves beyond retrieval. The jet pump system was abandoned and in 1978, the FDNR authorized inlet maintenance dredging of 2,500 cubic yards per year to maintain a 5-foot deep, 50-foot wide channel. Material was authorized to be placed to the east of the inlet.

In early 1985, the city was authorized to use 1,700 cubic yards of channel maintenance material for dune reconstruction (FDNR permit BA127). During an active hurricane season in 1985, Hurricane Elena, Tropical Storm Juan, and Hurricane Kate all impacted Mexico Beach Inlet causing channel shoaling and structural damages to the jetties. Additional dune reconstruction was subsequently authorized (FDNR permit BA141). In 1987, the west jetty and interior bulkheads were repaired (FDNR permit DBS 86-167 BA). The city sought federal aid in maintaining Mexico Beach Inlet, but in 1989, Mobile District Corps of Engineers recommended against federal participation due to an unacceptably high cost to benefit ratio (CESAM, 1989).

In 1999, Taylor Engineering, Inc. completed an inlet management study for Mexico Beach Inlet and calculated inlet bypassing rates based on operational hours, dredge depths and

intake/discharge pipe diameters. The estimated dredge production from 1975 to 1996 was 32,000 cubic yards per year (Craig and Taylor, 1999). The recommended plan called for continuing the existing maintenance dredging operations, relocating the dredge disposal area approximately 500 feet east of the inlet, reconstructing the east jetty and establishing a comprehensive monitoring plan.

In October 2000, the department adopted the initial inlet management strategies for Mexico Beach Inlet in the *Strategic Beach Management Plan*, which were to “continue existing protocol of bypassing maintenance dredged material to the downdrift shoreline east of the inlet; extend the distance material is placed east of the inlet to at least 500 feet; bypass sand trapped by the west jetty to the downdrift shoreline east of the inlet; replace and extend the east jetty to a point comparable with the west jetty (approximately 220 feet); conduct a comprehensive synoptic monitoring program” (FDEP, 2000).

In December 2001, the department authorized the city to conduct annual sand bypassing at the inlet by hydraulically excavating sand from the beach immediately west of the inlet and placing it along the shoreline up to 2,500 feet east of the inlet (FDEP permit # 0178779-001-JC). The permit expired in 2006.

In May 2008, the department adopted modified inlet management strategies for Mexico Beach Inlet in the *Strategic Beach Management Plan*, which were to “implement a new sand bypassing protocol by excavating sand from the beach west of the inlet and transferring the material to the downdrift shoreline to the east of the inlet; place the material at least 500 feet from the jetty; replace and extend the east jetty to a point comparable with the west jetty (approximately 220 feet); monitor” (FDEP, 2008).

In May 2009, the department authorized the city to conduct maintenance dredging of the inlet and the sand trap west of the inlet with nearshore disposal of sand to the east of the inlet. The permit authorized the disposal of an estimated annual average of 250,000 cubic yards of sand, seaward of the mean high water line, through one or more fixed discharge points, from which temporary pipelines are used to direct the sand to the mean low water line (FDEP permit 0290631-001-JC).

In June 2015, the department adopted modified inlet management strategies for Mexico Beach Inlet in the *Strategic Beach Management Plan* to include an annual target bypassing quantity. The adopted strategies were to “continue the authorized sand bypassing project by excavating sand from the beach west of the inlet, from the ebb shoal at the inlet entrance, and from the channel within the inlet, and by transferring the material to the downdrift shoreline east of the inlet through the authorized discharge points. Continue to monitor the dredge records of the authorized bypassing project to achieve a target annual bypassing quantity of 32,400 cubic yards. Replace, sand-tighten, and extend the east jetty to a point comparable with the west jetty” (FDEP, 2015). In addition, the department adopted modified beach management strategies in the *Strategic Beach Management Plan* to mitigate critical erosion in Mexico Beach between R132 and R137.8, which were to “modify the inlet sand bypassing protocol to implement a truck haul beach nourishment project” (FDEP, 2015).

In October 2018, category 5 Hurricane Michael caused extensive damage to the entire City of Mexico Beach including Mexico Beach Inlet (Clark et al, 2019). Substantial shoaling was observed at Mexico Beach Inlet, which also provided a conduit for the ebb flow of Michael’s storm surge. The west jetty was damaged and much of the interior canal bulkheads were destroyed or substantially damaged.

In 2019, the department authorized the city to conduct maintenance dredging of the inlet and west beach sand trap with bypassing to the east of the inlet. Dredged sand was temporarily stockpiled on the back of the beach berm for trucking to a segment of critical erosion between R131.8 and R138.2. The permit was modified to allow placement for beach berm and dune restoration between R128 and R144, to mitigate damage caused by Hurricane Michael (FDEP permit 0290631-004-JM).

In December 2020, the department authorized the city to construct a shore-wide beach restoration project between R130 east of the old fishing pier location and R144 at the east city limits at the Gulf County line (FDEP permit 0387371-001-JC). Between 1.2 and 1.5 million cubic yards is to be placed. The sand is to be obtained from an offshore borrow site located approximately 12,500 feet southwest of the inlet.

Due to the extensive shoaling caused by Michael, the city dredged and bypassed 75,185 cubic yards in 2020 and 79,052 cubic yards in 2021. In 2022, the city dredged and bypassed a more normal quantity of 32,622 cubic yards. **Table 1** tabulates inlet bypassing records since 2010.

Table 1. Recent inlet bypassing records since 2010 (data from City of Mexico Beach).

Year	Canal	Sand Bar	West Sand Trap	Totals
2010	11,437	0	15,210	26,647
2011	2,537	978	10,978	14,493
2012	11,381	2,267	3,185	16,833
2013	4,530	5,044	16,741	26,315
2014	0	0	0	0
2015	13,928	0	0	13,928
2016	18,735	6,233	12,261	37,230
2017	0	0	0	0
2018	0	0	0	0
2019	0	0	0	0
2020	75,185	0	0	75,185
2021	79,052	0	0	79,052
2022	32,622	0	0	32,622
2023	50,815	0	0	50,815
Average	N/A	N/A	N/A	26,651

On January 26, 2023, the department authorized the construction of an east jetty for Mexico Beach Inlet (FDEP permit 0416748-001-JC). The new east jetty is to extend 339 feet in length. The project also includes repairs to a 42-foot segment of the existing west jetty.

Inlet Management Study and Updated Sediment Budget of 2022

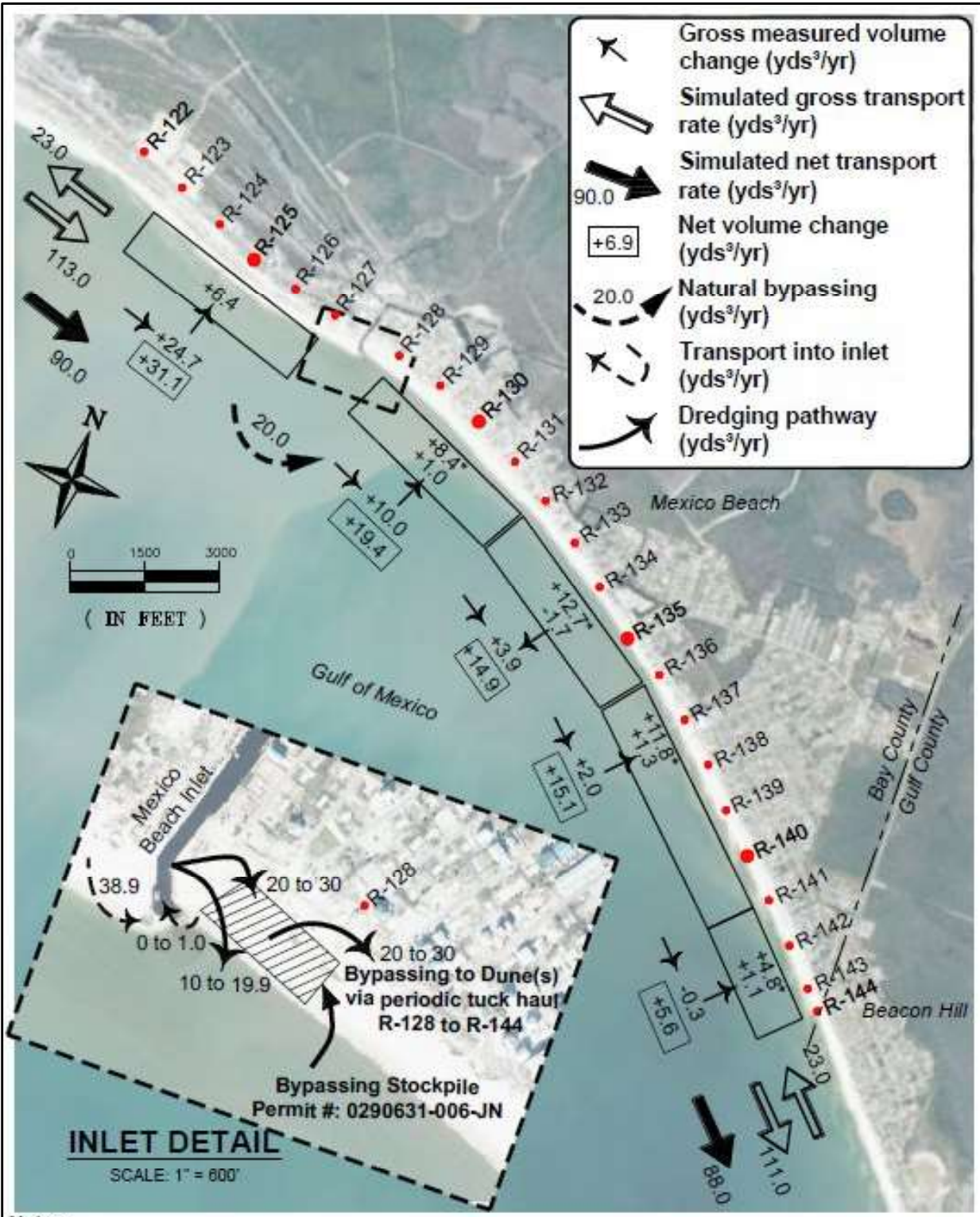
Pursuant to Section 161.142, Florida Statutes, dredging within an inlet system, including its shoals, should result in the placement of all beach quality sand on adjacent eroding beaches to balance the sediment budget between the inlet and adjacent beaches. A sediment budget is a

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 the inlet to the adjacent beaches or nearshore. 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. A sediment budget is determined by comparing two or more surveys of an inlet system, including its channel, ebb and flood shoals, and the adjacent beaches.

In September 2022, the East Jetty Design Document was prepared by MRD Associates, Inc. (MRD), for the City of Mexico Beach. This document included a revised sediment budget to show the effects of the proposed eastern jetty on the littoral system near Mexico Beach Inlet. Given authorization of the beach restoration project, at the request of the department, MRD further refined the updated sediment budget to account for the placement of 1.25 million cubic yards of sand to the east between the inlet and the county line at R-144, see **Figure 4**.

With a design life of more than 30 years, the net volume change to the beach cells east of the inlet from the nourishment is anticipated to be approximately 37,700 cubic yards per year. With a net eastward longshore transport of approximately 90,000 cubic yards per year less the 37,700 cubic yards per year of nourishment over the project design life less the estimated natural eastward inlet bypassing of approximately 20,000 cubic yards per year leaves a deficit of 32,300 cubic yards per year necessary for mechanical inlet bypassing to balance the sediment budget.

With consideration of the authorized beach restoration project’s influence on the updated or projected sediment budget, there is no justification to change the current target bypassing requirement of 32,400 cubic yards per year. Continued beach and inlet monitoring and maintenance of dredge bypassing records will allow future reevaluations of the inlet’s sediment budget and possible future changes to the target bypassing requirement. Adoption of this inlet management plan will memorialize the various authorizations provided for beach restoration, east jetty construction and the dredge bypassing protocols currently conducted by the City of Mexico Beach.



Notes:
 All values in thousand's of cubic yards per year.
 *Annualized Proposed Beach Nourishment placement of 1.25M yds³ with 30+ year design life.

Figure 4. Updated Mexico Beach Inlet sediment budget including the authorized beach restoration project (MRD Associates, Inc., 2023).

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.

- 1. A comprehensive beach and inlet hydrographic monitoring program** shall be conducted to evaluate the performance and impact of existing sand bypassing and nourishment projects and to periodically update the inlet sediment budget. Beach and nearshore surveys between FDEP Range/ Reference Monuments R123 to R144 shall be conducted. Periodic inlet hydrographic surveys to include the inlet channel and the ebb shoal shall also be conducted. Along with topographic and hydrographic surveys of the inlet system and adjoining beaches, dredge records shall be maintained for all sand bypassing activities.

Discussion – A comprehensive beach and inlet hydrographic monitoring program is the most important element to manage the sediment at Mexico Beach Inlet. Topographic and bathymetric surveys provide reliable data to estimate the volumetric impact of the inlet on adjacent beaches and to establish a sand placement protocol that complies with Section 161.142, Florida Statutes.

- 2. Sand bypassing shall be performed from the inlet system, including from the inlet channel, the ebb shoal and the west beach sand trap, with stockpiled placement on the adjacent gulf-fronting beach to the east of the inlet between the east jetty and approximately FDEP Range/ Reference Monument R128.** The stockpiled material may be trucked to the critically eroded beach between R132 and R137.8. The quantity of material to be bypassed shall be based on available inlet reservoir quantities documented through the monitoring protocol of Strategy #1 above.

Discussion – The beach east of Mexico Beach Inlet is the adjacent eroded beach directly impacted by the inlet system. The beaches 4,000 feet to the east of Mexico Beach Inlet (R132-R137.8) are currently designated critically eroded by the Department (FDEP, 2023a).

- 3. On an average annual basis, the target inlet sand bypassing quantity shall be 32,400 cubic yards per year to the east.** This target quantity may be modified or updated based on a minimum of four years of additional monitoring data indicating a change in the

sediment budget. However, the sediment budget should cover a time period of at least 10 years.

Discussion – The updated sediment budget, which includes the authorized placement of 1.25 million cubic yards of nourishment, indicates a need to place an annual quantity of approximately 32,400 cubic yards of sand on the beaches east of the inlet to account for the inlet’s impact. Additional sand may be placed that is obtained from acceptable offshore sources or inland sand mines to account for the inlet’s effect or to mitigate sand losses that are attributable to rising sea levels.

- 4. The source of sediment for meeting the target sand bypassing quantities in Strategy #3 may be the Mexico Beach Inlet channel, the ebb shoal, the west beach sand trap, or as otherwise authorized by permit.** Acceptable beach quality sand may also be obtained from inland sand mines or offshore sources to achieve the target sand bypassing quantities.

Discussion – Maintenance dredging of the inlet channel, ebb shoal and the west beach sand trap accounts for about 32,400 cubic yards per year bypassed to the beaches east of the inlet. Natural bypassing accounts for 20,000 cubic yards per year. The authorized beach restoration project accounts for roughly 37,700 cubic yards per year.

- 5. Complete the construction of the authorized east jetty.**

Discussion – On January 26, 2023, the department authorized the construction of an east jetty for Mexico Beach Inlet (FDEP permit 0416748-001-JC).

References

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