

SAND DOLLARS: THE NEED FOR COASTAL EROSION PREVENTION & RESPONSE IN TEXAS

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I. INTRODUCTION

With each wave that strikes the Texas shoreline, our state is losing one of its most precious natural resources. Despite the fact that seventy percent of the state's coast is historically eroding, Texas remains the only coastal state without a comprehensive beach erosion fund. Without state money, there is little that federal, state or local agencies can do. Consequently, the 76th Texas Legislature needs to create a dedicated funding mechanism to support erosion response and prevention.

The chronic loss of sediment has been exacerbated by two storms in two years that have resulted in severe erosion and subsequent disaster declarations. The two storms resulted in millions of dollars in damages to private and public property. The rapidly retreating shoreline poses significant threats to critical public infrastructure (state highways and the Gulf Intracoastal Waterway), natural resources (beaches and wetlands), recreational areas, private investments, homes and the state's tourism industry.

This paper provides an overview of coastal erosion; outlines the current legal framework of beach protection in Texas; identifies statutory weaknesses and gray areas in case law; discusses ongoing legislative activities; and urges the need for support from the Legislature in order for property owners, state agencies and local governments to take action to preserve Texas beaches.

II. COASTAL EROSION¹

A. OVERVIEW

The Texas coast, like any other coastal area, is a dynamic and changing place. Some areas are

prone to erosion, while others experience accretion. Erosion is the process of wearing away the land, while accretion is the process of gradual enlargement. The winds and currents of the Gulf of Mexico create a strong littoral drift, which transports sand parallel to the beach in the near shore area. The dams on all of Texas' major rivers have prevented new sand from making it downstream to the coast. Texas' susceptibility to tropical storms and hurricanes results in abrupt changes in the shape, size and beach profile of barrier islands over a period of days or sometimes hours. Also, the building of jetties to protect navigational inlets has created unnatural patterns of erosion and accretion. The lack of sediment flowing downstream is particularly harmful considering that the sea level is rising approximately sixteen inches a century.²

Approximately seventy percent of Texas' 389 miles of beaches is eroding. Over the last 100 years, those beaches that erode have done so at rates of one to eight feet per year.³ There are localized overwash areas and beaches adjacent to seawalls and other structures which experience accelerated erosion of up to thirty feet per year.

B. IMPACT OF STORMS

While incremental erosion is nothing new in Texas, severe erosion does not typically occur absent a hurricane. When a hurricane strikes, the winds and tides typically work in conjunction to destroy structures along the beach. Both *Tropical Storm Frances* and *Tropical Storm Josephine* were unusual in that the winds were minimal. The crashing waves generated by the storms simply stole the sand away... seemingly overnight.

1. TROPICAL STORM JOSEPHINE

In October 1996, *Josephine* brought tides two to three feet above normal to the coast. The tides caused Galveston Bay to spill over its banks sending water into streets on the backside of the barrier island. With each high tide, huge chunks of beach would wash away until the thin layer of sand that had made up the dunes was gone, exposing a clay bluff. The much steeper slope of the bluff acted like a seawall and caused wave reflection and accelerated scour of the beach below. In some places, up to fifty horizontal feet and ten vertical feet of beach disappeared. The sand eroded beneath wooden piling foundations leaving approximately sixty houses on the verge of collapse.

Because of *Josephine*, more than fifty homes lost their on-site sewer systems (*i.e.*, septic tanks). The concrete slabs which had served as patios or driveways under homes were left as rubble on the beach or suspended in mid-air—clinging to the wooden pilings. Many homes were left just a few feet from a rapidly eroding bluff. Three homes collapsed into the surf. In its unsuccessful application for federal disaster aide for Galveston County, the State of Texas estimated *Josephine*-related losses to be \$16.2 million.

2. TROPICAL STORM FRANCES

Josephine was bad. *Frances* was worse. Damages related to the September 1998 storm totaled \$250 million. In much of Brazoria and Galveston counties, the shoreline eroded between thirty and one hundred feet landward. Virtually all of the dunes were destroyed. Fifteen homes were wrecked. More than one hundred homes were rendered uninhabitable due to the loss of their septic systems. Three high-rise condominiums were damaged. Portions of three coastal highways (87, 3005, and the Bluewater Highway) were left vulnerable to closure from future storms. All are primary evacuation routes. President Clinton issued a federal disaster declaration on September 23, 1998, for Galveston, Harris and Brazoria counties.

III. PREVENTION & RESPONSE METHODS

Although it is difficult to prepare for devastating storms, property owners and governmental entities can undertake a range of preventative mea-

asures. Some yield only short-term protection while causing localized damage to neighboring properties.

A. LOCAL LAND USE REGULATIONS

Local governments bear some responsibility for allowing construction in coastal flood risk areas in the first place. Texas cities, and to a lesser extent counties, have the authority to regulate coastal construction through zoning, subdivision regulations, building codes and floodplain standards.⁴ The governing body of a municipality may regulate, among other things, the platting and subdividing of land.⁵ It may also regulate the percentage of a lot that may be occupied, the size of yards and other open spaces, and the location and use of buildings and land.⁶ Cities may also bring civil actions to enforce building codes, including ordinances regulating standards for building materials, wiring, plumbing, and fire safety.⁷

While the broad police powers of Texas cities enable them to deal more effectively with issues regarding construction along eroding shorelines, much of the more vulnerable coastline is located in unincorporated areas. Although boasting less powerful land use authority than cities, counties do have some available tools. Like cities, counties can regulate the platting and subdividing of land.⁸ Additionally, the legislature sought to address coastal flooding and secure the benefits of federal flood insurance by granting counties the power to adopt and enforce rules that regulate the management and use of land, structures, and other development in a flood-prone area of the county in order to reduce the extent of damage caused by flooding. The matters to which the rules may apply include:

- (1) the flood-proofing of structures located or to be constructed in the area;
- (2) the minimum elevation of a structure permitted to be constructed or improved in the area;
- (3) specifications for drainage;
- (4) the prohibition of the connection of land with water, sewer, electricity, and gas utility service, if a structure or other development on the land is not in compliance with a rule adopted by the commissioners court; and
- (5) any other action feasible to minimize flooding and rising water damage.⁹

The authority to prohibit the connection of utilities was granted by the 75th Legislature in the 1997 session (after *Josephine*).

The fact that cities and counties have the authority to regulate coastal development does not mean that they always exercise that authority for the protection of the beaches. In strong private property states such as Texas, developers and property owners often prevail when the public debate turns to the right of property owners to develop their property as they wish. Developers and property owners are often more concerned about securing great views and convenient beach access than living in harmony with a large and complex natural system. In the end, land use regulations may not be as important as they once were. According to the Texas Shore and Beach Association only 6.5 percent of the Texas shorefront is available for development.

B. SELF HELP

The enormity of the erosion problem combined with a lack of financial resources and the controversial nature of potential remedies has led to little action by state and local governments. Consequently, many beachfront property owners view *self-help* as their last resort. Privately funded structures such as seawalls, bulkheads, retaining walls and rip-rap have been built by property owners throughout Texas on the most severely eroding beaches using whatever material might be available, including wood, brick, concrete, steel, and boulders.

In the days immediately following *Josephine*, Texas General Land Office (GLO) officials occasionally witnessed property owners illegally dumping hundreds of bags of concrete off rapidly eroding bluffs directly into the pounding surf. The property owners were desperate and in need of some action that they could take to repel the waves.

C. STATUTORY RESTRICTIONS

In Texas, the strongest legal protections for the beach stem from laws which guarantee the public's access to public beaches. Texas has been a forerunner in protecting public access to the seashore. In 1959, years before other states demonstrated that beach access was even an issue, the Legislature enacted the Texas Open Beaches Act which articulated

the state's policy of encouraging recreational use of its beaches and tidal waters.¹⁰

The Open Beaches Act ensures the public's right to access, use, and enjoyment of the beach through a rolling easement that moves across private properties fronting the Gulf of Mexico as the natural vegetation line shifts.¹¹ When beachfront property owners erect hard erosion response structures, such as bulkheads, that hinder public access, the state has its best opportunity to seek the removal of those structures. Under the Open Beaches Act, any structure that is erected seaward of the vegetation line is contrary to the public's unrestricted right to the beach and is subject to a lawsuit by the State to remove the structure.¹²

However, the lengthy legal referral process through the state's attorney general, expensive demolition and disposal costs, and the ever-present political concerns of government agencies all serve as obstacles to removal of these structures. As to the issue of whether the forced removal of these structures constitutes a taking, courts have held that property is not taken without compensation when the owner is required to remove obstacles to a beach under the terms of the Open Beaches Act, because the act involves enforcement of easements previously acquired through prescription, dedication and custom.¹³

Additional protection for the beaches comes from the Texas Dune Protection Act, which prohibits the damage, destruction, or removal of sand dunes in critical dune areas.¹⁴ Both the Texas Dune Protection Act and the Open Beaches Act authorize the GLO to promulgate rules. These rules give the state its greatest opportunity to regulate beachfront construction, preserve dunes, and prevent the placement of hard structures that exacerbate erosion.¹⁵

The willingness of beachfront property owners to resort to illegal and environmentally detrimental forms of self-help (e.g. bulkheads) is understandable considering that Texas does not have dedicated funds for beach nourishment, buy-outs or the strategies implemented by other states. Nor does the state allocate the necessary funds for the exercise of its power of eminent domain to condemn or purchase privately owned beachfront property for use as conservation areas.¹⁶ In a report prepared for the State of New Jersey, researchers at the Rutgers

University Institute of Marine and Coastal Sciences called for a shift in state policy from defending and rebuilding coastal beaches and properties to removing storm-damaged buildings at state expense and letting nature reclaim the beach.¹⁷ When *Josephine* hit in the winter of 1996, Texas was not prepared to effectively deal with the day-to-day issues of coastal erosion, much less the damage wrought by severe storms.

D. HARD METHODS

1. SEAWALLS

The federal government responded to beach erosion which was threatening the Gulf Intracoastal Waterway in Sargent, Texas by constructing a multi-million dollar granite revetment. At just eight miles long, the seawall will be the longest wall ever built at one time in the United States. The cost of construction is estimated to be \$81 million. With predicted annual maintenance costs of \$800,000, the cumulative cost over the fifty-year period (the economic design life of the project) is \$425 million (roughly \$53 million per mile).¹⁸

On the *river of sand* that is a barrier island beach, armoring a particular piece of littoral property always comes at the detriment of downdrift properties. Structures such as seawalls and bulkheads generate localized erosion and accretion due to the reflection and refraction of waves during storm events. Although seawalls offer protection for uplands, such vertical structures direct wave energy straight down and accelerate beach destruction.¹⁹

When the beach in front of and adjacent to such structures is completely eroded, the public's use is impaired, which is the primary reason that the construction on the public beach is illegal in Texas. All hard structures, with the exception of billion dollar seawalls, are eventually undercut by waves and ultimately fail. When they do fail, they leave the uplands vulnerable and pose a public safety hazard on the beach while continuing to exacerbate downdrift erosion.

2. BREAKWATERS

Another type of coastal engineering structure built parallel to the shore to slow erosion is the *off-shore breakwater*—a wall built offshore to reduce

wave energy and, particularly, the longshore transport of sand along a beach. Some experts assert that the "wave shadow" formed by a breakwater reduces and usually stops the transport of sand.²⁰ This results in the formation of a seaward extending bulge of the beach, protecting beachfront buildings and providing a wider recreational beach. Breakwaters are becoming increasingly popular along eroding shorelines, principally because seawalls have gained a bad reputation among coastal managers and engineers whose interest is beach preservation. However, there is evidence that breakwaters themselves cause erosion along adjacent and immediate shores by taking sand out of the longshore current and preventing offshore sand from returning to the beach after storms.²¹

E. SOFT METHODS

1. NOURISHMENT

One means of slowing erosion and building broader beaches is to nourish or "replenish" the beach. The dredged material is pumped directly onto or updrift of the eroding beach to add additional sand budget to the area. Beach nourishment has not been widely utilized as a method of erosion response along the Texas coast because of a lack of economical beach-quality sediment and the absence of a coordinated funding source.²² Sand from maintenance dredging of the Gulf Intracoastal Waterway and various jettied inlets by the U.S. Army Corps of Engineers (Corps) has been used to nourish beaches in Corpus Christi, Surfside Beach, Sargent Beach, Matagorda Peninsula and South Padre Island.

Estimates for a recent nourishment project in North Carolina place the cost at \$300 to \$600 per linear foot (\$1.6 to \$3.2 million per mile), with a minimum of one to two miles of beach.²³ The City of Galveston has spent millions of dollars funding nourishment projects for the beach in front of the Galveston Seawall. Following *Josephine*, the state funded a limited nourishment project on the Bolivar Peninsula in conjunction with the Corps using dredged material from the Intracoastal Waterway. As with most soft methods, nourishment is a continuing process.

2. HAY DUNES

In response to *Josephine*, the GLO disseminated information regarding a shoreline stabilization method that the agency believed would offer a measure of protection for the uplands without causing additional erosion or denying the public access to the beach: the construction of artificial dunes using hay. Dunes are the best protection for the beach and the upland property because they absorb the force of the waves, spawn vegetation, and aid the accretion of sand. The GLO's coastal engineer, coastal biologist, and coastal geologist, developed a means of constructing artificial dunes using 4' x 5' round bales of hay stacked onto the beach and over-filled with sand. While this method was never touted as a permanent solution, it was the only known option that would offer protection for the uplands while not causing further degradation to the natural resource or hindering public access to the beach.

Once the GLO gave the green light, homeowners, in groups and individually, began getting emergency permits from local officials and built "hay dunes" at their own expense at a cost of \$600 - \$1,500 per home. Local governments expedited the permitting process pursuant to an emergency rule published in the *Texas Register* that suspended the procedural requirement that all beachfront construction permits be submitted to the GLO in Austin for review.²⁴ The GLO hoped that permitting hay dunes would provide property owners with an acceptable alternative to armoring the shoreline with more wood, concrete or metal.

IV. BOLIVAR PROJECT

The state decided to use hay dunes on the one occasion that it undertook an emergency response to coastal erosion. The narrative recount that follows raises some of the issues that the 76th Legislature should consider in providing for future response efforts.

A residential area on the Bolivar Peninsula in Galveston County was so severely threatened by post-*Josephine* erosion that on November 22, 1996, Texas Governor George W. Bush declared a state of disaster, thus enabling state funds, personnel and equipment to be sent to the area.²⁵ Pursuant to

the Texas Disaster Act of 1975, the governor's proclamation authorized the deployment and use of personnel and the use or distribution of supplies, equipment, materials and facilities.²⁶

Agreeing upon the need to stabilize the coastline immediately, state and local officials chose to: (1) remove all concrete, debris and wrecked structures from the beach; then (2) construct a continuous hay dune ridge. The crisis was deemed to be such a pressing public concern that the government paid for it despite the absence of any state coastal erosion response fund.

A Unified Incident Command was formed on-site giving the primary agencies undertaking the response a voice in the decision-making process. Designated leaders from the GLO, Texas Department of Transportation (TxDOT), Texas Department of Public Safety-Emergency Management Division (DPS), and Galveston County (County) designed and implemented operation plans for each day from a mobile command post.

Key tasks were divided as follows:

- Planning: designed specific actions such as debris clearing, hay bale placement, and securing of a sand source.
- Operations: implemented daily plans for such duties as purchasing hay, acquiring beach-quality sand, constructing hay dunes, disposing of waste, communicating between work crews, and doing daily reconnaissance for purposes of developing the next day's plan.
- Legal: identified and contacted property owners by searching appraisal district records and local realtor files, posted violation notices, negotiated structure removal consent forms, prepared enforcement cases for referral to state attorney general, provided explanations of the law to area property owners.

Altogether, nine state agencies, one county, one city, and one federal agency participated in the action. It is important to note that prior to this occasion, this group of agencies had never before come together to perform such an action.

A. LEGAL ISSUES

The state's emergency action response to the post-*Josephine* erosion on Bolivar raised several legal issues that the 76th Legislature should address.

Foremost among them was the right to enter upon private property and conduct response activities. Due to the nature of coastal and emergency management laws in Texas, consent had to be obtained from beachfront property owners along every stretch of the project. Considering the very real threat posed by the driving waves, and the rather experimental nature of the hay dunes, many property owners were skeptical and rather hesitant to grant the necessary consent.

The difficulty involved in obtaining consent varied from owner to owner. Some houses were merely rental properties managed by absentee landlords who had not visited the area for several years. Others were vacation homes that had been in their respective families for generations. A few were vacation homes that had been purchased recently without knowledge of the erosion rate or the illegality of the bulkhead.

Although construction on Texas beaches is regulated by the Texas Open Beaches Act²⁷ and the Texas Dune Protection Act,²⁸ most of the beach in Texas is privately owned and burdened only by a public easement. Thus, the state is not authorized to take all steps necessary to protect the beach. Even under the Texas Disaster Act, except in cases where it is not practical and further delay would create a greater risk to public health or safety, state agencies may clear and remove debris only if the local government or property owner presents the governor with an unconditional authorization for removal.²⁹

During the Bolivar project, a GLO lawyer had to document all of the houses within the project's two-mile scope, identify the property owners, and obtain written consent for the project.³⁰ Consent included the right to: (1) enter upon private property; (2) remove debris and specified structures (primarily structurally compromised homes and unauthorized erosion response structures, such as bulkheads); and (3) construct hay dunes.

In some instances, even homeowners' consent did not provide a sufficient basis for TxDOT to remove the dangerous structures that erosion had left located squarely on the public beach and in harm's way. Both the County and State lack broad authority to demolish dangerous structures. In some cases, consent had to be coupled with a written de-

termination made by the county flood plain inspector that the structures posed an imminent threat to public safety and could not be repaired under county building standards, usually those relating to septic systems.

B. THE OPERATION

Once consent and the other authorizations had been secured, DPS, TxDOT and the Texas Department of Criminal Justice (TDCJ) performed debris removal using heavy equipment and prison labor.³¹ The Attorney General's Office brought enforcement proceedings against property owners who would not give consent for the removal of illegal bulkheads from the public beach. Ultimately, most property owners agreed to the removal of the structures at the state's expense rather than face litigation and civil penalties ranging from \$50 to \$1,000 per day. The Texas Department of Health (TDH) oversaw the removal and disposal of the asbestos siding from many of the wrecked houses to ensure that the work was done in compliance with the Texas Asbestos Health Protection Act, which restricts the demolition of facilities, including the disposal of asbestos-containing waste materials.³² The Texas Natural Resource Conservation Commission provided regulatory clearance for the burn pit that was utilized to reduce the amount of debris that had to be landfilled.³³

Once the structures and debris were removed from the beach, county crews constructed the hay dunes using hay purchased from regional farmers and sand taken from a state beach.³⁴ The design parameters for the hay dunes called for *beach-quality sand*, which is rather scarce on an eroding beach. The task force opted to excavate sand from below the mean high water mark on a nearby accreting state beach. In order to conclusively establish the location of the mean high water mark, GLO's survey crew had to run lines from the nearest benchmark, which was located twenty miles away. The Corps cleared the way for county crews to remove the sand and relocate it to the project area. The sand was used to overfill the hay and help it function as a natural dune.

C. SUMMARY

The Bolivar project lasted approximately two months. Altogether seventy-five government employees, thirteen government agencies, and more

than fifteen inmates were directly involved in the action. Over 18,000 tons of concrete and debris were removed from a five-mile stretch of beach. Two miles of artificial dunes were constructed using 2,450 bales of hay and 18,000 cubic yards of sand. Eleven homes were demolished by the state and removed from the beach.³⁵

The estimated government response cost for the Bolivar project was over \$600,000. At the time of this project, none of the agencies involved budgeted for coastal erosion response. Some of the agencies involved considered applying for reimbursement from the State Disaster Contingency Fund, but chose not to do so. Under the Texas Disaster Act, if the governor finds that the demands placed on funds regularly appropriated to state and local agencies are unreasonably great for coping with a particular disaster, the governor with the concurrence of the disaster emergency funding board may make funds available from the disaster contingency fund. It is the stated intent of the Legislature that the first recourse be to the funds regularly appropriated to state and local agencies.³⁶

D. EVALUATION

Although the hay dunes were designed to last about six months, one year later many of the hay dunes had become vegetated and were performing the functions of natural dunes. In some areas, the accretion raised the profile of the beach so high that the original hay dunes were completely buried. Nearly sixteen months later, most of the hay dunes were destroyed by *Frances*. More importantly, the project demonstrated that building the hay dunes allows the beach's natural profile to reestablish more quickly than if the clay bluffs are not protected. The presence of the hay dunes also contributed to the success of a renourishment project that was done in cooperation with the Corps.

V. LEGISLATIVE ACTIVITY

Both *Frances* and *Josephine* demonstrated the need for continuous erosion prevention and emergency response. Thus far, the Legislature's treatment of the issue has been incremental. The time is right for a more comprehensive statutory approach.

A. BACKGROUND

The passage of Senate Bill 1571 during the 71st Texas Legislature in 1989 represented a huge step forward for Texas in terms of developing a comprehensive long-term coastal management plan to deal with the problem of coastal erosion. Even though Senate Bill 1571 only addressed state-owned coastal lands, it served the more important role of opening the dialogue between the Texas Legislature and coastal communities about the numerous problems and concerns surrounding the coastal erosion issue.

Progress continued when the 72nd Legislature expanded the scope of erosion legislation by enacting the Coastal Coordination Act of 1991, which was contained in Senate Bill 1053.³⁷ The Coastal Coordination Act was designed to address the pressing need for the coordination and disbursement of resources for both preventative and reactive coastal erosion measures. The Act also established the Coastal Management Program (CMP). The CMP allowed coastal communities, the General Land Office, and individual property owners to develop and share ideas about the best ways to address erosion problems and to seek state and federal assistance.

B. FUNDING

The primary coastal erosion issue before the 76th Legislature is funding. Without an appropriated state fund, there is little that local or federal agencies can do.

1. FEDERAL FUNDING

The federal government has been a partner with the states in responding to beach erosion since 1930. In that year, the United States Congress passed legislation creating the Beach Erosion Board (now the Coastal Engineering Research Board) and authorizing the Corps to study shore protection measures in cooperation with the states. The federal Water Resources Development Act (WRDA) of 1986 authorizes the Corps to: (1) pay 65 % of the cost of beach restoration projects for storm protection purposes; (2) pay 50 % of the cost of placing beach quality sand dredged in Corps projects onto the beach; and (3) incur part of the cost of periodically renourishing beaches for up to fifty years.³⁸ The 1996 amendments to WRDA authorize

the Corps to work with states to develop comprehensive state and regional beach nourishment plans.

The Corps' budget for the study, planning and construction of coastal erosion response projects was nearly \$109 million for 1998. None of this money was allocated for projects in Texas. Currently, the United States House of Representatives is proposing to appropriate nearly \$71 million for 1999; and the United States Senate is proposing approximately \$63 million. Again, none of this money has been slated for projects in Texas. Congress appears poised to make the existence of a state fund a prerequisite for states to receive federal coastal response dollars. Such an amendment to the pending Water Resources Development Act of 1999 was recently introduced in the United States Senate.³⁹

2. STATE FUNDING

The state's continuing inability to address coastal erosion is largely attributable to the fact that Texas remains the only coastal state without a comprehensive fund to combat erosion. The Legislature attempted to address the funding issue in the session following *Josephine*. In the spring of 1997, former State Senator Jerry Patterson (R-Houston) and Representative Patricia Gray (D-Galveston) sponsored Senate Bill 1339 during the 75th Legislative Session. The bill gained bipartisan support and was voted out of the Senate and through the House Committee on Land and Resource Management. The legislation was subsequently killed on May 26, 1997 by a point of order raised against the entire House Calendar (fifty-three bills) in what has become known as the "Memorial Day Massacre."

Senate Bill 1339 would have created a statewide coastal erosion response fund, which would have provided grants to local governments seeking to undertake activities such as beach nourishment and the creation of artificial dunes. It also would have given property owners the ability to remove from their local tax rolls property that has been submerged. This system of tax roll correction is not available under current law.

C. THE 76TH LEGISLATURE

During the interim, House Speaker Pete Laney directed the House Committee on Land and Re-

source Management to "Review local and state funding mechanisms to support mitigation of coastal erosion."⁴⁰ The committee, which is chaired by Representative Fred Bosse, held hearings in Galveston, Houston and Austin. The committee heard testimony from local officials, home owners, scientists, and statewide elected officials on the specific issue of how to fund coastal erosion mitigation and relief projects.

One of the hearings was held in conjunction with the GLO's Annual Texas Coastal Issues Conference. Much of the testimony centered around the costly and unpredictable effects coastal erosion has on both public and private lands.

Following the series of hearings, the committee issued a report indicating that it is fully aware that the lack of a state erosion response fund places Texas at a severe disadvantage in terms of competing for a share of the federal erosion response budget. In its 1998 report, the House interim committee observed that "the bulk of federal erosion response dollars goes to states that have a state erosion fund, such as Florida and New Jersey."⁴¹

According to the committee's report, the committee had difficulty assessing mechanisms for funding coastal erosion control because of the lack of consensus among community leaders, property owners, government officials, and the scientific community as to the specific measures necessary or reasonable to address the erosion problem. Without making specific recommendations or taking a clear position, the committee identified the following funding options:

- (a) General revenue;
- (b) A tax or fee on real estate transactions (either state-wide or limited to coastal counties);
- (c) A tax or fee on insurance policies in the coastal region;
- (d) Special assessments on affected property;
- (e) Special assessments on affected areas;
- (f) Local sales taxes in affected areas; and
- (g) Erosion control districts with taxing authority (such as districts created to construct sports arenas).

The committee did take the position that any funding mechanism should maximize federal participation, and that there should be a strategic plan to address the overall coastal erosion problem prior to significant expenditures. The committee found

The breadth of municipal authority is of little importance when dealing with coastal erosion, because the most threatened beaches tend to be in unincorporated areas. Further, the state's ability to demolish wrecked homes or take other remedial action is more limited when dealing with coastal erosion than with some other types of disasters. For example, on the occasion of oil spills, the state has statutory authority to enter upon private property in order to abate, contain, or remove a spill.⁵⁸

E. TITLE TO ACCRETING BEACH

Texas law, in general, has followed the rule that the legal boundary between uplands and tidelands shifts as a consequence of those physical changes in the shoreline known as accretion and erosion.⁵⁹ The Open Beaches Act implies that the public beach easement, which is located between the water and natural vegetation line, shifts automatically as the vegetation line moves.⁶⁰ The general rule is that a riparian or littoral owner acquires or loses title to the land added to or taken from his shoreline.⁶¹ Specifically, accretion denotes the natural process of increasing real property by the gradual and imperceptible disposal of solid material to the shoreline.⁶² Shoreline property owners' rights, littoral rights, thus include the right to any accretions.⁶³

This right to accretions, however, does not allow the littoral, or upland, owner to increase his holdings by *artificially* building up submerged land into dry land along his shoreline. Man-made or artificial additions of this kind do not change the boundaries between the upland owner's land and land owned by the State. The Texas Supreme Court has held that a riparian or littoral owner may not acquire title to submerged land through self-help by filling and raising the land level.⁶⁴ The State retains title to the previously submerged land. Although such language might suggest that any addition to the shoreline that has been influenced in the slightest degree by artificial means is not an accretion passing title to the upland owner, later Texas cases suggest that the artificial nature of additions to, or subtractions from, the shoreline is not necessarily determinative of the question of whether title shifts under the doctrines of accretion and erosion. In *Coastal Industrial Water Authority v. York*, for instance, the court held that the subsid-

ence of land along a channel due to artificial underground drainage did not divest the upland owner of title to the newly-submerged portion of his lands.⁶⁵ The Supreme Court stated, with regard to the causes of the subsidence, that "[w]e place no significance upon the relation between artificial and natural causes of this phenomenon."

Thus, the key issue is not the artificial nature of the accretion, but whether it is the result of self help or other means. Because the case law does not clearly address title implications stemming from artificial accretion due to state-sponsored erosion prevention activities, the Legislature should consider expressly providing that any accretion resulting from state-funded erosion response or prevention measures does not serve to transfer title to the upland property owner.

F. SAND SOURCE

Because all of the sand used for the Bolivar project was excavated from *below* the mean high water mark, consent from the Corps was all that was required to "borrow" the sand for relocation in the eroding area. Excavating sand from *above* mean high water requires a permit from the Texas Parks and Wildlife Commission.⁶⁶ State law declares that no person may disturb or take marl, sand, gravel, shell, or mudshell under the management and protection of the commission or operate in or disturb any oyster bed or fishing water for any purpose other than that necessary or incidental to navigation or dredging under state or federal authority without first having acquired from the commission a permit.⁶⁷ The Texas Parks & Wildlife Commission may grant a permit to an applicant who has complied with all requirements of the commission if the commission finds that the disturbing, taking, and carrying away of marl, sand, gravel, shell, or mudshell will not:

- (1) damage or injuriously affect any island, reef, bar, channel, river, creek, or bayou used for navigation, or any oysters, oyster beds, fish, or wildlife in or near the water used in the operation;
- (2) change or injuriously affect any current that would affect navigation;
- (3) significantly and injuriously change the hydrology of the river;

(4) significantly increase downstream nonpoint source pollution; and

(5) significantly accelerate erosion upstream or downstream from the place where the taking occurs.⁶⁸

When responding to severe erosion, it is imperative that the State have access to beach-quality sand. Thus, the Legislature should consider simplifying the process for transferring sand from accreting areas to eroding areas.

G. LOCAL PLANNING & COORDINATION

A key distinction between the State's *Josephine* response and its response to other emergencies was the manner in which the response was initiated. Like most states, Texas has a number of disaster districts comprised of local emergency management officials from various agencies. Typically, the disaster district serves as a community's first line of response. When the disaster districts feel overwhelmed, they request additional assistance from the State Emergency Management Council in Austin.⁶⁹

With the *Josephine* response, the GLO in Austin initiated the action. The GLO does not typically participate in emergency actions other than oil spills, or perhaps hurricanes. In this case, however, GLO officials decided that state action was necessary and then sought the support of the Governor's Office and the State Emergency Management Council.⁷⁰ The local disaster districts were brought in as a formality after the major decisions had been made, commitments obtained, and operational planning had already begun. In the future, districts and local governments should be more involved in erosion prevention planning and response.

The Texas Disaster Act of 1975 requires that every county maintain an emergency program. The Act grants the governor the authority to recommend which cities should have their own emergency action programs and which should participate in inter-jurisdictional programs.⁷¹

In its report to the 75th Texas Legislature, the GLO identified poor coordination among federal, state, and local agencies as one of the foremost problems hindering coastal erosion response.⁷² Thus, the Legislature should consider requiring or

encouraging local government to prepare specific plans for erosion as well as requiring state assistance in preparing such plans.

H. DISCLOSURES TO PURCHASERS

The Legislature should consider imposing a statutory duty on real estate agents and brokers to disclose to prospective buyers information about eroding beaches. Following the Bolivar project, at least one property buyer filed suit against the realtor for failing to disclose the fact that the newly-purchased beachfront home was located on a rapidly eroding beach.

Current law requires a person who sells or conveys an interest (other than a mineral, leasehold, or security interest) in real property located seaward of the Gulf Intracoastal Waterway to include in any executory contract for conveyance a statement providing notice that:

(1) the public has acquired a right of use or easement to or over the area of any public beach by prescription, dedication, or presumption, or has retained a right by virtue of continuous right in the public since time immemorial, as recognized in law and custom;

(2) State law prohibits any obstruction, barrier, restraint, or interference with the use of the public easement, including the placement of structures seaward of the landward boundary of the easement; and

(3) structures erected seaward of the vegetation line (or other applicable easement boundary) or that become seaward of the vegetation line as a result of natural processes are subject to a lawsuit by the State of Texas to remove the structures.⁷³

This provision fails to address coastal erosion.

Further, the Deceptive Trade Practices-Consumer Protection Act is insufficient to protect buyers whose homes are likely to soon crumble into the Gulf. It provides that it is unlawful to fail to disclose information concerning goods or services which was known at the time of the transaction if such information was intended to induce the consumer into a transaction into which the consumer would not have entered had the information been disclosed.⁷⁴ However, purchasers of real estate, who pay nothing for the services of a real estate agent

and do not seek recovery for services rendered, have been found not to be "consumers" with respect to the "agent" within the meaning of the Act and have been denied the recovery of damages from the agent under that Act for failure to disclose that the house was subject to being flooded.⁷⁵ Also, nondisclosure is not in itself fraudulent in the absence of special circumstances imposing a duty to disclose.⁷⁶

Some protection exists for buyers in the form of real estate license requirements. Pursuant to the Real Estate License Act, the Texas Real Estate Commission may suspend or revoke an agent's license at any time when it has been determined that a broker or salesperson has been guilty of making a material misrepresentation, or failing to disclose to a potential purchaser any latent structural defect or any other defect known to the broker or salesperson. The defects must be of a form that would be a significant factor to a reasonable and prudent purchaser in making a decision to purchase.⁷⁷

I. PUBLIC V. PRIVATE BENEFIT

In the course of debate over funding for projects concerning erosion control, one often hears that this is a local issue reserved for coastal communities and private landowners. Some lawmakers claim that funding for such projects would certainly be "hard sells" in distant areas like Odessa and Amarillo. Critics also accuse the government of conferring a public benefit on private parties and subsidizing beachfront property for the well-to-do.

The Texas Constitution prohibits the general granting of public funds to private persons or corporations.⁷⁸ This provision has been interpreted to generally prohibit the expenditure of public funds for the benefit of private individuals unless it serves a public purpose or is accompanied by an adequate quid pro quo. For example, a county is prohibited from performing flood control work that will *solely* benefit private individuals.⁷⁹

Nevertheless, an expenditure that incidentally benefits a private interest is not unconstitutional if it is made for the direct accomplishment of a legitimate public purpose.⁸⁰ Deciding whether a particular proposal for the expenditure of public funds for such things as flood control is for a public purpose or is secured by an adequate quid pro quo is a legis-

lative function that must be determined by the legislative body in light of the facts attending the proposed expenditure.⁸¹ The public/private benefit question was raised by FEMA following *Frances*. Their concern is the use of federal disaster funds for the purpose of conferring a benefit on private property owners.

Legitimate public purposes can be expressly identified through legislative findings.⁸² In addition to the threat to public beaches and natural habitats, more than 4.4 million Texans live in coastal areas. Healthy, broad beaches and dunes protect these people from storm surges. Also, beaches are the number one tourist destination in the United States, generating as much as eighty-five percent of all tourist revenues in coastal states. The national economy benefits by approximately \$170 billion annually from beach tourism.⁸³

Furthermore, Texas' public and private beaches not only contribute a great deal to state and local economies, but they are more importantly one of the State's natural treasures that make this state such a unique and special place to live and visit. Just as the piney forests of deep East Texas, the sand dunes of far West Texas, and Palo Duro Canyon in the Panhandle should all be viewed and protected as irreplaceable statewide treasures, so should Texas' beaches. Thus, the Legislature may want to include findings regarding the sweeping public benefits inherent in state-funded erosion prevention and response in any future legislation.

VII. CONCLUSION

Although erosion is an everyday occurrence on most Texas beaches, little is done to prevent the loss of the precious sediment. The 76th Legislature must work with state agencies and local governments to develop comprehensive prevention and response plans. Disagreements about the best means of addressing coastal erosion should not hinder the creation of a state funding source. Texas is blessed with diverse natural resources, but it stands to lose its beaches if action is not taken.

- 1 This section and others borrow heavily from Alan J. Bojorquez and Doug Robert Myers, *Lines in the Sand: An Emergency Response to Coastal Erosion in Texas*, 29 PUB. ADMIN. TIMES 9 (September 1998), with the express permission of the authors and the copyright holders, the American Society for Public Administration.
- 2 Robert Hanley, *Drawing Lines in the Shore's Sand*, N. Y. TIMES, Friday, October 25, 1996.
- 3 TEXAS BUREAU OF ECONOMIC GEOLOGY, HISTORICAL SHORELINE CHANGE IN THE NORTHERN GULF OF MEXICO (1996).
- 4 See FRANK F. SKILLERN, ENVIRONMENTAL PROTECTION DESKBOOK, 705 (McGraw-Hill 2d ed.) (general discussion of the use of zoning for the protection of coastal areas and wetlands). See also Monte Akers, [*Local Government's Role In Coastal Wetlands*, in] TEXAS COASTAL WETLANDS: A HANDBOOK FOR LOCAL GOVERNMENTS (Claire Randle, ed., 1996).
- 5 TEX. LOC. GOV'T CODE ANN. § 212.002 (Vernon 1998).
- 6 *Id.* § 211.003.
- 7 *Id.* § 54.012.
- 8 *Id.* §§ 232.001, 232.002.
- 9 *Id.* §§ 240.901(c)(1)-(4).
- 10 Peter H.F. Graber, *The Law of the Coast in a Clamshell*, TEXAS BAR JOURNAL, June 1983, at 684.
- 11 TEX. NAT. RES. CODE ANN. § 61.011 (Vernon Supp. 1999).
- 12 Executive Condominiums, Inc. v. State, 764 S.W.2d 899 (Tex. App.—Corpus Christi 1989, writ denied).
- 13 Arrington v. Mattox, 767 S.W.2d 957 (Tex. App.—Austin 1989, writ denied).
- 14 TEX. NAT. RES. CODE ANN. § 63.091 (Vernon 1978).
- 15 31 TEXAS ADMINISTRATIVE CODE § 15, et seq.
- 16 See Frank F. Skillern, *Environmental Legislation: An Alternative To Minimum Acreage Zoning*, 6 TEX. TECH L. REV. 1, 24, n130 (1974) (discussion of using condemnation for natural resource preservation).
- 17 Hanley, *supra* n. 2.
- 18 ORRIN H. PILKEY AND KATHARINE L. DIXON, THE CORPS AND THE SHORE, at 138 (1996).
- 19 Erin P. Gibson, *Shoreline Protection Uses Adhesive Gel*, LAND AND WATER, September/October 1996, at 11.
- 20 PILKEY at 45.
- 21 PILKEY at 45.
- 22 Kimberly K. McKenna, Cheryl A. Brown, and Nicholas C. Kraus, The First Open-Coast Beach Fill In Texas, in SAND WARS, SAND SHORTAGES & SAND-HOLDING STRUCTURES, PROCEEDINGS OF THE 1995 NATIONAL CONFERENCE ON BEACH PRESERVATION TECHNOLOGY, at 88.
- 23 Gibson, at 11.
- 24 31 TEX. ADMIN. CODE § 15.13 (West 19XX) (modifying the permitting requirements of §§ 15.01-15.10).
- 25 See The Texas Disaster Act of 1975, TEX. GOV'T CODE ANN. §§ 418.015-418.017 (Vernon 1998).
- 26 *Id.* § 418.015.
- 27 TEX. NAT. RES. CODE ANN. § 61.011 (Vernon 1998).
- 28 TEX. NAT. RES. CODE ANN. § 63 (Vernon 1978).
- 29 TEX. GOV'T CODE ANN. § 418.023 (Vernon 1998).
- 30 It was often difficult to identify the property owners because many wrecked homes appeared to have been abandoned and the tax records had been purged. Some homes were simply vacation homes or rental properties with absentee landlords.
- 31 Despite the bitter cold and difficulty of the work, approximately 200 inmates from a regional correctional facility would volunteer each day for Bolivar duty. Only those fifteen with the best conduct records were permitted to participate.
- 32 TEX. REV. CIV. STAT. ANN. art. 4477-3a (Vernon Supp. 1999).
- 33 See 30 TEX. ADMIN. CODE § 111.219 (general requirements for allowable outdoor burning); see also The Texas Clean Air Act, TEX. HEALTH & SAFETY CODE ANN. § 382.018, et seq. (Vernon Supp. 1999).
- 34 Note that this response action took place during the winter months when hay is not in abundance. Suffice it to say that the market forces of supply and demand were at work.
- 35 Three additional homes were relocated landward at their owners' expense.
- 36 TEX. GOV'T CODE ANN. § 418.073 (Vernon 1998).
- 37 codified at TEX. NAT. RES. CODE ANN. § 33.201 (Vernon Supp. 1999).
- 38 42 U.S.C.A. § 1962D-5(d) (1994).
- 39 HOUSE COMMITTEE ON LAND AND RESOURCE MANAGEMENT, 76TH LEG., INTERIM REPORT 1998, at 10.

- 40 *Id.*
- 41 *Id.*
- 42 Marty Schladen, *Eiland, Gray Turn Back Republican Challengers*, GALVESTON DAILY NEWS, November 4, 1998.
- 43 Mary Schladen, *Erosion, Wind Insurance Hot Topics in State Rep Races*, GALVESTON DAILY NEWS, October 26, 1998.
- 44 Tex. H.B. 515, 76th Leg., (1999), amending TEX. GOV'T CODE ANN. Chapter 418.
- 45 Texas Oil Spill Prevention and Response Act of 1991, TEX. NAT. RES. CODE ANN. § 40.007 (Vernon Supp. 1999).
- 46 TEX. GOV'T CODE ANN. § 418.023 (d) (Vernon 1998).
- 47 TEX. NAT. RES. CODE ANN. § 40.104 (Vernon 1998).
- 48 TEX. GOV'T CODE ANN. § 418.023(a) (Vernon 1998).
- 49 *Id.* § 418.023(c).
- 50 *Id.*
- 51 Op. Tex. Att'y Gen. No. MW-140 (1980).
- 52 TEX. NAT. RES. CODE ANN. § 61.018 (Vernon 1978).
- 53 TEX. LOC. GOV'T CODE § 214.001 et seq. (Vernon 1988); see, also TEX. LOC. GOV'T CODE § 54.018 (Vernon 1988).
- 54 City of Texarkana v. Reagan, 112 Tex. 317, 247 S.W. 816 (1923).
- 55 Jones v. City of Odessa, 574 S.W.2d 850, 853 (Tex. Civ. App.—El Paso 1978, no writ).
- 56 Pratt v. City of Denton, 670 S.W.2d 786, 790 (Tex. App.—Ft. Worth 1984, no writ).
- 57 Hirtz v. State of Texas, 773 F.Supp. 6, 10 (S.D.Tex. 1991).
- 58 TEX. NAT. RES. CODE ANN. § 40.007 (Vernon 1998).
- 59 Graber, *supra* n. 10, at 687.
- 60 Feinman v. State, 717 S.W.2d 106 (Tex. App.—Hous. [1 Dist.] 1986, writ ref'd n.r.e.), citing TEX. NAT. RES. CODE ANN. § 61.001(2) (Vernon Supp. 1999).
- 61 Coastal Indus. Water Auth. v. York, 532 S.W.2d 949, 952 (Tex. 1976); *State v. Balli*, 190 S.W.2d 71, 100-01 (Tex. 1944).
- 62 Butler v. Sadler, 399 S.W.2d 411, 421 (Tex. Civ. App.—Corpus Christi 1966, writ ref'd n.r.e.).
- 63 Natland Corp. v. Baker's Port, Inc., 865 S.W.2d 52, 57 (Tex. App.—Corpus Christi 1993, writ denied), citing *Gibson v. Carroll*, 180 S.W. 630, 632 (Tex. Civ. App.—San Antonio 1915, no writ).
- 64 Coastal Industrial Water Auth. v. York, 532 S.W.2d 949, 952 (Tex. 1976).
- 65 *See id.*
- 66 *See* TEX. PARKS & WILD. CODE ANN. § 86.001 (Vernon 1991).
- 67 *See id.* § 86.002.
- 68 *Id.* § 86.004.
- 69 Interview with Thomas E. Ryan, Regional Liaison Officer, Texas Department of Public Safety (Emergency Management Division) (March 19, 1998).
- 70 Some might find it interesting that the man in charge of the GLO, Texas Land Commissioner, Garry Mauro, challenged Governor George W. Bush in the 1998 election.
- 71 TEX. GOV'T CODE ANN. § 418.103(a) (Vernon 1998).
- 72 TEX. GEN. LAND OFFICE, TEXAS COASTWIDE EROSION RESPONSE PLAN, A REPORT TO THE 75TH LEGISLATURE, 31 (August 1996).
- 73 TEX. NAT. RES. CODE ANN. § 61.025.
- 74 TEX. BUS. & COM. CODE ANN. § 17.41 (Vernon 1987).
- 75 Delaney Realty, Inc. v. Ozuna, 593 S.W.2d 797 (Tex.Civ.App.—El Paso 1980, no writ). See also TEX. BUS. & COM. CODE ANN. §§ 17.41-50 (Vernon 1987).
- 76 Singleton v. Pennington, 568 S.W.2d 367, 378 (Tex.Civ.App.—Dallas 1977, no writ) (citing *Moore & Moore Drilling Co. v. White*, 345 S.W.2d 550, 555 (Tex. Civ. App.—Dallas 1961, writ ref'd n.r.e.) and *Howard v. County of Nolan*, 319 S.W.2d 947, 950 (Tex. Civ. App.—Eastland 1959, no writ)) (false representation that repair work had made boat and motor).
- 77 TEX. REV. CIV. STAT. ANN. art. 6573a, § 15a(6)(A) (Vernon Supp. 1999).
- 78 TEX. CONST. art. III, § 52(a).
- 79 Op. Tex. Att'y Gen. No. O-7486 (1946) (construction of drainage ditch by a county on private property).
- 80 Barrington v. Cokinos, 338 S.W.2d 133 (1960).
- 81 Op. Tex. Att'y Gen. No. LO-90-97 (1990) (county commissioners court must make determination as to public benefit of flood control measures), citing Op. Tex. Att'y Gen. No. JM-1199 (1990).

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- 82 See TEX. CONST. art. III § 52-^a (Vernons 1997) (encouraging enrollment in postsecondary educational institutions promotes economic development and serves important public purposes).
- 83 James R. Houston, The Economic Value of Beaches, *in* THE FUTURE OF BEACH NOURISHMENT, PROCEEDINGS OF THE 1996 NATIONAL CONFERENCE ON BEACH PRESERVATION TECHNOLOGY, at 271.