

BEACH MANAGEMENT CONFLICT CASE STUDY: SINGER ISLAND, FLORIDA

Location: Singer Island, City of Riviera Beach,
Palm Beach County, Florida

Singer Island is part of a peninsula located along the coast of southeast Florida that separates the Lake Worth Lagoon from the Atlantic Ocean (Figure 1). Singer Island is under the jurisdiction of the City of Riviera Beach and is bordered by John D. MacArthur Beach State Park to the north and the Town of Palm Beach Shores to the south (Figure 2). This approximately two-mile stretch of beachfront is home to some of the most valuable real estate in Florida and is heavily developed with high-rise condominiums and hotels.

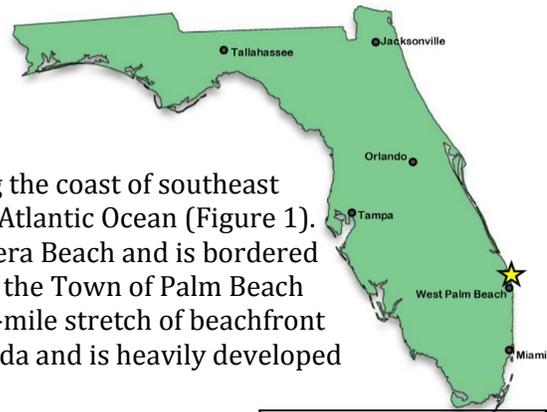


Figure 1. Locator map of Singer Island, FL. (Denoted by star symbol).

Timeframe: 2006 through present

Summary

Like much of Florida's densely developed beachfront, beach erosion has been an ongoing problem at Singer Island, becoming especially critical in the past ten years. The current conflict began in 2006 when Palm Beach County applied for a permit from the state to build a series of offshore breakwaters along Singer Island (Humiston & Moore Engineers 2006). Breakwaters are piles of rock installed just offshore to decrease wave energy and consequential erosion along the shoreline. After years of debate and revisions, the breakwater proposal was ultimately rejected by the Palm Beach County Board of County Commissioners in March 2011.

The rejection of the breakwater proposal came in the wake of major opposition from environmental advocacy groups, including the Palm Beach County Chapter of the Surfrider Foundation, Sea Turtle Conservancy, and Defenders of Wildlife. These groups voiced a multitude of concerns with the proposed breakwaters. Specifically, they asserted that coastal armoring structures do not always function as intended and could contribute to erosion in other nearby coastal areas. They also could adversely impact nesting sea turtles and hatchlings (Singer Island is one of the most important nesting grounds in Florida), as well as damaging other parts of the marine ecosystem, including the nearshore hardbottom. Additionally, the structures could have impacts on recreational use of the area, including destroying surf breaks and posing a submerged danger to unwary boaters.

Following the rejection of the proposed breakwater plan, local residents formed a coalition called Protect Our Beaches in August 2012 to organize and empower breakwater supporters. Protect Our Beaches asserts that a permanent erosion solution is needed, as Singer Island's current

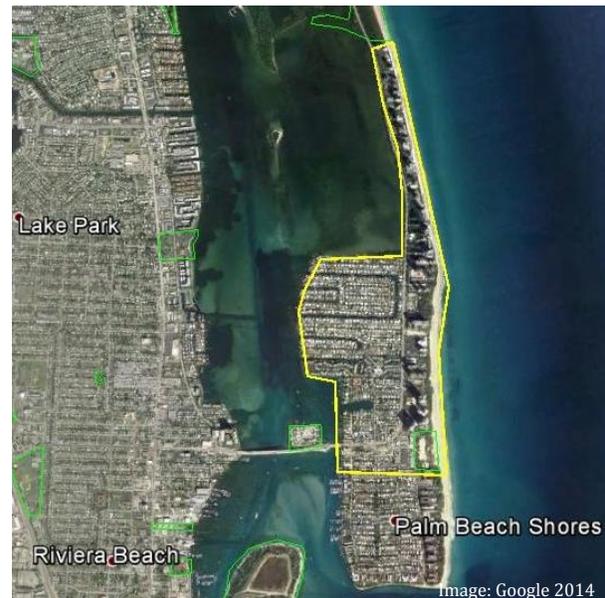


Figure 2. Map of Singer Island, FL, outlined in yellow.

erosion management regime (seawalls and limited beach nourishment and dune building) do not sustainably achieve a wide, healthy beach for the long-term. While the Singer Island conflict has lain relatively dormant for the past few years, Protect Our Beaches is striving to bring a proposal for a pilot breakwater project to the table in the future, which is likely to re-ignite the dispute. This case study aims to provide insight into the history of the conflict and the various interests of its stakeholders, with the goal of fostering a collaborative effort going forward to achieve a long-term erosion management plan for Singer Island.

Transferability

This dispute has broad implications for erosion management policy regionally and statewide. The decision to allow or prohibit coastal armoring structures like breakwaters could set precedent for future management policies in Palm Beach County and across the state. Along the same lines, if a creative and mutually agreed upon solution is designed and achieved amongst the stakeholders, that success would also provide an example for other coastal jurisdictions.

One of the primary drivers of Singer Island's beach management conflict can be traced to disagreement over the respective success of different shoreline engineering methods, specifically "hard" versus "soft" erosion control regimes. Local governments must take into account all stakeholder interests in the decision-making process, guiding their willingness to permit projects that have the potential for adverse impacts on resources of importance to one or more groups. Classic beach management objectives, including beach preservation, upland preservation, protection of structures, and habitat protection, are met with various degrees of success by different erosion management methods. Furthermore, the complexity of coastal processes means that a successful method in one region may not be the most appropriate choice for another.

Transferability also depends upon other indirect drivers of the conflict in a coastal jurisdiction. Specifically, Singer Island's conflict is exacerbated by a combination of factors – it lacks the public access required for federal beach nourishment funding, it is one of the most critical sea turtle nesting grounds in the state, and the nearshore hardbottom lies especially close to the shoreline. Together, these factors make the state's most common beach preservation method – i.e., large-scale nourishment projects – much more difficult to fund, permit, and complete. These factors have made Singer Island one of the most complicated erosion problems in the state.

However, there is potential for a collaborative long-term solution at Singer Island. The "Best Practices" outlined below can be effectively utilized to potentially alleviate or avoid many of the difficulties experienced at Singer Island.

Best Practices

- ❖ Emphasize policies that encourage communication, agreement, and mutually beneficial solutions between the primary stakeholders involved in a coastal management dispute.
 - ◆ Use these partnerships among diverse interest groups to facilitate a collaborative problem-solving approach to conflicts.
 - ◆ The use of a consensus-building approach from the outset of a conflict fosters mutual understanding of varied stakeholder interests, avoiding adversarial, fixed positions and consequentially doomed proposals. This saves time, money, and effort for all groups involved.

- ❖ Construct legislation that *requires* and policies that *encourage* geologically wise development of the coastal zone. Much of Florida’s erosion problem could have been avoided with properly planned setbacks and more stringent construction limitations.
- ❖ Develop long-term funding mechanisms for beach preservation that creatively combine public and private funding sources.
 - ◆ While this is especially crucial for beaches that do not qualify for federal beach nourishment projects, it is wise to plan proactively in any coastal community. There is no guarantee that the allocation of federal dollars for beach nourishment will remain at their current level into the future.

FULL CASE STUDY DESCRIPTION

History

Native Americans were Singer Island’s first inhabitants, evidenced by the centuries-old “kitchen middens” or garbage piles, present along the dunes of John D. MacArthur Beach State Park to the north (Friends of MacArthur Beach 2014). The more immediate history of Singer Island began in the 1920s when Paris Eugene Singer (heir to the Singer sewing machine fortune) began planning its development in anticipation of the Florida real estate boom. However, due to a destructive 1928 hurricane followed by the 1929 stock market crash, Singer’s four million dollar resort and golf course plan never came to fruition (Palm Beach Shores 2014). Following World War II, the neighboring town of Palm Beach Shores was developed in 1947 by A.O. Edwards, a railroad and hotel tycoon. After Edwards’ death in 1963, John D. MacArthur purchased the Colonnades Hotel (where the Marriot Ocean Pointe Resort stands today), going on to become the largest landowner in Palm Beach County and one of the wealthiest men in the United States.

The rapid development of both Palm Beach County and Singer Island began in the 1950s and continued through the following decades under the financing of MacArthur and others. Permitting for Singer Island’s development allowed the destruction of the naturally protective dune system and inadequate building setbacks, setting the stage for beach erosion problems (Figure 3). Furthermore, Singer Island functions as a barrier island, which tend to shift in place over time. Consequently, erosion has posed a threat at Singer Island for many years, with the shoreline retreating approximately 15 feet per year since 2001 (Humiston & Moore 2006). Most recently, Hurricane Sandy decreased the width of the beaches in front of the condominiums and hotels to emergency levels. While many of the buildings have privately-constructed seawalls for protection and the beaches are also periodically maintained by small-scale beach fill and dune-building, Singer Island residents are concerned that these erosion management methods have grown inadequate.



Figure 3. Singer Island erosion threatens development.

Thus, for the past ten years Singer Island residents have been pursuing a more “permanent” solution to beach erosion. In July 2006, Palm Beach County sought authorization from the Florida Department of Environmental Protection (FL DEP) to construct a series of 13 granite and limestone breakwaters approximately 200 feet offshore of Singer Island (Humiston & Moore Engineers 2006).

As opposed to seawalls, (which are constructed high on the beach and are designed to protect oceanfront structures if the beach becomes badly eroded), breakwaters are installed parallel to the shoreline just offshore and are designed to intercept wave energy before it reaches the beach. This initial proposal called for “emergent” breakwaters that would extend about one foot above the ocean’s surface at high tide. Over the next few years, the proposal was revised to include only 11 breakwaters (Figure 4), among other adjustments per comments from various stakeholders. Publicly-funded at an estimated cost of \$30 million, 40% of the cost was to be covered by the state, 40% by the county Tourist Development Tax, and 20% by the local government of Riviera Beach (Palm Beach County 2009).

In March 2010, the U.S. Army Corps of Engineers (henceforth, the Corps) rejected the breakwater proposal on the basis that it presented “an unacceptable risk in terms of blockage of littoral drift to downdrift beaches” and would exert “associated erosional pressure” on downdrift beaches. The Corps also cited concerns on the impacts to sea turtles (Dept. of the Army 2010, p. 1). The project proposal was modified per these comments, and a revised application for “submerged” breakwaters was submitted to the Corps in June 2010. However, the revised breakwater project was ultimately tabled in March 2011 by a 5-2 vote of the Palm Beach County Board of County Commissioners, which cited concerns including costs to taxpayers and uncertain success of the project (Beachapedia 2014).

Consequently, the rejected breakwater proposal was followed up by a new plan to build a series of rock groins along Singer Island’s beachfront. Groins extend perpendicularly from the beach into the ocean and are designed to trap sand as longshore currents carry it along the shoreline. The groin project was expected to cost about \$1.7 million over 50 years, the cost of which would again be shared by the state, county, and local government (Sorentroue 2012). This plan was likewise rejected by the County Commission in February 2012 (Sorentroue and Valdes 2012).



Figure 4. Proposed breakwater plan.

Frustrated with the county’s response, local residents in support of the breakwater project formed a coalition called Protect Our Beaches in August 2012 to organize and empower their cause. Although no new applications have been submitted since rejection of the groin project, Protect Our Beaches is next planning to call for a “test pilot project of 3 to 4 breakwaters to determine the impact on turtle nesting” (SICA 2014, p. 2). In the meantime, construction of six new seawalls (Figure 5) began in November 2013 (Reid 2013). Seawalls must be permitted by the FL DEP, but are privately funded by property owners. However, these too are not without controversy. In July 2013, the U.S. Fish and Wildlife Service (USFWS) issued a letter to the FL DEP expressing concern about the impact of these new seawalls on nesting sea turtles (Skrzypek 2013). Protect Our

Beaches points out that the new seawalls were a direct result of the “failed government policies” that prohibited the breakwater project (Gonstead 2014, p. 3).

Opponents of the breakwaters prefer a continuation of the current management method of beach nourishment and dune restoration, which has been performed at Singer Island each year since 2004 (FL DEP 2010). In March 2014, the County Commission approved approximately \$3.5 million in state funds to extend Singer Island’s current nourishment project until July 2017, as well as \$550,000 for dune restoration to mitigate erosion from Hurricane Sandy and Tropical Storm Debbie (Palm Beach County 2014). While this is



Figure 5. A newly constructed multi-building seawall, fronting the Ocean’s Edge, Condado, and Seawinds condominiums.

admittedly better than no erosion management at all, Protect Our Beaches asserts that nourishment is not a permanent solution because the sand washes away again and again.

The Singer Island beach erosion dispute is a relatively long-running issue, and one that will continue until a solution is reached that is deemed acceptable by all parties involved. The resolution of the conflict will not only have important implications for those with a stake in the future of Singer Island, but will have the potential to influence the outcome of similar conflicts across Palm Beach County and the entire state. With 825 miles of shoreline, nearly 50% of which has been designated as “critically eroding” by the FL DEP, conflicts like this one are common across Florida (FL DEP 2014). Beach erosion is a difficult and dynamic issue for agencies to address, due in part to the constantly changing nature of beaches (extreme erosion and accretion can occur virtually overnight), as well as the ongoing balancing act between public and private interests along the shoreline.

Nature of the Dispute

Primary Stakeholders

While all of the stakeholder groups share a similar goal in that they would like to see a wide, healthy beach at Singer Island, they disagree on the way this objective should be accomplished. The primary stakeholders in the Singer Island conflict can be broadly categorized into those who support and those who oppose the use of hard stabilization measures for erosion control on the island. Hard stabilization, also known as coastal armoring, refers to erosion control methods involving the construction of permanent, solid structures on the beach or in the ocean. These include breakwaters, groins, and seawalls.

Supporters of hard stabilization measures to control erosion on Singer Island continue to call for breakwaters as the “permanent solution” to the erosion problem. With the endorsement of the Singer Island Civic Association, the Protect Our Beaches coalition is the primary stakeholder in

support of the breakwater project. To accomplish their interests, the coalition is advocating changes to federal environmental laws to “allow for more permitting latitude,” as well as “recurring revenue” for beach projects (SICA 2014, p. 2). While they are not against the use of beach nourishment and dune building, they believe these methods are unsustainable because the new sand placed on the beach repeatedly washes away.

Opponents of hard stabilization are against the construction of any new permanent hard structures on the beach or shoreline to control erosion. As such, they oppose breakwaters, groins, and seawalls on Singer Island. The primary stakeholder in opposition to the breakwater project is the Palm Beach County Chapter of the Surfrider Foundation, the local chapter of the national non-profit Surfrider Foundation environmental organization. Surfrider is backed by three additional environmental advocacy groups: Sea Turtle Conservancy, Defenders of Wildlife, and Florida Wildlife Federation (Surfrider 2010). These groups are concerned that the breakwaters would have adverse impacts on sand flow to neighboring beaches, recreation, and on the sea turtles who nest on Singer Island. Instead of hard stabilization, they support a long-term plan for limited beach nourishment and dune-building to both provide habitat for nesting turtles and provide upland protection for the oceanfront buildings.

Issues Analysis

The dynamic nature of beach erosion gives rise to a complexity of issues in the Singer Island conflict, encompassing the political, social, and environmental spheres. Politically, the dispute raises concern over the use of taxpayer dollars to fund an extensive erosion control project for a beach that is utilized by relatively few people. This political issue translates to social concerns over public access to those beaches that the project is intended to improve. While the breakwaters would stretch from the boundary of the publicly-accessible Macarthur Beach State Park in the north to the publicly-accessible Ocean Reef County Park in the south, neither of these beaches have an erosion problem. The heavily-eroded section of beach between the two public parks that would benefit most from the project has no public access points and consequently gets relatively little public use. Further social concerns have been raised over the breakwaters’ impact on recreational uses of the area, including creating a submerged danger to unwary boaters and changing the surf break for surfers. Alternatively, breakwater supporters suggest the project could improve recreation in the area by creating an artificial reef to attract divers, snorkelers, and anglers (Humiston 2014).

However, it is perhaps the environmental issues at stake that have raised the greatest outcry and served most strongly to halt the proposed project. Sea turtle biologists have indicated that Singer Island is one of the most important sea turtle nesting grounds in the state, and the National Marine Fisheries Service concluded that the breakwaters would be “highly detrimental” to the turtles (Beachapedia 2014). Five threatened or endangered sea turtles are present in the waters off Singer Island, and three nest on the island’s beaches – the Loggerhead, Green, and Leatherback. Sea Turtle Conservancy is concerned about the impacts of breakwaters and seawalls on nesting females, as well as hatchlings. Due to the state and federal protection of these species, any adverse impacts are deemed unacceptable. Additional environmental concerns include potential damage to other parts of the marine ecosystem, including the nearshore hardbottom in that area.

On the other hand, supporters of the breakwaters assert that a wide beach with breakwaters will be better for nesting turtles than no beach at all. Thus, they are calling for a pilot project of a few test breakwaters to determine what the true ecological impact may be. Some argue

that the environmental disadvantages of breakwaters are often merely perceived, and that the hard scientific evidence behind their feared environmental impacts is lacking (Humiston 2014).

Despite disagreement over these issues, it is interesting to note that the two most prominent voices in the Singer Island conflict, Surfrider and Protect Our Beaches, do not differ so drastically in their goals as they may perceive. The stated mission of Surfrider is “protecting our oceans, waves and beaches through a powerful activist network” (Surfrider 2014). The mission of Protect Our Beaches is “finding a permanent, ecologically-sound solution to protecting our beaches and dunes from erosion” (Protect Our Beaches 2014). All of the groups involved would like to see a wide, healthy beach at Singer Island – whether for structural protection, sea turtle habitat, or recreation – but it is the means to accomplish this ends that they fundamentally disagree upon. The environmental groups oppose coastal armoring such as seawalls and breakwaters, while Protect Our Beaches views them as the permanent solution to the Singer Island erosion problem. As such, the issues here are not so much over what is being done (substance), as how it is being done (process). Fortunately, this type of disagreement is tractable to creative collaborative solutions.

Actions and Approaches

Coalition Building

Protect Our Beaches is the coalition formed by supporters of the Singer Island breakwater project. Following the rejection of their final proposal for rock groins by the County Commission in February 2012, the coalition was founded by concerned homeowner and president of the Eastpointe Tower Condo Association, Sonny Nardulli, and president of the Singer Island Civic Association, Bob Gonstead, in order to organize and empower their efforts. The coalition consists of “property owners, citizens, business owners, civic groups and community leaders of Palm Beach County,” with the mission of finding and enacting a permanent erosion solution (Protect Our Beaches 2014). Protect Our Beaches’ goal is to “empower Floridians to call upon, federal, state and local agencies, and elected leaders to act on behalf of Palm Beach County’s 45 mile coast” (Protect Our Beaches 2014). The coalition has grown from an initial membership of 1,400 people to over 20,000 members at present (Singer Island Civic Assoc. 2014).

Lobbying & Legislation

In April 2014, Protect Our Beaches held a series of town hall-style meetings with U.S. Congressman Patrick Murphy to discuss his sponsorship of bi-partisan legislation to allow a “pilot breakwater project” on the north end of Singer Island (SICA 2014).

Stakeholder Workshops

The Palm Beach County Board of County Commissioners held a series of workshop-style meetings to invite stakeholder input during the proposed breakwater permitting process. The workshops included input from federal and state governing agencies, as well as non-governmental organizations, allowing for public access to the same decision-making criteria that the Board would use to make their final decision regarding the project.

Creative Solutions

Sea Turtle Conservancy has indicated that they have a creative solution to bring to the collaboration table. They believe the best option for the permanent preservation of Singer Island’s

beaches is a long-term policy of limited beach nourishment and dune-building, including development of a stable funding mechanism supported by increased private funding. Other jurisdictions have incorporated private home and business owner funding of nourishment projects through a special tax on beachfront properties, bolstering the public funds already allocated (Boutelle 2014). Additionally, while it is often perceived that beach nourishment cannot be performed in areas with nearshore hardbottom like Singer Island, this is not the case. Beach nourishment projects with nearshore hardbottom can be permitted by the FL DEP with increased requirements for pre-project assessments, direct and secondary impact estimates, mitigation, and monitoring (Irwin 2014). If other parties also bring creative solutions such as this one to the negotiating table, there is potential for a mutually agreed upon solution for Singer Island to be reached by all stakeholders.

Potential for Resolution

There is ample potential for mutual gain amongst all stakeholders involved in the Singer Island conflict, stemming from their primary shared interest in the restoration and maintenance of a wide beach. Up to this point, a collaborative approach has not been attempted, but both sides have indicated that they are open to negotiation. The positional bargaining tactics used by each side in the past have made the issue an either-or matter – breakwaters or no breakwaters, stifling the opportunity to invent creative, mutually beneficial solutions. This has not resulted in an ideal outcome for any of the stakeholders involved (Figure 6).

Although Protect Our Beaches remains optimistic that a breakwater project will ultimately be permitted, both sides would have the opportunity for mutual gain by engaging in a collaborative approach with the other stakeholders.



Image: V. Dornisch 2014
Figure 6. Erosion scarp at Singer Island, September 2014. This outcome is not beneficial to any of the parties involved.

The findings presented in this case study provide an optimistic outlook for the potential for a successful collaborative effort in the Singer Island beach erosion conflict. The presence of overlapping interests (the desire for a wide beach) and shared values (beach preservation, turtle preservation, etc.) facilitates prospects for mutual gain. Perhaps most importantly, stakeholders have expressed openness to (and even a desire for) a consensus-building approach.

Key Stakeholders

Government Stakeholders

- ❖ City of Riviera Beach
- ❖ Palm Beach County
- ❖ Florida Department of Environmental Protection

Citizen Stakeholders

- ❖ Singer Island beachfront property owners
 - ◆ Protect Our Beaches
 - ◆ Singer Island Civic Association
- ❖ Environmental advocacy organizations
 - ◆ Surfrider Foundation, Palm Beach County Chapter
 - ◆ Sea Turtle Conservancy
 - ◆ Defenders of Wildlife
 - ◆ Florida Wildlife Federation

Contacts

Palm Beach County Department of Environmental Resources Management
2300 North Jog Road – Fourth Floor
West Palm Beach, FL 33411
(561) 233-2400
erm-enhance@co.palm-beach.fl.us

Palm Beach County Board of County Commissioners, District 1
301 North Olive Avenue, Suite 1201
West Palm Beach, FL 33401
(561) 355-2201
HValeche@pbcgov.org

Protect Our Beaches, Inc.
5730 Corporate Way, Suite 214
West Palm Beach, FL 33407
(561) 228-7055
info@beachescoalition.com

Sea Turtle Conservancy
4424 NW 13th Street, Suite B-11
Gainesville, FL 32609
(352) 373-6441
stc@conserveturtles.org

Palm Beach County Surfrider Foundation
P.O. Box 33687
Palm Beach Gardens, FL 33420
info@surfriderpbc.org

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