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Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Construction Control Line Program

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Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Construction Control Line Program¹

Thomas K. Ruppert²

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¹ This paper was presented during the Sea Grant Law and Policy Journal's inaugural symposium on Coastal Resiliency held on March 25–26, 2008 at the University of Mississippi in Oxford, Mississippi. Coastal resiliency refers to the ability of coastal cities, towns, and communities to adapt and recover from natural hazards, including hurricanes, tsunamis, floods, and disease epidemics. Seven authors were selected to present papers on a wide range of topics related to coastal resiliency. Powerpoint presentations and additional information about the symposium are available at <http://www.olemiss.edu/orgs/SGLC/National/SGLPJ/SGLPJ.htm>.

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I. Setting the Stage: Florida's Beaches and Sea Turtles

Turtles have survived over 100 million years during which sea levels have changed dramatically.³ Nonetheless, current predictions for sea-level rise (SLR) present greater challenges than ever to sea turtles. Beaches are naturally dynamic, moving in response to winds, waves, currents, storms, and sea level.⁴ During past SLR, dynamic beaches migrated along with the ocean. Today, beaches providing dynamic sea turtle nesting habitat face the risk of being squeezed out of existence between migrating shorelines and coastal development.⁵ While beaches move even without SLR, SLR makes it more urgent than ever that we begin to plan for the long-term preservation of dynamic beaches as sea turtle nesting habitat and avoid human interruption of sea turtle survival that has spanned millennia.

Florida enjoys 825 miles of sandy beaches.⁶ These beaches serve as nesting habitat for five species of threatened or endangered sea turtles.⁷ Florida's beaches host the densest sea turtle nesting in the United States, the largest aggregation of loggerhead nesting in the world,⁸ and the second highest density of green sea turtle nesting in the hemisphere.⁹ Florida's beaches also provide habitat for hundreds of other species as well. In addition to providing recreational and esthetic values to residents, Florida's beaches attract millions of tourists – and billions of dollars – each year.¹⁰ An estimated \$1 trillion of coastal property in Florida¹¹ fills local government coffers through ad valorem tax assessments. Beaches and their dunes also act as the first line of protection for human development from storm impacts.

Even as Florida's beaches contribute so much to the state, they have become the focal point for tension between beach dynamics and development. Ever-increasing development on Florida's shorelines provokes commensurate increases in the amount of property threatened by erosion, or shoreline migration. Shoreline migration is a natural phenomenon occurring in response to sea level, wave energy, and sand supply dynamics. Shoreline migration becomes a problem and is called "erosion" when shoreline migration threatens human structures or property interests along the coast.¹² Currently over 485

³ See Harold Wanless, *Sea Level Rise: So What?* 52 JOURNAL OF SEDIMENTARY RESEARCH 1051 (1982) (noting ancient sea-level changes).

⁴ Charles H. Peterson and Melanie J. Bishop, *Assessing the Environmental Impacts of Beach Nourishment*, BIOSCIENCE 55(10): 887 (Oct. 2005).

⁵ See, e.g. ROBERT T. WATSON, ET AL., IPCC SPECIAL REPORT ON THE REGIONAL IMPACTS OF CLIMATE CHANGE: AN ASSESSMENT OF VULNERABILITY § 8.3.6.3 (1998), available at <http://www.grida.no/climate/ipcc/regional/index.htm>; see also L.A. Hawkes, et. al., *Investigating the Potential Impacts of Climate Change on a Marine Turtle Population*, GLOBAL CHANGE BIOLOGY (OnlineEarly Articles), available at <http://www.blackwell-synergy.com/doi/abs/10.1111/j.1365-2486.2006.01320.x>.

⁶ FLORIDA COASTAL MANAGEMENT PROGRAM, FINAL ASSESSMENT AND STRATEGIES: FY 2006-2010, 1.

⁷ Loggerhead sea turtle (*Caretta caretta*), threatened; green sea turtle (*Chelonia mydas*), endangered; kemp's ridley sea turtle (*Lepidochelys kempii*), endangered; hawksbill sea turtle (*Eretmochelys imbricata*), endangered; leatherback sea turtle (*Dermochelys coriacea*), endangered.

⁸ See Florida Fish and Wildlife Conservation Commission (FFWCC), *Loggerhead Nesting in Florida*, available at http://floridamarine.org/features/view_article.asp?id=2411.

⁹ See FFWCC, *Green Turtle Nesting in Florida*, available at http://floridamarine.org/features/view_article.asp?id=2496.

¹⁰ See, e.g. ROBERT R. TWILLEY, PEW CENTER ON GLOBAL CLIMATE CHANGE, COASTAL WETLANDS & GLOBAL CLIMATE CHANGE: GULF COAST WETLAND SUSTAINABILITY IN A CHANGING CLIMATE (Dec. 2007) (listing 86 million Florida visitors, the majority visiting coastal resources, spending \$62 billion in 2005).

¹¹ FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS, COASTAL HIGH HAZARD STUDY COMMITTEE FINAL REPORT 9 (Feb. 2006).

¹² BUREAU OF BEACH AND COASTAL SYSTEMS, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, CRITICALLY ERODED BEACHES IN FLORIDA 3 (June 2007), available at bcs.dep.state.fl.us/reports/crit_ero.pdf.

miles, or approximately 59%, of the state's beaches are experiencing erosion, and about 392¹³ of the state's 825 miles of sandy beaches are subject to what is called critical erosion, a level of erosion that threatens development, recreational, cultural, or environmental interests.¹⁴ Principal causes of erosion and beach migration in Florida are inlet management, storms, sea-level rise, and armoring.

A. Causes of Erosion: Inlets

Inlet management refers to practices used to keep inlets – or passages – through barrier islands open to water traffic. Such management often includes long jetties, which are semi-permeable or impermeable structures constructed perpendicular to the shoreline and designed to protect the inlet from filling in with sand. Inlets have been recognized as a major cause of erosion on Florida's beaches.¹⁵ A 1994 study examined the “types of erosion patterns that should be found on the downdrift side of the inlets.”¹⁶ The paper's results, which were based on numerical modeling, were later tested against actual inlet erosion patterns and confirmed.¹⁷ Jetties trap sand on the side from which the net flow of sand along the shore comes. For example, on Florida's east coast, most areas experience a net movement of sand from north to south, meaning that jetties catch sand on the north side. Even with jetties, inlets often need to be dredged of sand that builds up in the channel. Both jetties and dredging exacerbate erosion by depriving beaches on the downdrift side of sand that they would have received absent the jetty and dredging.

Florida's 2008 Legislature passed a bill that further recognizes the erosive effects of inlets.¹⁸ If signed into law, the bill will require assignment of responsibility for erosion caused by inlets and specifying what the Florida Department of Environmental Protection (FDEP) must do in the case of disputes between property owners and local governments regarding amount of sand bypass.

B. Causes of Erosion: Storms

Storms constitute a central fact of life for Florida. Data compiled by the National Oceanic and Atmospheric Administration on the 30 most powerful storms over the period 1900 to 1996 show that

¹³ BUREAU OF BEACHES AND COASTAL SYSTEMS, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, STRATEGIC BEACH MANAGEMENT PLAN 2 (May 2008), available at <http://www.dep.state.fl.us/beaches/publications/pdf/SBMP/Cover%20and%20Introduction.pdf>.

¹⁴ CRITICALLY ERODED BEACHES, *supra* note 12, at 3. Regulations define “Critically Eroded Shoreline” as “a segment of shoreline where natural processes or human activities have caused, or contributed to, erosion and recession of the beach and dune system to such a degree that upland development, recreational interests, wildlife habitat or important cultural resources are threatened or lost. Critically eroded shoreline may also include adjacent segments or gaps between identified critical erosion areas which, although they may be stable or slightly erosional now, their inclusion is necessary for continuity of management of the coastal system or for the design integrity of adjacent beach management projects.” FLA. ADMIN. CODE r. 62B-33.002(4).

¹⁵ FLA. STAT. § 161.142 (“The Legislature further recognizes that inlets alter the natural drift of beach-quality sand resources, which often results in these sand resources being deposited around shallow outer-bar areas instead of providing natural nourishment to the downdrift beaches.”). The law goes on to require that at least as much sand as would naturally move along the shore be placed on beaches on the downdrift side of inlets.

¹⁶ EMMETT R. FOSTER, P.E., FLORIDA DEPT. OF ENVIRONMENTAL PROTECTION, A GUIDE TO UNDERSTANDING INLET-INDUCED EROSION PATTERNS: EXPECTATIONS FROM NUMERICAL MODELING 2 (Sept. 1994).

¹⁷ EMMETT R. FOSTER, P.E., FLORIDA DEPT. OF ENVIRONMENTAL PROTECTION, THE COMMON THREAD IN INLET-INDUCED EROSION: BASIC THEORY AND FLORIDA EXAMPLES (1995). “The author contends that there are at least 33 inlets in Florida that exhibit essentially the same erosion pattern as determined here from theory. These appear to differ from the general case only in the details of the local conditions.” INLET-INDUCED EROSION PATTERNS, *supra* note 16, at 3.

¹⁸ An Act Relating to Beach Management (CS/HB 1427) (signed by Officers and presented to Governor June 18, 2008). Enrolled bill available at <http://www.myfloridahouse.gov/Sections/Documents/loaddoc.aspx?FileName= h1427er.xml&DocumentType=Bill&BillNumber=1427&Session=2008> (last visited May 19, 2008).

more than 40 percent of the damage they caused occurred in southeast Florida. Of the 158 hurricanes that hit the United States, 47 hit Florida and 26 of those struck the Southeast Florida coast.¹⁹ The 2004 and 2005 hurricane seasons were particularly hard on Florida. In 2004 hurricanes Charley, Frances, Ivan, and Jeanne hit Florida.²⁰ The 2005 season saw strikes on Florida by hurricanes Dennis and Wilma.²¹ Even storms that do not qualify as hurricanes can cause significant erosion.²² To make matters still worse, the intensity of tropical storms is projected to increase due to climate change²³ as will the cost of the damage due to the storms.²⁴

Hurricanes and other storms cause rapid loss of sand on Florida's beaches, leading to loss of property and damage to structures. Two key parts of Florida's response to storms and erosion have become placing sand on the beaches and armoring. The legal mechanisms and problems associated with these activities are more fully explored below.

C. Causes of Erosion: Sea-Level Rise

Florida is undoubtedly among the states in the United States with the most to lose in the face of SLR, and the State of Florida is beginning to admit that SLR jeopardizes Florida²⁵ and causes increased erosion.²⁶ Yet, Florida has not incorporated SLR into Florida's Coastal Management Program, including the coastal construction control line program. Because the state's topography is relatively flat, minor increases in sea level can cause the beach to migrate far landward. Estimates for this process, called shoreline recession, vary greatly for Florida and may also vary radically from place to place within Florida depending on local conditions. However, as a rule of thumb, scientific analyses indicate that shorelines in Florida may be subject to 500 to 1,000 feet of shoreline recession for each foot of sea level rise.²⁷

The International Panel on Climate Change (IPCC) estimates of sea level rise, excluding future rapid dynamical changes in ice flow, range from .18 to .59 meters over approximately the next 90 years.²⁸ However, three factors may make such estimates dramatically lower than what could occur. First, these estimates do not include observed changes in the rate of melting of ice sheets over Greenland and western Antarctica.²⁹ Second, recent studies demonstrate that the greenhouse gas emissions from India and China have risen faster than anyone anticipated, leading to the possibility of a six degree Celsius rise in

¹⁹ Insurance Information Institute, <http://www.iii.org/media/hottopics/insurance/catastrophes/>.

²⁰ See information at the Central Florida Hurricane Center, www.flhurricane.com.

²¹ *Id.*

²² For example, on May 14, 2007, Florida declared an emergency for certain portions of the eastern shoreline in response to the effects of subtropical storm Andrea. Office of General Counsel, Florida Department of Environmental Protection, Emergency Final Order, No. 07-0819 (May 14, 2007).

²³ INTERNATIONAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007 – SYNTHESIS REPORT § 3.2.2 (2007).

There is less certainty about the future frequency of tropical storms. *Id.*

²⁴ DR. JULIE HARRINGTON & DR. TODD L. WALTON, CLIMATE CHANGE IN COASTAL AREAS IN FLORIDA: SEA LEVEL RISE ESTIMATION AND ECONOMIC ANALYSIS TO YEAR 2080 (Feb. 2007).

²⁵ FINAL ASSESSMENT AND STRATEGIES, *supra* note 6, at 8.

²⁶ *Id.* at 32.

²⁷ These estimates for Florida are the mid-to-high range of a number of estimates of shoreline recession for Florida assembled in ROBERT E. DEYLE, *ET AL.*, ADAPTIVE RESPONSE PLANNING TO SEA LEVEL RISE IN FLORIDA AND IMPLICATIONS FOR COMPREHENSIVE AND PUBLIC-FACILITIES PLANNING (Sept. 1, 2007).

²⁸ IPCC, *supra* note 24, table SPM 1. This amounts to about .59 to 1.9 feet, or approximately 7 to 23 inches.

²⁹ *U.N. Report Describes Risks of Inaction on Climate Change*, NY TIMES, Nov. 17, 2007. While the IPCC report does discuss the Greenland ice sheet, the report acknowledges it relies on "current" models. IPCC, *supra* note 24, at § 3.2.3. The "current" models, however, do not correspond to more recent observations on the increased rate of ice melt. *Id.* at § 5.2. Estimates of the impact of the melting of the Antarctic and Greenland ice sheets on ocean levels vary dramatically. One researcher estimates the impact as high as eighty meters of sea level rise. E. LYNN USERY, MODELING SEA-LEVEL RISE EFFECTS ON POPULATION USING GLOBAL ELEVATION AND LAND-COVER DATA, available at <http://cegis.usgs.gov/pdf/aag-2007.pdf>.

temperature by 2030 instead of the IPCC's modest estimate of one to four degrees by the end of this century.³⁰ Third, the estimates provided by the IPCC do not include the effects of carbon-climate cycle feedbacks,³¹ and the effects of these feedbacks vary greatly in different climate models. In any case, the 2007 IPCC estimates of sea level rise are regarded as too low by many scientists, but higher numbers were not used because of on-going uncertainties of how much more sea level will rise due to carbon-cycle feedback effects, increased CO₂, and ice sheets melting faster than anticipated. In addition, some scientists have done calculations asserting that even the higher numbers cited in the IPCC report are far too conservative.³² As these numbers are already quite conservative, this paper will take the upper end of the IPCC projections (1.9 feet) as its estimate of sea level rise. Using two feet of sea-level rise (approximately the IPCC prediction for the next 90 years) at the assumed recession rates of 500 to 1,000 would result in approximately 1,000 to 2,000 feet, or almost 2/10 of a mile to more than 1/3 of a mile of beach recession if beaches are allowed to move naturally.

Experts know, however, that SLR will not occur uniformly over the entire globe. Multiple local factors can influence relative SLR. Predictions for various areas of Florida have been developed as illustrated by the following table.

Location	2025	2030	2050	2080	2100	2200
Florida, generally ³³					10.4" (90%)	21" (90%)
					19.8" (50%)	44.2" (50%)
					15" ³⁴	
Monroe County ³⁵		0.0845 m		0.310 m		
Escambia County ³⁶		0.0887 m		0.343 m		
Dade County ³⁷		0.0845 m		0.310 m		
Dixie County ³⁸		0.0714 m		0.275 m		
Duval County ³⁹		0.0730 m		0.254 m		
Wakulla County ⁴⁰		0.0827 m		0.310 m		
Treasure Coast Region ⁴¹ (Indian River, St. Lucie County, Martin County, & Palm Beach County)	2.8" (90%)		5" (90%)		10.4" (90%)	53" (90%)

³⁰ U.N. Report Describes Risks of Inaction on Climate Change, NY TIMES, Nov. 17, 2007.

³¹ IPCC, *supra* note 24.

³² See, e.g., ROBERT E. DEYLE, KATHERINE C. BAILEY, & ANTHONY MATHENY, ADAPTIVE RESPONSE PLANNING TO SEA LEVEL RISE IN FLORIDA AND IMPLICATIONS FOR COMPREHENSIVE AND PUBLIC-FACILITIES PLANNING 8 (2007) (citing to the work of scientist Stefan Rahmstorf, who asserts that accounting for the uncertainties not included in the IPCC report conclusions would add more than 1 foot of sea level rise to IPCC estimates and that it cannot be ruled out that oceans could rise as much as 4.6 feet by 2100); *Id.* at 9 (citing to Hansen's critique that ice sheet melting is non-linear and increasing, meaning that past observations of sea level rise inherently underestimate future trends and suggesting that, while impossible to accurately predict, sea level could rise by as much as 16.5 feet by 2100). The Miami-Dade County Climate Change Advisory Task Force's scientific assessment was that the IPCC's estimates of sea-level rise were "alarmingly conservative." MIAMI-DADE COUNTY CLIMATE CHANGE ADVISORY TASK FORCE, SECOND REPORT AND INITIAL RECOMMENDATIONS, APPENDIX 1 (Apr. 22, 2008).

³³ Jeremy Cox, *Environmentalists Concerned State Lawmakers not Taking Threat of Sea-Level Rise Serious Enough*, NAPLES DAILY NEWS, Jan. 29, 2006.

³⁴ Union of Concerned Scientists, http://www.ucsusa.org/gulf/gcstateflo_cli.html.

³⁵ Harrington and Walton, *supra* note 25.

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ TREASURE COAST REGIONAL PLANNING COUNCIL, SEA LEVEL RISE IN THE TREASURE COAST REGION, 4 (2005).

D. Causes of Erosion: Armoring

Florida has a long history of confronting shoreline migration where permanent structures have been built near the beach.⁴² Early confrontations led to armoring,⁴³ often resulting in loss of the beach, its ecosystem and the human values associated with the beach.

Armoring beaches exacerbates erosion.⁴⁴ Many Coastal Construction Control Line (CCCL) permit files contain analysis that acknowledges that armoring contributes to erosion on adjacent, non-armored property.⁴⁵ In fact, in many instances, part of the justification for armoring on one property is the erosive effect of neighboring armoring.⁴⁶ In some more recent permits, the DEP and the Bureau of Beaches and Coastal Systems (BBCS) have taken a new approach: assume no adverse impacts to neighboring property from armoring-induced erosion if the return walls for the armoring are five feet or more from the adjacent property.⁴⁷

How does Florida address the various causes of shoreline migration? What is the legal framework for addressing erosion and beach construction? This article discusses these questions in the context of the long-term effect of the state's permitting program for construction of major habitable structures⁴⁸ and armoring⁴⁹ on Florida's beaches.⁵⁰ The article first briefly reviews beach nourishment and Florida Beach Management Policy generally before examining the process for permitting construction along Florida's beaches, including a description of the program, examples of problems, trends identified in permitting, and suggestions for reform in the program that respond to the realities of shoreline migration, decreasing sand supply, increasing costs of nourishment, and sea-level rise. Due to limitations on the scope of this article, conspicuously absent is any discussion of Fifth Amendment takings law or Florida's statutory taking law.⁵¹

⁴² For example, construction on Ft. Clinch began in 1843. By 1886 groins were constructed to arrest shoreline migration. Three subsequent major sets of shoreline protection structures have been built to protect the fort, as well as a beach nourishment project in 2001. DAVID M. BUSH, *ET AL.*, *LIVING WITH FLORIDA'S ATLANTIC BEACHES: COASTAL HAZARDS FROM AMEILA ISLAND TO KEY WEST 1-2* (Duke University Press 2004).

⁴³ Armoring is defined as "a manmade structure designed to either prevent erosion of the upland property or protect eligible structures from the effects of coastal wave and current action. Armoring includes certain rigid coastal structures such as geotextile bags or tubes, seawalls, revetments, bulkheads, retaining walls, or similar structures but does not include jetties, groins, or other construction whose purpose is to add sand to the beach and dune system, alter the natural coastal currents, or stabilize the mouths of inlets." FLA. ADMIN. CODE r. 62B-33.002(5).

⁴⁴ See, e.g., paragraph 11, DEP Final Order IN RE: Petition for variance from or waiver of Rules 62B-33.002(32), 62B-33.0051(1)(a), 62B-33.0051(1)(a)2, and 62B-33.0051(1)(d), Florida Administrative Code, by Thomas G. Tomasello, P.A., on behalf of Gary L. and Caren L. Marder, and Janina Radtke in Palm Beach County; File Number PB-787 (Variance); Memo to Permit file VO-1018 AR (October 10, 2005). To oversimplify, armoring exacerbates erosion for two reasons. First, armoring locks up sand behind it, keeping sand from the dunes from sloughing down and becoming part of the active movement of sand on the beach. Since the system cannot get sand from behind the armoring, the system needs to take more sand from someplace else. Second, during a significant erosion event, much sand that is carried offshore is eventually redeposited on the beach through natural processes, but armoring can interfere with this process and prevent sand from naturally accumulating again on the beach.

⁴⁵ See, e.g., Analysis of Impacts, FDEP Permit File No. FR-816 AR ATF; Analysis of Impacts, §§ II, III.B.3, FDEP Permit File No. CH-531 AR.

⁴⁶ See, e.g. Analysis of Impacts § IV, FDEP Permit No. FR-816 AR ATF

⁴⁷ See, e.g. Analysis of Impacts § IV.B, FDEP Permit No. WL 925 AR M1.

⁴⁸ FLA. ADMIN. CODE r. 68B-33.002(59)(c).

⁴⁹ *Id.* r. 68B-33.002(5).

⁵⁰ Other than beach nourishment, this analysis excludes discussion of construction below the mean high water line. Construction below mean high water that is primarily intended for shoreline protection requires a permit pursuant to FLA. STAT. § 161.041.

⁵¹ Florida's statutory takings law is known as the Bert J. Harris, Jr., Private Property Rights Protection Act. *Id.* §§ 70.001-70.80.

II. Florida Coastal Management Policy

A. Introduction and Statutory Basis for Beach Management

Three causes of beach migration have been identified: inlets, wave action/storms, and SLR.⁵² The available responses to beach migration usually are considered to include no action, protection (through armoring and nourishment), and relocation away from the shoreline. The no-action alternative has very seldom been used in Florida as it results in human development falling into the sea – a lose/lose situation both for the property owner and the beach-dune system that is then littered with the remains. Protection through armoring has been successful in protecting human structures in many instances, but continued shoreline migration up to the armoring leads to loss of the beach, its ecosystem functions, and human benefits such as tourism. Foreseeable loss of the beach due to armoring also may represent a failure of the State of Florida to fulfill its duty to protect the public's interest in the beach via the public trust doctrine. Furthermore, loss of beaches would have severe economic consequences for Florida because of reduced tourism. Relocation of development away from the shoreline would avoid loss of the beach and protect species and ecosystems dependent on the beach, but this strategy has only rarely been used in Florida. Property owners often feel that any failure of state or local government to provide them with some sort of protection from migrating shores is unfair. Thus, beach nourishment has emerged as Florida's default policy for beach management because it offers protection to property, wildlife habitat, and the recreational value of beaches.

Florida statutes declare that it is “a necessary governmental responsibility to properly manage and protect Florida beaches fronting on the Atlantic Ocean, Gulf of Mexico, and Straits of Florida from erosion,” including erosion caused by improvement, modification, or alteration of inlets.⁵³ Florida's Department of Environmental Protection (FDEP) acts as Florida's beach and shore preservation authority⁵⁴ through the Beach Erosion Control Program. The program has developed a long-range management plan for Florida's beaches.⁵⁵

The plan implements active management strategies such as beach and dune restoration and nourishment, feeder beaches, inlet sand bypassing, and other actions to mitigate effects of erosion. Currently about half of Florida's 391.5 miles of critically eroded beaches are under active management.⁵⁶ An increasingly significant portion of the strategic beach management plan focuses on the sand supply for beach nourishment.⁵⁷ The plan also includes monitoring programs to evaluate management projects.⁵⁸

⁵² Florida's Department of Environmental Protection emphasizes the role of inlets in coastal erosion and minimizes the role of natural processes and other human construction. *See, e.g.*,

http://www.dep.state.fl.us/beaches/programs/bcherosn.htm#view_rules (“While some of this erosion is due to natural forces and imprudent coastal development, a significant amount of coastal erosion in Florida is directly attributable to the construction and maintenance of navigation inlets.”).

⁵³ FLA. STAT. § 161.088 (2007). Sections 161.088 – 161.211 govern beach nourishment and preservation activities. FDEP must also develop a multiyear repair and maintenance strategy which encourages regional approaches to ensure the geographic coordination and sequencing of prioritized projects, reduces equipment mobilization and demobilization costs; maximizes the infusion of beach-quality sand into the system; extends the life of beach nourishment projects and reduces the frequency of nourishment; and promotes inlet sand bypassing to replicate the natural flow of sand interrupted by improved, modified, or altered inlets and ports. *Id.* § 161.091(2)(a)-(e).

⁵⁴ *Id.* § 161.101(2).

⁵⁵ The long-range management plan is in various documents divided up by regions of the state. They are available at <http://www.dep.state.fl.us/beaches/publications/gen-pub.htm>.

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ *Id.*

While not the focus of this article, it is necessary to consider the rise of beach nourishment as the default policy response to beach migration since nourishment appears to contribute to further development in areas currently subject to beach migration and areas where beach migration is occurring and will occur with SLR. Even as nourishment enables at-risk development, nourishment itself faces increasing challenges.

B. Nourishment: Dredging Up New Problems?

With a total of 140 beach nourishment projects, Florida has conducted the largest number of beach nourishment projects of all Gulf and Atlantic states in the United States. Nourishment has become the dominant beach policy management of Florida since the 1980s.⁵⁹ Since then, nourishment has enjoyed substantial support from a broad array of interests. Recently, the wall of almost unanimous support for beach nourishment has begun to show cracks. Property owners whose property is being protected by beach nourishment have complained that nourishment violates their property rights,⁶⁰ and environmental interests have increasingly voiced concern about the environmental impacts of beach nourishment. Concerns exist for impacts to sea turtles directly⁶¹ as well as to marine ecosystems generally.⁶²

Nourishment has also been undermined by recent coastal storms in Florida. The 2004 and 2005 hurricanes both removed large amounts of nourished beach and gave rise to a flurry of nourishment activity. While some nourished beaches fared reasonably well, others were rapidly lost, leading to questions about the financial feasibility of such an approach. Financial issues with nourishment will only multiply as the energy costs for nourishment increase.

Federal, state, and local governments contribute to nourishment as well as private parties in some cases. The federal government is estimated to have contributed about \$680 million to nourishment in Florida through 2002, not including emergency funding after hurricanes for dune construction and not including the large amount of nourishment and federal funding provoked by the active hurricane seasons of 2004

⁵⁹ FLA. STAT. § 161.088.

⁶⁰ *Save Our Beaches v. FDEP*, 937 So.2d 1099 (Fla. Dist. Ct. App. 2006), review granted by *FDEP v. Save Our Beaches*, 937 So.2d 1099 (Fla. Sep 25, 2006).

⁶¹ Promotion of beach nourishment as a strategy to protect nesting habitat for sea turtles, C.R. LEBUFF & E.M. HAVERFIELD, NESTING SUCCESS OF THE LOGGERHEAD TURTLE (*CARETTA CARETTA*) ON CAPTIVA ISLAND, FLORIDA—A NOURISHED BEACH 69, in Proceedings of the Eleventh Annual Workshop on Sea Turtle Biology and Conservation (1992), available at <http://www.nmfs.noaa.gov/pr/pdfs/species/turtlesymposium1991.pdf>, has given way to the realization that nourishment initially causes a decrease in successful nesting. D. G. Rumbold *et al.*, *Estimating the Effect of Beach Nourishment on Caretta caretta (Loggerhead Sea Turtle) Nesting*, 9 RESTORATION ECOLOGY 304 (2001). Such results remain preferable, however, to a loss of habitat due to erosion if the beach is not allowed to migrate. KELLY A. BROCK, EFFECTS OF A SHORE PROTECTION PROJECT ON LOGGERHEAD AND GREEN TURTLE NESTING ACTIVITY AND REPRODUCTION IN BREVARD COUNTY, Florida. M.S. Thesis, University of Central Florida, Orlando, Florida (2005). Dredging may impact the sea turtles' marine habitat, and it can also kill sea turtles by sucking them into the dredging equipment. In 2006 and 2007, the United States Army Corps of Engineers documented take of seventy-two sea turtles by dredging operations. See United State Army Corps of Engineers, Total Turtle Takes by Calendar Year, available at <http://el.erdc.usace.army.mil/seaturtles/takes.cfm?Type=Calendar>.

⁶² Over 325 species of invertebrates alone have been identified on nearshore reefs buried by nourishment projects, in addition to the numerous star corals, fire corals, and other species commonly buried by the dumped fill that is nourishment. BUSH, *supra* note 43, at 109. Nearshore and onshore plants are also impacted by nourishment projects. For example, a 1987 nourishment project at Key Biscayne directly buried more than twenty acres of seagrass beds. These direct effects have the potential to alter many components of primary or secondary production, which in turn may result in potentially significant changes at higher levels of the food chain. For example, one study found a roughly 85%, 97%, and 86% drop in the number of species, the mean abundances of species, and species per transect respectively after the burial caused by a nourishment project. Kenyon C. Lindeman & David B. Snyder, *Nearshore Hardbottom Fishes of Southeast Florida and Effects of Habitat Burial Caused by Dredging*, FISH. BULL. 97: 508-525 (1999), available at <http://fishbull.noaa.gov/09lindem.pdf>.

and 2005.⁶³ “Through the fiscal year 2006, over \$582 million has been appropriated by the [Florida] Legislature for beach erosion control activities and hurricane recovery.”⁶⁴ Local governments also spend considerable funds for beach nourishment,⁶⁵ and even private parties spend substantial funds trying to keep sand on the beach.⁶⁶ Even assuming available energy and funding for nourishment, Florida is running short of sand. South Florida has run out of readily available sources of beach-quality sand, giving rise to talk of going as far as the Bahamas in search of sand.⁶⁷

Making matters yet worse, shoreline migration affecting human structures will only increase in the coming years as the rate of SLR increases in response to global warming. Arguably no “solutions” to SLR exist, only differing management options. While many commentators have made valuable suggestions on options for managing the conflict between migrating shorelines caused by rising seas and human development, the best option from an economic and environmental perspective is to avoid the conflict by not placing human development in the way of migrating beaches. If development is placed in the way of migrating beaches, such development should have the technical, legal, and financial ability to move back from the migrating beach.

For much of Florida it is already too late to avoid the conflict between development and migrating shorelines. This article suggests that even as we develop strategies to manage such conflicts, we must urgently seek to avoid incurring tremendous additional costs and losses inherent in such conflict by acting now to preserve areas where allowing shoreline migration is most reasonable. While local governments may be the best poised to make difficult, site-specific decisions addressing the conflicts between development and beach migration, they may lack the resources and political will to act, in part because local governments use new development to expand their ad valorem tax base.⁶⁸

Local-level impediments to action dictate looking to the State for leadership and guidance in preservation of areas where shorelines may naturally migrate. Unfortunately, Florida’s regulatory system for coastal construction continues to allow rapid development in coastal areas. Private and public investment in infrastructure, new development in undeveloped areas, and increases in the density of existing development all continue to erode the reasonable management options for future responses to beach migration and SLR. For example, current and near-future development patterns and approvals often determine whether beaches that might have been allowed to migrate naturally at a lesser cost will instead

⁶³ COASTAL SERVICES CENTER, NATIONAL OCEANOGRAPHIC HISTORICAL EXPENDITURES FOR BEACH NOURISHMENT PROJECTS: GEOGRAPHICAL DISTRIBUTION OF PROJECTS AND SOURCES OF FUNDING, Figure 3.

⁶⁴ www.dep.state.fl.us/beaches/programs/bcherosn.htm.

⁶⁵ For example, Gulf County will contribute almost \$12 million for the St. Joseph Peninsula Beach Restoration Project, and the State of Florida will contribute almost \$13 million. (Information on file with author). Lee County estimated total beach nourishment costs for a ten-year period to be \$73,996,437, of which the state would directly pay \$26,249,414, the federal government would pay \$12,056,466, a local bed tax would pay \$18,056,625, and property owners would pay \$17,633,931.

www.leevcb.com/shore/Erosion_Control_Budget_Plan_updated_August05.pdf.

⁶⁶ For example, the owner of a small hotel in Brevard County said that she spent \$40,000 on trucking in sand after the 2004 and 2005 hurricanes but that the sand rapidly disappeared. Jim Waymer, *On the Edge: As Ocean Creeps Near, Residents are Left in Tight Spot*, FLORIDA TODAY, Oct. 6, 2007 at A1. Similarly, a property owner in St. Johns County is reported to have spent \$47,000 on sand that washed away within two weeks. Christina Abel, *Seawall Waivers Granted to 5 Beach Homeowners*, TIMES-UNION (electronic addition), (April 12, 2008) available at http://www.jacksonville.com/tu-online/stories/041208/met_267694953.shtml.

⁶⁷ See, e.g. Amy Green, *Would It Still Be Miami Beach With Foreign Sand?*, CHRISTIAN SCIENCE MONITOR, (May 16, 2007). Also in 2007, the Florida Legislature acknowledged that “beach-quality sand for the nourishment of the state’s critically eroded beaches is an exhaustible resource” FLA. STAT. § 161.44 (2007).

⁶⁸ Cf. JUSTIN R. PIDOT, GEORGETOWN ENVIRONMENTAL LAW & POLICY INSTITUTE, COASTAL DISASTER INSURANCE IN THE ERA OF GLOBAL WARMING: THE CASE FOR RELYING ON THE PRIVATE MARKET, 35-37 (2007).

need to be protected at far greater cost.⁶⁹ Florida's statewide process for permitting construction near beaches should be modified to serve as an immediate first line of defense in maintaining an array of options for responding to SLR and concomitant shoreline migration.

Despite increasing recognition of its problems and limitations, beach nourishment remains Florida's reaction to coastal migration. Many factors gathering on the horizon may come together to limit the future usefulness of nourishment as a way to satisfy the desire for both a dynamic beach and coastal development next to the beach. Thus, it behooves us to maintain maximum management options for addressing beach migration and SLR by minimizing new development near the beach.

III. The Coastal Construction Control Line Program: Determining the Long-Term Fate of Florida's Beaches

A. Overview of Statutory Provisions

In 1965 Florida passed the Beach and Shore Preservation Act (BSPA) in recognition of the importance of Florida's beaches to the state's economy and ecology. Regulation under the BSPA⁷⁰ began in 1970 with establishment of a 50-foot setback line for construction on the state's sandy beaches. In 1971, the Florida Legislature created the coastal construction setback line (CCSL),⁷¹ which in 1978 was altered to become the coastal construction control line (CCCL). While the CCSL had been a line seaward of which construction was prohibited, the CCCL does not prohibit construction seaward of the line but does subject such construction to additional regulation of siting and design.⁷² In 1985, the Florida Legislature again added a setback line for areas with an established CCCL. This line is the 30-year erosion projection (30-yr. EPL).⁷³ The 30-yr. EPL prohibits construction of major habitable structures seaward of the line, with the notable exception of single-family homes under some circumstances.

The CCCL program, with significant changes, continues today. The stated purpose of the CCCL program is "to preserve and protect [Florida's beaches] from imprudent construction which can jeopardize the stability of the beach-dune system, accelerate erosion, provide inadequate protection to upland structures, endanger adjacent properties, or interfere with public beach access."⁷⁴ The CCCL program is administered by the BBCS.

The CCCL program states that no one "shall construct any structure whatsoever seaward [of the CCCL]; make any excavation, remove any beach material, or otherwise alter existing ground elevations; drive any vehicle on, over, or across any sand dune; or damage or cause to be damaged such sand dune or the vegetation growing thereon seaward thereof" except with a permit or pursuant to an exemption in the CCCL program.⁷⁵ CCCLs are established on a county basis along the sandy beaches of the state.⁷⁶ While the CCCL regulatory program does regulate construction of any structure in the CCCL zone, the focus in

⁶⁹ East Central Florida Regional Planning Council, *supra* note 82, at 56 (noting that timely planning will make adjustment to sea-level rise less costly).

⁷⁰ FLA. STAT., ch. 161, Parts I and II (§§ 161.011-.45).

⁷¹ FLA. STAT. § 161.053 (1971).

⁷² *See, e.g.* BUREAU OF BEACHES AND COASTAL SYSTEMS, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, THE HOMEOWNER'S GUIDE TO THE COASTAL CONSTRUCTION CONTROL LINE PROGRAM 2 (Feb. 2006).

⁷³ 1985 FLA. LAWS ch. 85-55.

⁷⁴ FLA. STAT. § 161.053.

⁷⁵ *Id.* § 161.053(2)(a).

⁷⁶ *Id.* § 161.053(1)(a). Sandy beaches in counties that do not have an established CCCL continue to use the 50 foot setback line established by § 161.052. *Id.* § 161.053(11).

this review is on major habitable structures⁷⁷ and coastal armoring structures⁷⁸ as these are the structures that have the greatest direct effect on beach management options in the face of shoreline migration.⁷⁹

The CCCL demarcates the extent of “the beach-dune system subject to severe fluctuations based on a 100-year storm surge, storm waves, or other predictable weather conditions.”⁸⁰ Construction seaward of the CCCL requires special siting and design considerations as established by statute and rule. The substantive standard by which to measure the effect of the potential impacts for issuance of permits is not very clear. Statutes require that the evidence, in DEP’s opinion, “clearly justif[ies]” the requested permit.⁸¹ DEP should examine whether the proposed activity will “ensure the protection of the beach-dune system, proposed or existing structures, and adjacent properties and the preservation of public beach access.”⁸² If adjacent structures have established a reasonably continuous and uniform construction line closer to mean high water than consideration of the above criteria might permit, and such structures have not been unduly affected by erosion, a permit may issue to construct up to the line of construction. A permit may limit the nature, timing, and sequence of construction to protect sea turtles, native salt-resistant vegetation, and endangered plant communities. If the evidence presented does not clearly justify the permit under these standards, the permit should not be issued.

The 30-yr. EPL prohibits construction seaward of the 30-yr. EPL except for shore protection structures, piers, other minor structures, intake/discharge structures, or certain single-family homes.⁸³ The 30-yr. EPL represents the line, based on site-specific historical trends and topography, of where the mean high water line will be in thirty years. The 30-yr. EPL does not account for likely future movements of the beach due to SLR, thus sometimes resulting in a determination that the 30-yr. EPL is at the current water line.⁸⁴

The state’s policy on rigid coastal armoring specifies that armoring permits may be granted to protect private structures or public infrastructure vulnerable to frequent coastal storms, to close gaps of less than 250 feet in existing armoring, and for use of geotextile tubes in dune reconstruction. This section also grants local governments the authority to install or permit temporary, emergency armoring. Armoring below the mean high water line is subject to the provisions of § 161.041, which requires a permit for such construction⁸⁵ and allows issuance upon consideration of engineering data related to shoreline stability and stormtides, design features of the proposed structure, and the potential impacts of the proposed structure. Armoring above the mean high water line is subject to § 161.053, which allows for issuance of permits after consideration of a virtually identical list of factors.

⁷⁷ These include structures such as houses, condominiums, multi-family dwellings, restaurants, and hotels. FLA. ADMIN. CODE r. 62B-33.002(59)(c)1.

⁷⁸ Coastal armoring includes revetments, bulkheads, seawalls, and geotextile tubes.

⁷⁹ Development of infrastructure such as roads and sewer lines also contribute significantly to the demand for and growth in major habitable structures.

⁸⁰ FLA. STAT. § 161.053(1)(a).

⁸¹ *Id.* § 161.053(5)(a)(3).

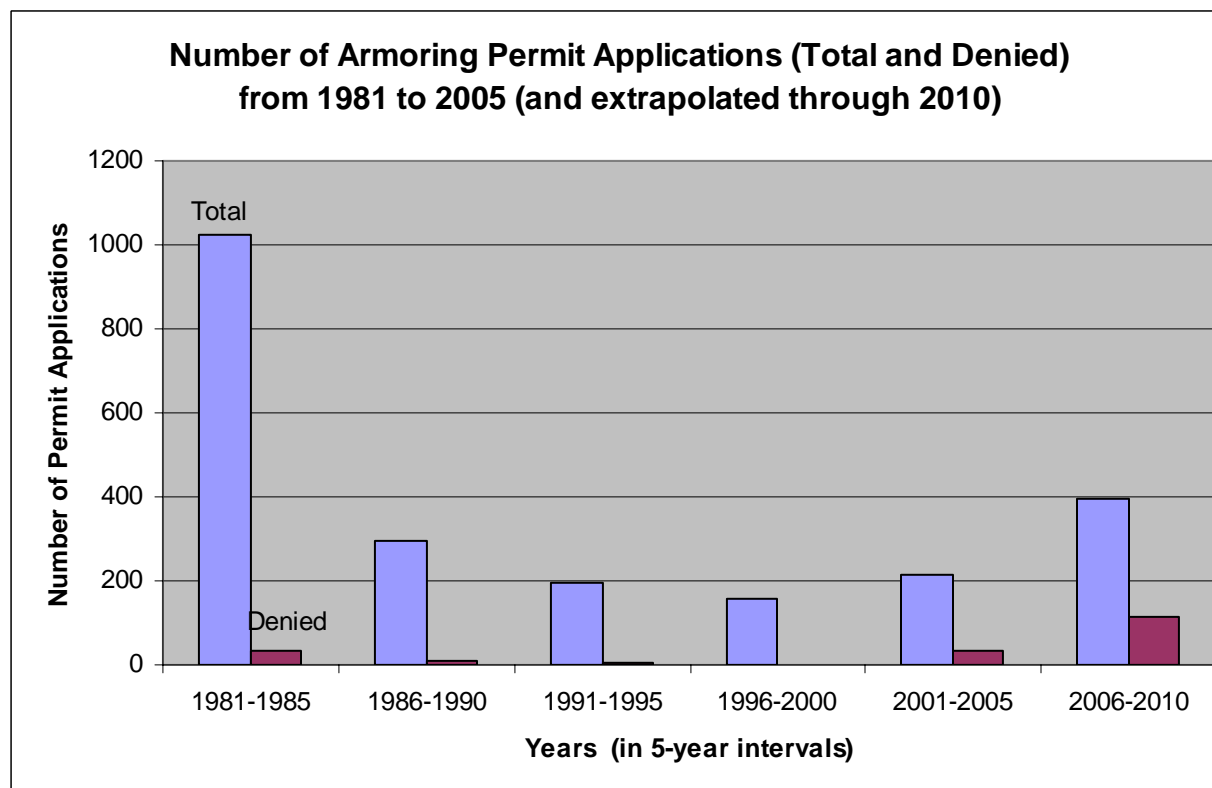
⁸² *Id.* § 161.053(1)(a). The substantive standard applied by DEP in its permitting review is “no significant adverse impact.” FLA. ADMIN. CODE r. 62B-33.005(3)(a) (“After reviewing all information required pursuant to this rule chapter, the Department shall: Deny any application for an activity which either individually or cumulatively would result in a significant adverse impact including potential cumulative effects.”).

⁸³ FLA. STAT. § 161.053(6).

⁸⁴ *See, e.g.*, FDEP memorandum to FDEP Permit File No. ST-1137 from S. Muthuswamy, Ph.D. (Dec. 16, 1996).

⁸⁵ FLA. STAT. § 161.041(1). Beach nourishment projects are also permitted under § 161.041.

B. Trends in CCCL Permitting



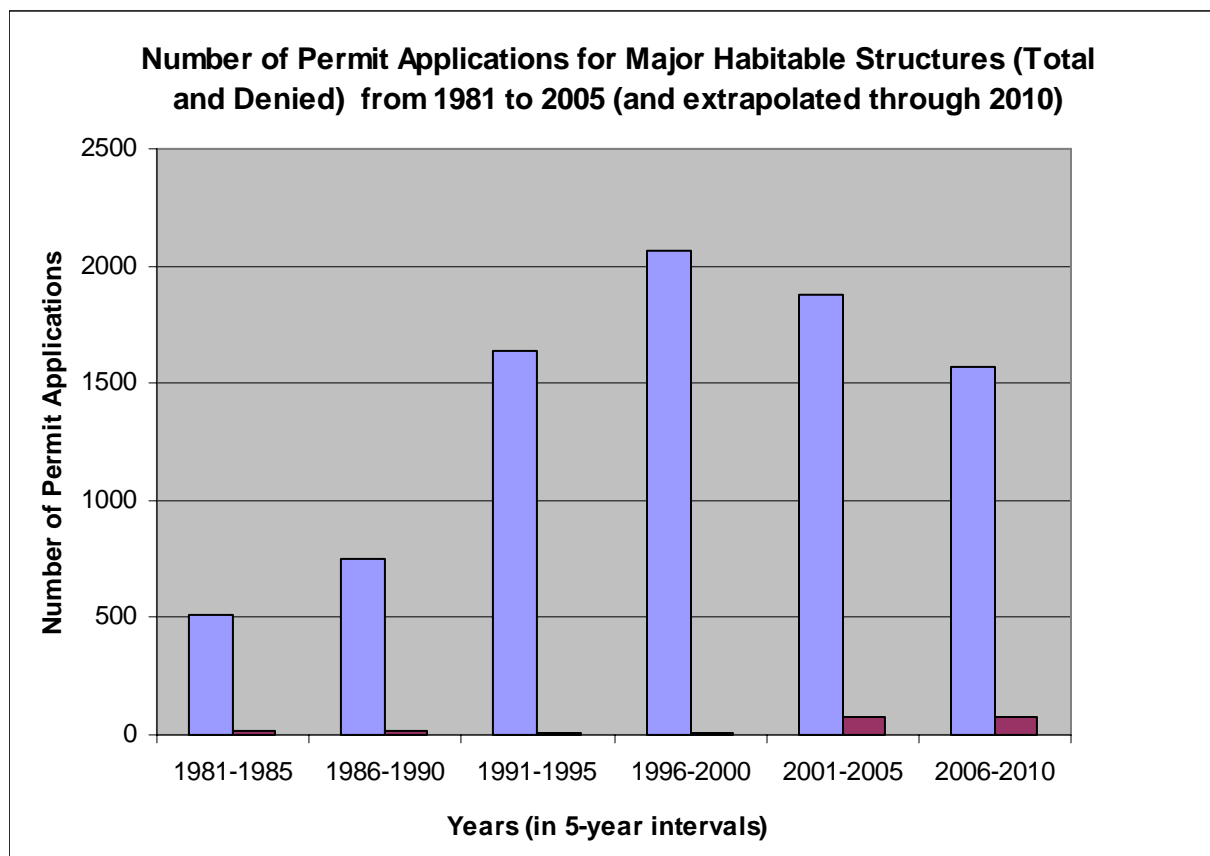
The permitting of armoring structures along Florida beaches declined dramatically after 1985 as illustrated by the above table.⁸⁶ Much of the decrease is likely due to the new emphasis on beach nourishment coupled with changes to the permitting criteria. An increase in permit applications that began in the 2001-2005 period and continued into 2006-2007 will lead to almost a doubling of issued permits from the 1996-2000 low if the current trend continues through 2010. A large part of this increase in permit applications and denials stems from the very active 2004 and 2005 hurricane seasons and much of the activity is centered in Walton County in Florida's panhandle.⁸⁷ The situation in Walton County, Florida receives further consideration below in the context of emergency permitting of armoring.

Even as the total number of armoring permits around the state has decreased, the average length of armoring requested in each permit application has increased. During the 1981-1985 period, the average length of new armoring granted per issued permit was 176.1 feet. During the initial twenty-one months of the 2006-2010 period, the average length of new armoring granted per permit issued was 269.2 feet,

⁸⁶ Extrapolations were completed through 2010 using permit information from the first twenty-one months of the 2006-2010 period and the following ratio: $[(21 \text{ months}/60 \text{ months}) \times \text{Unknown}/(\text{Total \# of applications in first 21 months of 2006-2007})]$. While this chart only shows total applications and denied permits, research demonstrated that it has historically been quite accurate to assume virtually all permits that were not denied were issued. Beginning in 2005 this has begun to change somewhat with the increase in permits in "waived" status for long or indefinite periods. See discussion in Part IV.C, *infra*.

⁸⁷ This research used final orders of FDEP as its source of information. Two factors contribute to armoring constructed in response to 2004 and 2005 hurricane seasons being included in the 2006-2010 timeframe. First, those that armored under local government permits issued in response to emergency conditions in 2004 and 2005 have a window during which to file for state permits. Second, final orders in response to a permit application sometimes issue long after the permit application was filed.

meaning that today's average armoring permit allows more than 50% more linear feet of armoring than the average permit in 1981-1985. The increasing length of armoring per permit is in part a function of multiple property owners applying for a single armoring permit.



The trend for permits for major habitable dwellings is virtually the inverse of the pattern for armoring. Permits consistently and dramatically increased from 1981 to 2000. From 2001 to the present they have been decreasing. The reasons for the increase and decrease are not clear. Current state regulations prohibit the issuance of armoring permits for major habitable structures permitted after 1985.

C. *Key Provisions and Issues in CCCL Permitting*

Issuance or denial of permits occurs largely on the basis of a limited number of statutory and regulatory provisions. Some of these key provisions, problems with them, and suggestions for reform are discussed below.

1. **Construction Landward of Existing Armoring**

Section 161.053(2)(b) provides an exemption from certain siting and design criteria for structures located landward of existing armoring. Structures may be built landward of existing armoring and seaward of the CCCL if the structure is sited to allow for maintenance of the armoring, located at or landward of the existing line of construction, is designed to comply with the windload requirements of the BSPA, and is sited and designed to protect marine turtles.⁸⁸

⁸⁸ It is hard to imagine how any siting requirements could help protect sea turtles from a structure behind armoring. Assuming that the armoring is exposed, the armoring itself may affect sea turtles because it may eliminate prime

This provision should be modified or eliminated. The exception may have its place before when little was known about SLR and its potential impacts. But now that we understand that SLR is occurring and is expected to *dramatically* increase in speed and magnitude, exempting major habitable structures landward of existing armoring from siting and design criteria makes no sense since it promotes development behind structures that will not, in light of SLR, be capable of offering the level of protection required by the exception. In addition, the increase in investment in coastal development makes it increasingly difficult to relocate development to preserve a dynamic beach.

2. Cumulative Impacts

Florida law specifies that cumulative impacts are to be considered in reviewing a permit application.⁸⁹ Unfortunately, consideration of cumulative impacts appears almost useless. As noted in a report required by the federal Coastal Zone Management Act,

Addressing the indirect consequences of individual projects has a limited effect on managing the broad-based environmental impacts commonly associated with accelerated growth and development and other significant land use changes.⁹⁰

Similarly, up until recently, “cumulative impacts” assessment had been of little value in protecting wetlands.⁹¹

3. “Line of construction”

The “line of construction” provision⁹² allows that if there is a “reasonably continuous and uniform line of construction closer to the mean high water than the foregoing. . .,” a proposed major habitable structure may be permitted along this line. The DEP has interpreted this to mean that, absent exceptional circumstances, applicants are entitled to a permit up to the line of construction.⁹³

DEP and the BBCS do not have any written policy on how to apply the line of construction provision or determine a “reasonably continuous and uniform” line.⁹⁴ Those familiar with the CCCL program indicate that it may be applied differently in different cases. Various officials involved in permitting indicate that a reasonably continuous and uniform line of construction can be established by a minimum of two structures: one structure on each side of the applicant’s lot. There is also some indication that structures farther away from the applicant’s lot and not even in line with adjacent structures might be used to establish a line of construction. Thus, uncertainty clouds how a “reasonably continuous and uniform line

nesting habitat and may cause increased “false crawls” in which a sea turtle fails to lay her eggs. The only design requirement that could help protect sea turtles in such a situation would be to eliminate lighting affecting the beach.

⁸⁹ FLA. STAT. §161.053(5)(a).

⁹⁰ FINAL ASSESSMENT AND STRATEGIES, *supra* note 6, at 38.

⁹¹ *Id.*

⁹² FLA. STAT. §161.053(5)(b). This provision only pertains to applications for major habitable structures such as houses, hotels, motels, and condominiums but does not affect armoring permits.

⁹³ FLA. ADMIN. CODE r. 62B-33.005(9) (“If in the immediate area a number of existing major structures have established a reasonably continuous and uniform construction line and if the existing structures have not been unduly affected by erosion, except [where the 30-year erosion projection applies], the Department **shall** issue a permit for the construction of a similar structure up to that line.” (emphasis added)). *Also cf.*, e.g., FDEP Permit No. ST-1653.

⁹⁴ One memo in BBCS files about a dispute over the line of construction emphasized that the line is a very subjective one. Memorandum to Gene Chalecki from Ken Erlick and Tom Tomasello, dated April 2, 2007, found in FDEP Permit File No. ST-1653.

of construction” is determined and questionable application may effectively be advancing the line of construction seaward and more immediately into the path of harm and beach migration.

The statute limits application of the line of construction provision to cases in which “the existing structures have not been unduly affected by erosion.”⁹⁵ “[U]nduly affected by erosion” has not been defined; conversations with various permitting officials resulted in conflicting opinions. One official maintained that the presence of armoring protecting adjacent structures indicated that they had been unduly affected by erosion; otherwise the structure would not have needed armoring. Another official opined that armoring, because it protects the adjacent structures, would indicate that the structures are not unduly affected by erosion. In making a permitting decision, this official would look at whether the proposed structure would be landward of the 30-year erosion projection line and whether the adjacent structures had received permits under the CCCL program. It seems axiomatic that the most seaward buildings on a developed beach, if the beach has been nourished by state funds based on erosion threats to upland development, should be considered to have been unduly affected by erosion.

Application of the line of construction provision in statute may effectively advance the line of construction in some cases. Furthermore, allowing construction up to the existing line of construction promotes increased investment and proportionally greater difficulty in adjusting to future movements of the beach-dune system. Building to the line of construction may make the difference between an area where policies of moving back from the migrating shoreline would be adopted and one where the beach will be entirely lost along with its habitat, ecosystem, and all the recreational, esthetic, and other benefits it provides.⁹⁶

Application of the line of construction provision should be eliminated or its use at least limited to the most densely developed areas which are already likely to be protected in the short-term. However, even in such instances, development should be conditioned on recordation of deed restrictions limiting rebuilding of the property and requiring removal of any structures that interfere with the dynamic beach. In addition, if the provision is not eliminated, the most seaward buildings on a developed beach nourished by state funds should be assumed to be unduly affected by erosion since a developed beach typically must be “critically eroding” to receive state funds.⁹⁷

4. Close the Gap

The so called “close-the-gap” provision states that FDEP may issue permits for armoring if the applicant seeks to armor an existing gap of less than 250 feet of shoreline in between existing armoring.⁹⁸

The “close-the-gap” provision is very important for various reasons. First, since armoring accelerates erosion, parcels located in between armoring structures are subject to greater erosive forces than if the armoring to each side did not exist. Second, the provision also appears to profoundly affect sea turtle nesting. Evidence indicates that the small, isolated beaches found in between existing armoring structures support a disproportionately large share of sea turtle nesting sites in heavily armored areas. Third, gap

⁹⁵ FLA. STAT. §161.053(5)(b).

⁹⁶ This has already happened in some areas. For example, Male, the capital island of the Maldives, had its beach eliminated entirely by a \$60 million armoring project. See Jon Hamilton, *Maldives Builds Barriers to Global Warming*, NATIONAL PUBLIC RADIO, Jan. 28, 2008, available at <http://www.npr.org/templates/story/story.php?storyId=18425626>.

⁹⁷ Cf., e.g. FLA. ADMIN. CODE r. 62B-36.003; 62B-36.006(1)(a)&(b). The only case in which this would not be true is when the critically-eroding status of the beach and the state-funded nourishment were based on threats to recreation, wildlife habitat, or important cultural resources that did not include buildings establishing the line of construction. See CRITICALLY ERODING BEACHES, *supra* note 16.

⁹⁸ FLA. STAT. §161.085(2)(c).

closing promotes increased investment that works against efforts to allow dynamic movement of the beach-dune system over the long-term. It does this by allowing major habitable structures to be built closer to the beach than they otherwise might have been, since once the gap is closed new major habitable structures may be built behind the armoring closer than they otherwise could have been to the beach.⁹⁹

The gap closure provision applies even when the sea walls creating the gap have no permits.¹⁰⁰ This raises the possibility that a gap might be the result of illegal armoring. Absence of a permit does not indicate that armoring is illegal as the armoring may predate Florida's permitting program for armoring. However, there is currently no method to assure that existing sea walls were legally constructed. Permitting officials expressed little concern about this today as they believe the large number of sea turtle advocates that now watch Florida beaches serve as an effective source of information for identifying current illegal construction activities. Nonetheless, permit applications are pending under the close-the-gap provisions where the armoring creating the gaps has applied for, but not received, a permanent permit for the armoring. In most of these cases, the "close-the-gap" applicant has waived their right to a timely permit decision while waiting to see if the neighboring armoring will receive permits. BBCS officials stated that they would not knowingly approve a close-the-gap permit where the gap was created by illegal armoring.

5. Protection of Public Access

Florida law dictates that construction of structures which limit public access shall be limited.¹⁰¹ According to BBCS officials, protection of public access only includes the immediate impacts on public access, not the future losses. Continued and increased SLR and limitations on nourishment will likely combine to destroy public access in the future as the result of permits being issued today. In addition to this failure to comply with the statutory requirement of limiting structures which limit public access, state permitting activities which lead to the long-term destruction of Florida's beaches arguably violate the State's fiduciary duty under the public trust doctrine to preserve the beach for the citizens of the state.

6. 30-yr. Erosion Projection Line (EPL)

The 30-yr. EPL is intended to prevent issuance of permits for non-shore-protection structures "proposed for a location which, based on . . . projections of erosion in the area, will be seaward of the seasonal high-water line within 30 years."¹⁰² The 30-yr. EPL may not include any areas landward of the CCCL,¹⁰³ is based on historic shoreline change,¹⁰⁴ and must consider existing beach nourishment projects or those projects for which funding has been secured and permits have issued.¹⁰⁵

Research into the 30-yr. EPL has been hampered by a lack of organized information on the 30-yr. EPL. The BBCS database does not allow for any searches related specifically to the 30-year erosion control line. The only method researchers had to gather information on the 30-year erosion control line was to contact BBCS and use a random sample of permits. Statutes require that DEP annually report to the Legislature on the status of the 30-yr. EPL,¹⁰⁶ but, for over twenty years, no such report has ever been written or submitted to the Legislature pursuant to this statutory requirement. In addition, only one

⁹⁹ See discussion in Part III.C.1, *supra* (discussing construction behind existing armoring).

¹⁰⁰ As an example of a close the gap permit issued where the adjacent sea walls had no permits, see DEP Permit No. PB-880 AR, memo from Perry Ponder.

¹⁰¹ FLA. STAT. § 161.053(5)(e).

¹⁰² *Id.* § 161.053(6)(b).

¹⁰³ *Id.*

¹⁰⁴ FLA. ADMIN. CODE r. 62B-33.024(2)(a)1.

¹⁰⁵ FLA. STAT. § 161.053(6)(d).

¹⁰⁶ *Id.* § 161.053(6)(e).

person, who also has other job responsibilities, is charged with creating and maintaining 30-yr. EPL estimates for all of Florida's beaches.

Even as the CCCL program's only setback line, the 30-yr. EPL fails to effectively protect the beach-dune system due to a number of inherent deficiencies. First, the planning horizon for the 30-yr. EPL is flawed. The line is based on estimates of erosion for the next thirty years. Since most buildings last much longer than 30 years (with some infrastructure assumed to last up to 100 years), it unclear why the Legislature chose this timeframe to serve as a measurement of a safe distance from the seasonal high water line.

Second, the 30-yr. EPL requires putting a structure behind where the seasonal high water line (SHWL) will be in 30 years.¹⁰⁷ This fails to protect the dynamic beach system since, even in the best-case scenario (i.e. accurate assessments of average erosion, no major storms, no recession due to sea level rise), a structure built behind the 30-yr. EPL will be at the SHWL in 30 years, meaning the structure will be forward of the primary dune and harming this critical portion of the beach-dune system. Dune systems provide sand storage for the coastal system, and failure to protect the long-term integrity of the dunes constitutes failure to protect the beach-dune system. The weakness of using the SHWL as a reference point is especially acute in the panhandle area of Florida where the beach profile leaves the SHWL so far out from the toe of the dune that even relatively high average annual erosion rates multiplied by 30 years would still place the 30-yr. EPL at or seaward of the dune bluff. Thus, the 30-yr. EPL offers no beach-dune protection in such a situation. In addition, structures located on the active beach have no protection from coastal storms.

Third, the eight possible methods for calculating the 30-yr. EPL listed in Florida's administrative code look only to "historical measurements."¹⁰⁸ Historical measurements do not effectively incorporate future changes due to SLR, creating a problem with the fundamental measuring stick of the 30-yr. EPL. Yet shoreline recession due to SLR could prove substantial in Florida, leading to loss of up to 1,000 to 2,000 feet of shoreline over the next 90 years.¹⁰⁹ Even breaking this down into 30-year periods would result in the 30-yr. EPL being located 333 to 666 feet landward of the current SHWL after 30 years. Yet, under current methodologies, the BCS may apply default erosion rates of 1 foot per year or even less if nourishment is occurring.¹¹⁰

Use of historical rates of erosion in an area may also not be accurate due to increased development and armoring in the area. If coastal development and armoring have increased, the erosion rate will also have increased as armoring contributes to erosion by locking up sand behind the armoring.

BBCS officials readily admitted that buildings permitted behind the 30-yr. EPL routinely suffer from erosion. Since the statutorily-required reports on the 30-yr. EPL have never been written, no resource listing instances of the failure of the 30-yr. EPL was available. Nonetheless, here are two representative examples of failure of the 30-yr. EPL to protect the beach and structures. First, FDEP Permit No. SJ-550, issued in 1996, allowed for construction of a residence at 3500 Coastal Highway A1A, Vilano Beach, St. Johns County, Florida. According to the property appraiser's website, the house was built in 2000. A nor-easter in early April of 2008 brought the beach escarpment to the edge of the house, and the owner applied for an emergency armoring permit and now has a permit application pending for a variance to the eligibility requirements for coastal armoring. All this only eight years after being built. Second, FDEP Permit No. GU-355, issued in 2002, allowed for construction of a house in Gulf County (in Florida's panhandle). Within four years of construction, coastal erosion had caused extensive damage under the

¹⁰⁷ The seasonal high water line is "the line formed by the intersection of the rising shore and the elevation of 150 percent of the local mean tidal range above local mean high water." FLA. STAT. § 161.053(6)(a)2.

¹⁰⁸ FLA. ADMIN. CODE r. 62b-33.024.

¹⁰⁹ See discussion on Part 1.C, *supra* (discussing SLR and shoreline recession).

¹¹⁰ FLA. ADMIN. CODE r. 62b-33.024(2)(d).

house, including damaging the septic system. The owner installed illegal armoring between pilings, but was forced to remove it.

The calculations of the 30-yr. EPL in areas being nourished deserve particular mention. The BBCS maintains very broad discretion in how nourishment gives credit to the 30-yr. EPL calculation.¹¹¹ In essence, nourishment allows the BBCS to move the 30-yr. EPL further seaward than it would otherwise be located.¹¹² BBCS officials currently give 50 years credit in the 30-yr. EPL calculation for federally-funded nourishment projects and state-funded projects usually receive around 10-15 years credit in the calculation.

Additionally, rules state if a pre-project erosion rate cannot be determined, the 30-yr. EPL shall be set along a “reasonably continuous and uniform line of construction that has shown to be not unduly affected by erosion.”¹¹³ The rules do not provide a definition of “unduly affected by erosion.” One would assume the definition of “unduly affected” would include areas so affected by erosion that they are in need of nourishment. However, since no definition is provided, and since this definition of “unduly affected” would prevent any use of this subsection, this is not the interpretation used by DEP.

As another weakness, the role storm events play in determining “the average annual shoreline change rate” has not been clearly determined. For example, no policy exists for how to incorporate into the 30-yr. EPL the fact that some areas may have lost dozens of feet of beaches during the 2004-05 hurricanes in Florida. Do such storm events qualify as “prevailing coastal processes acting on or likely to act on the site”?¹¹⁴ If they are deemed not to be, they “shall not be used”¹¹⁵ in calculation of the 30-yr. EPL, which would mean that the “average” erosion rate under the 30-yr. EPL would not include storms.

Finally, a significant exception to the 30-yr. EPL setback allows construction of a single-family home seaward of the 30-yr. EPL on certain parcels.¹¹⁶ This exception likely owes its existence to the U.S. Supreme Court case of *Lucas v. South Carolina Coastal Council*.¹¹⁷

Thus, the 30-yr. EPL fails to protect the beach-dune system from imprudent construction for the next 30 years in many cases, much less well into the future. The rules for the 30-yr. EPL should be modified to incorporate a much longer time frame and take into account the crucial importance of protecting the dune structure by siting structures behind the line of the projected location of a dune structure, if present, or a safe landward location instead of the seasonal high water line. The shoreline change rates should also account for SLR and should contain a “severe storm safety measure” on top of the average shoreline change rates to account for inevitable hurricanes and tropical storms.

7. Rebuild

¹¹¹ FLA. ADMIN. CODE r. 62b-33.024(2)(d)2.

¹¹² See, e.g. DEP document “30-Year Erosion Recommendations for St. Lucie County” (original document date 1/26/05) (in DEP Permit File No. SL-223).

¹¹³ FLA. ADMIN. CODE r.62B-33.024(2)(d)(4).

¹¹⁴ *Id.*

¹¹⁵ *Id.*

¹¹⁶ FLA. STAT. § 161.053(6)(c). To be eligible for this exemption, all the following criteria must be met: (1) The parcel must have been platted or subdivided by metes and bounds prior to 1985; (2) the owner of the parcel must not own another parcel which is adjacent and landward of the parcel where the proposed house would be located; (3) the proposed house must be landward of the frontal dune; and (4) the structure will be as far landward as practicable.

¹¹⁷ 505 U.S. 1003 (1992).

Florida law specifically addresses the rebuilding of existing structures.¹¹⁸ Rebuilt structures receive blanket exemptions from whatever limitations the 30-year erosion projection may have imposed on the location of a structure.

Policy on rebuilding of storm-damaged or simply old, out-dated structures has tremendous impact on the feasibility for more economically-rational and measured movement back from dynamic beaches. Rebuilding structures not only increases development investment in at-risk areas but also undermines the concept that buildings are allowed in an area based on assumptions about the structure's typical lifespan.

Current statutes provide that FDEP may issue permits to rebuild a structure "within the confines of the original foundation" or may permit "a more landward relocation or rebuilding of a damaged or existing structure if such relocation or rebuilding would not cause further harm to the beach-dune system. . . ."¹¹⁹ FDEP may not issue permits for "repairs or rebuilding that expand the capacity of the original structure seaward of the 30-year erosion projection."¹²⁰ In addition, when "reviewing applications for relocation or rebuilding, [FDEP] shall specifically consider changes in shoreline conditions, the availability of other relocation or rebuilding options, and the design adequacy of the project sought to be rebuilt."¹²¹

To the average reader the rebuild provisions appear to limit rebuilding to the confines of the original foundation of a structure, or, alternatively, to allow rebuilding or repair of the existing building at a more landward location. The ordinary observer might also think that such "repairing" or "rebuilding" would reflect the size and type of structure that was present before the need for "repairing" or "rebuilding" arose. Such is not the case.

In 2000, the Florida Legislature amended the Florida Building Code¹²² to make it uniform across the state.¹²³ The legislation also modified the BSPA to incorporate provisions on design and construction of structures into the Florida Building Code and gave authority to the Florida Building Commission to adopt rules to implement such provisions.¹²⁴ Prior to the 2002 changes, applicants for a CCCL permit needed to submit a form from a local building official who determined that the "rebuild" was not "substantial."¹²⁵ This limited what could be considered a "rebuild." After the effective date of the updated Florida Building Code, March 1, 2002, applicants no longer needed to supply a local government statement as to

¹¹⁸ FLA. STAT. § 161.053(13). This section provides that: Notwithstanding the coastal construction control requirements defined in subsection (1) or the [30-year] erosion projection determined pursuant to subsection (6), the department may, at its discretion, issue a permit for the repair or rebuilding within the confines of the original foundation of a major structure pursuant to the provisions of subsection (5). Alternatively, the department may also, at its discretion, issue a permit for a more landward relocation or rebuilding of a damaged or existing structure if such relocation or rebuilding would not cause further harm to the beach-dune system, and if, in the case of rebuilding, such rebuilding complies with the provisions of subsection (5), and otherwise complies with the provisions of this subsection.

¹¹⁹ *Id.*

¹²⁰ *Id.*

¹²¹ *Id.*

¹²² Florida Building Code (FLA. STAT. §§ 553.70 – 553.898)).

¹²³ 2000 Laws of Florida ch. 141.

¹²⁴ FLA. STAT. § 161.053(22).

¹²⁵ FLA. ADMIN. CODE r. 62B-33.008(4). Rule 62B-33.002(50) defined "rebuilding" as "a substantial improvement of the existing structure as defined in [FLA. STAT. §] 161.54." The long definition at § 161.54 includes more than just rebuilding, leading to an argument that the rule defining "rebuilding" is beyond the scope of the statute that includes rebuilding. In addition, the definition of "substantial improvement" excludes large parts of the actual costs of a substantial improvement as it excludes "nonstructural interior finishings. . . ."

whether the proposed construction is a substantial improvement if the application is to repair, rebuild, improve, or add to an existing structure.¹²⁶ Thus, rebuilding is not limited to work that is not “substantial.”

Removal of the “substantial” requirement for rebuilding has led to additional confusion, which is evident in the case of *Atlantis at Perdido Association v. Bobby L. Warner*.¹²⁷ In *Atlantis at Perdido*, the plaintiff applied for a “rebuild” permit to replace an existing one-story quadriplex and one-story duplex with a fifteen-unit, nine-story condominium. In addition to the new proposed project being substantially larger in surface area and square footage, it was also located more seaward and added a pool, concrete parking lot and other ancillary structures.¹²⁸ FDEP justified granting Permit No. ES-540 by arguing that the proposed project constituted a rebuilding of the existing structure, and thus held that it was not subject to CCCL requirements.¹²⁹ The administrative law judge rejected this argument and found that the proposed nine-story condominium, pool, deck, and parking lot constituted new development.¹³⁰

The *Atlantis at Perdido* case arguably reached the correct outcome in rejecting FDEP’s interpretation of “rebuild.” FDEP’s interpretation stood poised to allow almost any increase in size and density of existing coastal construction. While this would be a boon to coastal landowners in the short term, it would prove disastrous for efforts to protect dynamic beaches as sea turtle nesting habitat and adapt to changes due to SLR since every increase of density of coastal development leads to more future loss, leading to ever greater political pressure by powerful coastal property owners to use the public’s money – and coastal resources – for the protection of their private property. Thus, the first step in making rebuilding more rational is to establish that it cannot be used as a way to increase development and investment in areas already at danger from a moving beach.

Rebuilding should be limited to 50% of the value of the structure and should *always* be limited to the original foundation and type of structure unless being relocated landward. The state should identify a zone (based on erosion rates and/or proximity to the mean high water line or the landward toe of dune, when present) seaward of which rebuilding would simply be prohibited or allowed only once with a permit condition that the property must have a recorded deed restriction to this effect. If this policy is not implemented, a similar policy would be for the state and local governments to begin a project whereby they purchase the rebuild rights from properties.

IV. Problems with the CCCL Program

Several problems with the CCCL have already been addressed above in the context of specific provisions of the CCCL permitting program. This section addresses additional general and overarching issues with the CCCL program.

A. Administrative Problems

A fundamental problem in evaluating the effects of the CCCL program is the lack of clarity in the analysis that leads to permit decisions. Despite pages of statutes and rules, final agency action by FDEP usually consists of one long paragraph of boiler-plate language concluding that “the activities indicated in the project description of this permit are of such a nature that they will result in no significant adverse impacts to the beach/dune areas or to adjacent properties; that the work is not expected to adversely

¹²⁶ See FDEP Form 73-100 (Updated 12/06), available at http://www.floridadep.org/beaches/data/forms.htm#CCCL_App_Form.

¹²⁷ Case No. 1D05-4069, 31 Fla. L. Weekly D1827c (July 6, 2006).

¹²⁸ Respondents’ Proposed Recommended Order at 4-5, available at <http://www.doah.state.fl.us/docdoc/2005/000035/05000035RPRO-051705-08591259.PDF>.

¹²⁹ See generally Respondents’ Proposed Recommended Order at 15.

¹³⁰ Case No. 1D05-4069, Benton, J. at 11.

impact nesting sea turtles, their hatchlings, or their habitat; that the work is expendable in nature and/or is appropriately designed in accordance with Sections 62B-33.005, Florida Administrative Code; and that it is an activity or type of construction which the designee of the Chief of the Bureau of Beaches and Coastal Systems has authority to approve or deny.”

Under current BBCS practice, various and often-unspecified information is reviewed by a permit reviewer. Application files that involve an analysis of vulnerability of a structure typically contain the figures and statistics from the computer model used to ascertain vulnerability. Files also contain extensive information about engineering for structures. The area with the least information, however, is about the impact to the beach. In many permit files it is impossible to tell how the permit reviewer took into account different factors, such as the existing line of construction, to conclude that the proposed activity would result in no significant adverse impact to the beach-dune system. In many instances, permit files do not contain sufficient information to give an outside reviewer detailed information on the status of the site as of application (or prior status of the site in the case of “after-the-fact” permits), the impact to existing vegetation, the history of use of the site for sea turtle nesting, and larger development context for the area. Each of these usually has some limited amount of information available in the permit file, but BBCS lacks clear guidance and documentation procedures in its review process to create a traceable trail of the specific evidence used to determine compliance of the application with all applicable statutory and regulatory criteria. This lack of guidance makes it almost impossible in many instances to verify how the permit reviewer analyzed the proposed project.

BBCS should have a standardized format for review of each permit application wherein the reviewer first lists the evidence (including pictures, diagrams, plant surveys, etc.) that support a judgment as to which statutory and rule criteria should be applied. The permit reviewer should then be required to include all documentation and evidence considered in making a judgment on each relevant statutory or regulatory criterion. This would increase the size of permit files and would also require more careful organization of information and materials. At the same time, such a process would allow reasonably intelligent, informed individuals to review a permit application file and understand the application, the context of the proposed site, and how the final permit decision is reached. The current process is an opaque morass of limited documents in permit files which often leave a person reviewing the permit file with far more questions than answers about how permit decisions were reached.

B. Out of Date CCCLs

The calculation of the CCCL takes into account numerous factors, many of which change over time. Therefore, it is necessary to continually update the CCCL to maintain its purpose as a line of protection. Papers relied on by the FDEP state that the long-term erosion calculation included in the CCCL allows for an estimation of five years of long-term erosion.¹³¹ Therefore, the CCCL would need to be updated at least every five years to maintain the accuracy of the long-term erosion calculation. The CCCL that is not updated this often is drastically out-of-date.

Re-establishment of the CCCL is governed by FLA. STAT. §161.053(2)(a), which states:

Control lines established under the provisions of this section shall be subject to review at the discretion of the department after consideration of hydrographic and topographic data that indicate shorelines changes that render established coastal construction control lines to be ineffective for the purposes of this act or at the written request of officials of affected counties or municipalities.

¹³¹ CHIU, T.Y., AND R.G. DEAN, BEACHES AND SHORES RESOURCE CENTER, METHODOLOGY ON COASTAL CONSTRUCTION CONTROL LINE ESTABLISHMENT 70 (June 2002) *available at* <http://bcs.dep.state.fl.us/reports/method.pdf>.

This statute indicates that two events must occur before a CCCL will be changed: 1) consideration of the line is performed via a study revealing data that indicates need for a new line, or the municipality requests such consideration and 2) the department must decide to review the line for re-establishment. The impetus for either of these actions is not clear. Neither the statute nor the rules provide a timeline within which each CCCL must be reviewed, nor do they provide a timeline for studies that may indicate need for review. Currently, Gulf and Walton counties are in the process of re-establishing the CCCL, at the recommendation of the Governor's Coastal High Hazard Study Committee.

History Of The Reestablishment Of Coastal Construction Control Lines pursuant to Section 161.053, Florida Statutes:

COUNTY	FLORIDA ADMINISTRATIVE CODE	DATE RE-ESTABLISHED
Broward	62B-26.013	November 1981
Dade	62B-26.012	February 1982
Walton	62B-26.001	December 1982
Nassau	62B-26.005	April 1983
Franklin	62B-26.014	April 1984
Charlotte	62B-26.006	January 1985
Martin	62B-26.015	July 1985
Gulf	62B-26.016	February 1986
Escambia	62B-26.002	June 1986
Brevard	62B-26.017	December 1986
Indian River	62B-26.018	March 1987
Manatee	62B-26.008	August 1987
St. Johns	62B-26.019	January 1988
Flagler	62B-26.020	April 1988
St. Lucie	62B-26.021	September 1988
Sarasota	62B-26.009	January 1989
Collier	62B-26.022	June 1989
Volusia	62B-26.023	January 1991
Lee	62B-26.007	May 1991
Okaloosa	62B-26.003	December 1991
Duval	62B-26.004	July 1992
Bay	62B-26.024	February 1997
Palm Beach	62B-26.010	August 1997
Pinellas	62B-26.011	December 2001

Source: <http://www.dep.state.fl.us/beaches/publications/worddoc/reestabh.doc>

C. *Definitions of Eligibility*

Current regulations allow armoring for a structure vulnerable to erosion if the structure is “eligible,” meaning that it was *not* constructed pursuant to a CCCL permit after March 1985. As erosion rates in some areas push the beach ever closer to the CCCL, buildings constructed *behind* the CCCL can be threatened by erosion. Since such structures were built without a CCCL permit, they qualify as structures “eligible” for armoring. Assuming a scenario in which SLR leads to increased recession rates, the problem of relatively new structures without CCCL permits being armored looms large.

FDEP Permit File No. FR-878 AR ATF serves as an example of what the future holds when out-of-date and unrealistic CCCLs combine with shoreline migration and eligibility requirements. The structure, although right on a bluff overlooking the beach, was built *without* a CCCL permit in 1985 because it was behind the CCCL that had been established in Walton County in 1982. Thus, though the structure was built in 1985,¹³² it is “eligible” for armoring.¹³³



Picture of building at issue in file # FR-878 AR ATF

In addition to the problems associated with the definition of “eligibility,” more and more applications for armoring are beginning to seek variances to the definition of eligibility. Allowing variances to the need for eligibility would mean that the CCCL program serves little protective function to the beach-dune system as it first allows poor siting and then allows the landowner to armor to make up for the poor siting too close to the water. In addition, allowing armoring as a result of a variance to the definition of “eligible” will further promote the belief of property owners that the risk of erosion to coastal property must be borne by the public and the coastal system via a loss of public beach rather than by the coastal property owner via loss of the coastal property. Yet precisely this attitude must change if Florida is to move toward better coastal management.

D. Waiver of Permit Deadlines

A “waived” permit is one in which the applicant has waived the applicant’s right to have BBCS make a decision on the permit within the statutory timeframe of ninety days from the date the permit is deemed complete.¹³⁴ An applicant will often do this if BBCS has indicated it may deny the permit. The waiver gives the applicant time to amend the application, wait for changed circumstances, or take some action to encourage issuance of the permit. DEP in some instances recommends that staff initiate the waiver process with applicants.¹³⁵

In some cases waivers serve as mechanisms that allow a permit to remain pending and ultimately receive approval rather than being rejected. For example, in one case several permit applications to construct single-family homes were going to be denied because the homes would fall seaward of the 30-year erosion projection line and did not meet the criteria for the exceptions to this setback. The permit applicants waived the permit deadlines and supported a beach nourishment project in the area. After the nourishment project, DEP issued permits for the single-family homes based on the credits generated by the nourishment project and applied to the 30-yr. EPL.

¹³² Information from a real estate listing on the internet. The ad also states that “Beach restoration and additional white sand have been installed beach front to Palms of Dune Allen”

¹³³ FDEP Permit No. FR-878 AR ATF was denied by DEP on multiple grounds, including non-vulnerability of the structure according to DEP rules, “take” of sea-turtles through habitat modification, and failure of the armoring to comply with design standards in rule.

¹³⁴ Information in this section comes primarily from interviews with BBCS officials.

¹³⁵ BUREAU OF BEACHES AND COASTAL SYSTEMS, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, PROCEDURES MANUAL FOR PERMIT MANAGERS 25-26 (Sept. 2006).

As of August 15, 2007, there were seventy-eight waived permits. Forty-two appeared to be indefinite waivers with twenty-six of these in Walton County and all but six being after-the-fact (ATF) permits.¹³⁶

E. Political Problems

Coastal property in Florida carries tremendous value. High property values and the wealth of many coastal property owners often translate into political connections for those interested in building along Florida's coast. Such political clout can translate into the ability of some to get permits. During research, numerous individuals familiar with the CCCL program asserted that enough political pressure can result in the issuance of almost any permit.

The lack of clarity in how factors are weighed in making permit decisions may contribute significantly to the vulnerability of the permitting process to political influence. CCCL statutes and rules should be modified to clarify the standards and criteria and how they interact in making a determination of "no significant adverse impact." Modifications could include development of a matrix of different factors to consider for each permit. Each factor would be weighted and rated according to defined formulas with a minimum overall score necessary for issuance.¹³⁷ There is also the possibility of setting a lowest possible score on one or more factors.

F. Variances

Two statutes allow variances to the limitations on coastal construction.¹³⁸ These variances rely on the authority of state agencies to grant variances to their regulations when the purpose of the statute will be or has been achieved by other means and literal application of the rules would cause substantial hardship or would affect a particular person in a manner significantly different from that of other similarly situated persons subject to the rule.¹³⁹ A search of permits revealed nine variance applications as of late 2007.¹⁴⁰

Permit application WL 883 AR V gives an example of a variance request. The property owner was originally denied an after-the-fact permit for armoring constructed pursuant to a local government emergency armoring permit. The permit was denied for four reasons. The structure was not deemed "eligible" for armoring¹⁴¹ the structure was not considered vulnerable; the sea wall was not located as far landward as practicable; and construction of the sea wall constituted a "take" of marine sea turtles.¹⁴² The

¹³⁶ For example, one of the non-ATF waivers is file # CH-531 AR. This is a permit to fill the gap between existing armoring. DEP analysis indicates that adjacent armoring is exacerbating erosion, but the Florida Fish and Wildlife Conservation Commission concluded that the armoring would cause a "take" of sea turtles due to destruction of nesting habitat. The permit has been waived multiple times, with the most recent waiver effective until October 31, 2008.

¹³⁷ This could be modeled after the ranking system for beach management funding in the current Florida Administrative Code. See FLA. ADMIN. CODE r. 62B-36.006.

¹³⁸ FLA. STAT. § 120.542 (2007) (allowing variances to agency rules under certain circumstances); *Id.* § 161.052 (allowing for variances to the fifty-foot setback line under certain circumstances).

¹³⁹ *Id.* § 120.542.

¹⁴⁰ The permits were IR 522 V; LE 887 V; PB 787 AR V; OK 327 V; WL 822AR V (file has been listed as inactive and incomplete, thus "undetermined"); WL 831AR V (application complete yet indefinitely waived by bureau chief); WL 868AR V (application complete yet indefinitely waived by bureau chief); WL 872AR V (application complete yet indefinitely waived by bureau chief); and WL 883AR V.

¹⁴¹ In the case of a house, the structure is eligible if it is "non-conforming." FLA. ADMIN. CODE r. 62B-33.0051(1)(a)1. A non-conforming structure is "any major habitable structure which was not constructed pursuant to a permit issued by the Department [of Environmental Protection] pursuant to Section 161.052 or 161.053, F.S., on or after March 17, 1985." *Id.* r. 62B-33.002(43).

¹⁴² FDEP, Final Order for Permit Application WL-883 AR ATF (October 18, 2006).

variance application sought a variance to the “eligibility” criterion and argued that the structure is “vulnerable.”¹⁴³

As mentioned above, the variance could be granted upon a showing of hardship and that the purpose of the statute has been met. The variance petition argued that continued erosion without the sea wall would cause hardship because future erosion could:

- sever utilities to the structure, requiring expensive repairs,
- destroy air conditioning units
- destroy landscaping and a hot tub
- cause loss of use of the structure during repairs occasioned by erosion
- cause loss of part of the parcel

The applicant claimed further losses contributing to hardship, including the substantial cost for removal of the armoring and loss of the investment in installation of the armoring.¹⁴⁴ The applicant estimated that the total economic hardship due to these factors could rise to almost \$2.6 million. The applicant also asserted a “technological” hardship since removal of the unpermitted sea wall would make it difficult to retain sand under the structure, and the sand was necessary to support service infrastructure for the house. This offers an example of how even pile-supported structures built according to CCCL design standards cannot realistically be expected to remain useful when subject to the erosive forces of a migrating beach.

In addition, the variance requires that the purpose of the statute be met. The applicant emphasized that one purpose of the statute is to allow for protection of private property and asserted that the sea wall does exactly this. The applicant then acknowledged the intent of other portions of relevant statute to protect the beach-dune system, native vegetation, and public access from imprudent construction. The petitioner asserted that the sea wall would protect the dunes behind it and that the sea wall did not affect native, salt-tolerant vegetation. Thus, said the applicant, the sea wall accomplishes the statutory goal of protecting the beach-dune system. Permit Application WL 883 AR V is undetermined and waived indefinitely.

As another example of a variance request, one can look to a variance application received May 1, 2008 by DEP for a house in St. Johns County.¹⁴⁵ A newspaper article describing the plight of the owner and four others in St. Johns County stated that “U.S. Rep. John Mica, R-Fla., and St. Johns County officials announced Friday afternoon that five Vilano Beach homeowners can install permanent seawalls to stop their homes from toppling into the ocean.”¹⁴⁶ However, St. Johns County officials may only issue “temporary” armoring permits, and DEP must issue the permanent permits. The appearance of a U.S. representative and assertions that the armoring will be “permanent” gives the appearance that politics might be at play in the permitting process since current DEP rules do not allow armoring for these houses.¹⁴⁷ The push to grant evermore variances to protect property built after 1985 will only grow as more and more houses built with a CCCL permit are threatened by coastal erosion. DEP has continued to

¹⁴³ The petition states that a habitat conservation plan that is under development would alleviate the “take” problem and that the petitioners would meet with the agency to discuss the claim that the armoring was not cited as close as practicable to the structure.

¹⁴⁴ Petition for Variance or Waiver, FDEP Permit File No. WL-883 V.

¹⁴⁵ FDEP application SJ-1029 AR V.

¹⁴⁶ Christina Abel, *Seawall Waivers Granted to 5 Beach Homeowners*, TIMES-UNION (electronic addition), Apr. 12, 2008, available at http://www.jacksonville.com/tu-online/stories/041208/met_267694953.shtml.

¹⁴⁷ *Id.*

receive variance requests since the nine already received by late 2007 and those familiar with the CCCL program expect many more to be coming, mostly from Walton County.¹⁴⁸

Granting of variance requests such as this one would erode the few fundamental protections for the beach-dune system incorporated into the CCCL program. The requirement that a structure cannot be armored unless it was not built pursuant to CCCL permit should serve as notice to property owners building on Florida's beaches since 1985 that the risk of erosion of their property resides with them and that the risk should not be borne by the public and ecosystem due to the loss of the natural beach.¹⁴⁹ To make this even stronger, CCCL permits for new or rebuilt major habitable structures should be conditioned on recording a deed restriction that the property will never be armored and that the structure will be removed at the property owner's expense if the structure ends up interfering with the active beach. This also puts the applicant on notice that future movement of the beach is at the risk of the property owner rather than the public or the species and ecosystem that depend on the beach. Without this fundamental limitation, DEP would further guarantee the loss of our beaches to armoring every time it issued a permit for a major habitable structure. The prohibition on armoring for structures built pursuant to the program recognizes that such structures are built to *not* lock up the sand underneath them and interfere as little as possible with the beach-dune system.

G. Emergency Permitting

BBCS and local governments can issue emergency armoring permits, but local government emergency permitting for armoring has generated significant controversy in both cases where it has seen extensive use. The first widespread use of this authority was Indian River County, which issued a number of emergency armoring permits after Hurricane Erin in 1995. The potential for "take" of sea turtles by emergency armoring led Indian River County to work with the U.S. Fish and Wildlife Service to develop a habitat conservation plan under the federal Endangered Species Act, which then allowed Indian River County to receive an incidental take permit that would allow the county to issue future emergency armoring permits.

The severe erosion during 2004 and 2005 in Walton County again led to extensive granting of emergency armoring permits by a local government. Walton County issued about 250 emergency armoring permits. Many of these are now applying for after-the-fact (ATF) permits. Eighteen ATF permit applications for armoring have been denied as of March 13, 2007, and all but one of these has filed a challenge to the permit denial (see following sub-section on after-the-fact permits). The experience of Walton County can help shed light on some of the problems with local government authority to grant temporary emergency armoring permits.

Fla. Stat. § 161.085 governs local governments' issuance of temporary emergency armoring. The statute stipulates that it shall only be authorized when a private structure or public infrastructure is threatened. Local governments should also take into account a list of criteria similar to the ones considered by FDEP in the CCCL program. These include protecting the beach-dune system, siting and design of the structure, impacts on adjacent properties, preservation of public beach access, and protection of native coastal vegetation, nesting threatened or endangered species, and nesting marine turtles and their hatchlings.

¹⁴⁸ For example, a letter to FDEP requesting a variance for a home in Walton County stated that within the neighborhood concerned, "All [those that armored] are currently requesting variances . . ." Petition letter of Keith R. Jackson, FDEP Permit File No. WL-999 AR V.

¹⁴⁹ In 2008 the Florida Legislature passed a bill that would create an exception to the idea that the risk of erosion resides exclusively with the property owner. CS/HB 1427, if signed into law, will require assignment of responsibility for erosion caused by inlets and specifying what FDEP must do in the case of disputes between property owners and local governments regarding amount of sand bypass. *See supra* note 18.

Local governments are required to inform FDEP when the local government issues an emergency armoring permit. However, it appears that local governments sometimes do not accurately inform FDEP when they issue emergency permits. For example, Walton County not only failed to accurately inform FDEP of all emergency permits it issued, but the county sometimes even said that no county permits existed for work that actually did have county permits. This seemed to be a symptom of a local permitting system operating without the administrative capacity to function properly. The county sometimes issued permits to different properties with the same permit number, and referenced properties inconsistently in documents, sometimes using a parcel number, sometimes address, or other methods. This has generated problems as the State attempts to come to grips with the armoring on Walton County beaches. Even if Walton County had submitted an accurate and detailed list of all the temporary emergency armoring permits it had granted, DEP does not maintain a database that contains such information.

Despite the requirement that emergency armoring be “temporary” in nature, those familiar with the issue inside and outside of FDEP acknowledge that there is usually no practical difference between “temporary” armoring and that which is intended to be permanent. If the armoring consists of sheet piling, the concrete cap that often covers the top might be left off as evidence that the sheetpiling is “temporary.” Nonetheless, once armoring is in the ground, everyone agrees that it would be very unusual for the armoring to be removed.

Due to extensive problems with emergency permitting, in 2006 the Florida Legislature provided FDEP with the authority to revoke the right of local governments to issue emergency armoring permits.¹⁵⁰

H. After-the-Fact Permitting

Sometimes activities take place within the CCCL jurisdictional area without a permit from the state. The most common cause of this is the authority of local governments to issue “temporary” armoring permits to protect from erosion that occurred during a storm event. In other cases, property owners may have engaged in construction without the benefit of a CCCL permit. In most cases, the party without a permit or with a local “temporary” permit will seek an ATF permit. Review of selected ATF permit files indicated that in some instances an applicant applies for a permit for a structure, builds the structure prior to receiving the permit, and FDEP converts the application to an ATF application.

Walton County has been the current center of ATF permitting due to issuance of about 250 emergency “temporary” armoring permits by Walton County in response to severe coastal erosion in 2004 and 2005. In addition, some armoring was constructed without even a local government permit.¹⁵¹ Most of the 250 local permit recipients have properly submitted permit applications to DEP to make their armoring permanent. Some ATFs have been granted and others denied. A denial of an ATF permit does not lead to an immediate order to remove the armoring. If the permit applicant challenges the denial of the permit, the armoring is not considered a violation during the legal process, because the applicant complied with the law by applying for a permit. On the other hand, if the ATF application is denied and not challenged, the armoring is to be removed. Researchers were unable to verify that this has happened with any armoring in Walton County despite the passage of several years since installation of most of the

¹⁵⁰ 2006 Laws of Florida Ch. 99, § 1.

¹⁵¹ These include: James E. Mountjoy- FDEP violation #VWL 05-07/WL-844 AR ATF; Lee Shook- FDEP violation #VWL 06-02/WL-888 AR ATF; John Higdon- FDEP violation #VWL 06-03/WL-911 AR ATF; Tony & Linda Hill- FDEP violation #VWL 06-04/WL-947 AR ATF; Silver Shells Townhomes- FDEP violation #VWL 06-07/WL-887 AR ATF; Palms of Dune Allen- FDEP violation #VWL 06-08/WL-878 AR ATF; Alan H. Nix- VWL 06-09/WL-928 AR ATF; Patrick Tylka- FDEP violation #VWL 06-10/WL-928 AR ATF; James & Michelle Spires- FDEP violation #VWL 06-11/WL-934 AR ATF; Stephen Chambers- FDEP violation #VWL 06-19/WL-975 AR ATF; Ed Foy- FDEP violation #VWL 06-21/WL-1002 AR ATF; Scott Bumpas- FDEP violation #VWL 06-22/WL-970 AR ATF.

“temporary” armoring. For example, Permit No. WL-841-AR ATF was denied Nov. 9, 2006, and the denial was not challenged. FDEP sent a warning letter April 27, 2007 requiring removal of the armoring, but the wall has not been removed. As of April 2008, FDEP had requested additional information and was in settlement talks; FDEP officials did not disclose what the settlement might include.

I. Enforcement Issues

Enforcement activities under the CCCL program include both compliance and violation activities. A compliance action results when a permit holder violates the permit; a violation occurs when a regulated activity takes place without a permit. FDEP has seven to eight field agents around the state. Field agents conduct monthly inspections of permitted activities and fill out reports on these inspections. Field agents may discover compliance issues at the site of the permitted activity or discover violations at nearby sites, but FDEP does not have anyone that regularly patrols the beaches to look for violations. FDEP stated that most of the violations it deals with are brought to its attention by the public, often by disgruntled neighbors or sea turtle advocates monitoring beaches.

Statutes and rules give significant authority to the FDEP to remove unauthorized construction and impose sanctions for unpermitted activities seaward of the CCCL. For example, unpermitted work is declared a public nuisance which is to be removed after notice.¹⁵² If the owner does not remove, FDEP may remedy the violation and place a lien on the property for FDEP’s cost in doing so.¹⁵³ Violations of permitting requirements can lead to criminal charges of a first degree misdemeanor.¹⁵⁴ In addition, statutes allow for administrative fines of up to \$10,000 per day for violations.¹⁵⁵ Fines go into the Ecosystem Management and Restoration Trust Fund,¹⁵⁶ which also supplies funds for beach nourishment.¹⁵⁷

Enforcement actions usually begin with a warning letter. The violator is apprised of the relevant law and why FDEP believes a violation has occurred. The violator will then typically apply for an ATF for the activity, apply for a modification to an existing permit, or otherwise remedy the violation. Application for an ATF permit will halt the enforcement action assuming that the violating activity (or construction constituting the violation) is halted during the pendency of the permit application. If an ATF permit is issued, the enforcement action is typically dropped.

From January 1, 2006 to March 25, 2008, FDEP dealt with, opened, and closed a total of one hundred and seventy-three enforcement actions.¹⁵⁸ FDEP seldom uses the great enforcement authority it possesses. For example, the current head of FDEP’s CCCL enforcement is not aware of a single instance in which FDEP has used its authority to prosecute a CCCL violation as a criminal offense. FDEP does sometimes use its authority to assess civil fines. From January 1, 2006 to March 25, 2008, FDEP issued twenty-two fines for a total of \$28,950.¹⁵⁹ Of this total, \$27,700 had been collected. Fines ranged from \$300 to \$10,000, with the average being \$1,315.91.

Arguably the most egregious cases of violations are those in which the violator clearly knew they were violating the law and intended to do so. For example, Permit File No. WL-878 AR ATF indicates that the

¹⁵² FL. STAT. § 161.053(7). In addition, FDEP may request that the Department of Legal Affairs institute proceedings to enjoin any regulated activity that does not have a proper permit. *Id.* § 161.081.

¹⁵³ *Id.*

¹⁵⁴ *Id.* § 161.053(8).

¹⁵⁵ *Id.* § 161.054(1).

¹⁵⁶ FLA. ADMIN. CODE r. 62B-54.004(5).

¹⁵⁷ FL. STAT. § 161.091(1).

¹⁵⁸ This number does not include enforcement actions that may have been pending prior to the dates included but which had not been resolved during the dates stated.

¹⁵⁹ Beaches and Coastal Management System Fines Report, March 25, 2008 (on file with author).

applicant had applied for a geo-tube armoring structure. Before the permit review process was completed, FDEP discovered that the applicant had installed an unauthorized armoring system different from the one in the pending application. The structure was ordered removed after denial of the application, but even with such a willful, major violation, FDEP did not recommend imposition of a fine since the “costs associated with removal of the [unpermitted armoring] will likely be significant.”¹⁶⁰ If the unpermitted armoring by some settlement or litigation is allowed to remain, imposition of a fine would be reconsidered.¹⁶¹ In most cases of illegal armoring, FDEP takes this approach of assuming that the cost of removing the armoring is penalty enough.

This leads one to ask how often illegal armoring is removed. During research the rumor often surfaced that no armoring in the state had ever been removed despite many denials of ATF permits over the years. Working with FDEP officials, researchers proved that this is not entirely true. Research revealed three instances in which a permit denial had an impact on existing armoring. In one instance, the owner of a structure that was not eligible for armoring¹⁶² had cement walls poured in between the piles supporting the house.¹⁶³ FDEP discovered the violation and denied an ATF application, and ordered removal. The owner of the house complied with the removal order. In another instance, a rock revetment was relocated landward due to an initial denial of a permit.¹⁶⁴ In the third instance, a sea wall was relocated landward.¹⁶⁵ FDEP has only one person in charge of CCCL enforcement for the entire state of Florida. This lack of staffing and resources may contribute to the small number of enforcement actions pursued and seen through to imposition of a civil fine.

As part of the review of enforcement activities, researchers conducted limited “ground-truthing”¹⁶⁶ of certain permits in Martin, Palm Beach, St. Lucie and Walton counties.

Martin County

In Martin County, five permits were slated for ground-truthing. Researchers were only able to visit two locations. One had armoring whose ATF application was “undetermined” at the time but subsequently approved.¹⁶⁷ The second site was denied an armoring permit, and no armoring was present on the property.¹⁶⁸

Palm Beach County

In the course of conducting ground-truthing activities, several structures were observed for which inquiries were made to the BBCS for permits associated with the properties. First, dune restoration was observed at 5540 N. Ocean Dr. in Palm Beach County, in front of a condominium building called Water Glades. The inquiry to BBCS yielded two permits associated with Water Glades condominium, neither of which was associated with the observed dune restoration. The first permit¹⁶⁹ was for a bulkhead or seawall, or return wall. The second permit¹⁷⁰ was for Vegetation, Native Salt Resistant for Beach/Dune Stabilization, or fill, but was from 1996. The observed dune restoration appears to have been conducted much more recently than 1996. Further research, however, revealed that DEP and BBCS had issued

¹⁶⁰ DEP Memorandum to VWL 06-08 from Jim Martinello, Environmental Manager, Bureau of Beaches and Coastal Systems.

¹⁶¹ *Id.*

¹⁶² The structure was not eligible because the house was built after 1985 with a permit under the CCCL program.

¹⁶³ FDEP Permit Application No. GU-450 AR ATF and violation file #VGU 06-03.

¹⁶⁴ FDEP Permit Nos. FR-816 AR ATF and FR-836 AR.

¹⁶⁵ FDEP Permit No. IR-511 M1 and IR-511 M2.

¹⁶⁶ Ground-truthing is a term taken from the remote sensing field and it refers to the practice of verifying data through fieldwork.

¹⁶⁷ FDEP Permit No. MI-461 AR ATF.

¹⁶⁸ FDEP Permit No. MI-484 AR.

¹⁶⁹ FDEP Permit No. PB-910.

¹⁷⁰ FDEP Permit No. PB-542.

emergency permit PB-875 M1 E for emergency beach restoration activities, including placement of sand, after sub-tropical storm Andrea in 2007.¹⁷¹

Second, a new sea wall was observed at 5440 N. Ocean Dr. in Palm Beach County, in front of a condominium building called Aquarius. Inquiry to BBCS yielded one permit associated with the address. In that permit, the restoration or repair of sand retaining walls was approved in July 2007.

Finally, a new sea wall was observed at 5420 N. Ocean Dr. in Palm Beach County, in front of a condominium building called Connemara. The inquiry to BBCS yielded two permits, PB 832 and 8021778. PB-832 was for a Bulkhead or Seawall and a Return Wall (all approved). 8021778 was for Vegetation, Native Salt Resistant for Beach/Dune Stabilization; Fences and Railings - Privacy, Safety, Security and Ornamental; and Walkways, Walkover Structures, Boardwalks and/or Stairs (all approved).

Researchers also observed that the sea wall constructed at 5420 N. Ocean Drive in front of the Connemara building extended to a large portion of the property of the Sea Dunes building, which applied for an armoring permit.¹⁷² This permit was not issued but was waived until March 22, 2008. Thus, the legal status of the seawall extending in front of the Connemara building was not clear.

Walton County¹⁷³

Inquiries indicated the existence of at least eleven ATF permits for coastal and shore protection structures that had been denied in Walton County, as of August 22, 2007. Ten of the properties corresponding to the permits contained the structures or dune restoration activity that had been denied. For example, at one property, for which an ATF armoring permit was denied on November 9, 2006, an armoring structure was observed in August 2007. The head of enforcement for BBCS said that all but one of the ten properties visited by researchers was permitted by Walton County, and, as of April 2008, all but one has challenged DEP denial of their ATF permits.

J. Structural Problems

The stated goal of the CCCL is “to preserve and protect [Florida’s beaches] from imprudent construction which can jeopardize the stability of the beach-dune system, accelerate erosion, provide inadequate protection to upland structures, endanger adjacent properties, or interfere with public beach access.”¹⁷⁴ While it appears common sense to assume that a program with the stated goal of protecting beaches would also protect the sea turtles that depend on those beaches for their habitat, this is not the case.

The CCCL program is a program designed to issue permits for coastal construction. Such construction is not supposed to be “imprudent construction which can jeopardize the stability of the beach-dune system.” but definitions of “imprudent construction” and “stability of the beach-dune system” seem to focus primarily on minimizing storm and erosion-related losses for people.

The storms of the very active 2004 and 2005 hurricane season produced similar, extensive damage. Most of the damage occurred to habitable structures (which include single and multi-family homes) constructed prior to the establishment of the state’s CCCL Program and as a result were not built to the more stringent construction standards of the current program. Habitable structures built to the CCCL Program’s standards (those constructed to withstand the wind and water forces experienced in a high hazard coastal zone) survived. Specifically, of the 1,992 major

¹⁷¹ It is unclear why the initial inquiry to BBCS did not reveal the existence of this permit.

¹⁷² Permit Application PB-904.

¹⁷³ University of Florida graduate student Lori Brinn conducted the onsite visits for groundtruthing in Walton County.

¹⁷⁴ FLA. STAT. § 161.053.

habitable structures impacted by Hurricane Opal, 768 (or 40%) were destroyed. On the other hand, of the 576 structures permitted by the CCCL Program, only 2 (or 0.2%) were destroyed. Experiences during the 2004 and 2005 hurricane seasons confirmed the importance of CCCL Program standards in reducing damage to structures and the beach and dune system.¹⁷⁵

While this quote has statistics to demonstrate that the CCCL program makes structures more resistant to storm damage, the assertion that the CCCL Program has reduced damage to the beach and dune system has no similar substantiation in the document. The focus on structures relegates the general ecosystems that relate to the beach to the status of poor cousins in determining whether proposed projects should be permitted. For example, while statutes and rules mention turtles in several places,¹⁷⁶ the only real reason for turning down a project due to turtle impacts is when the Florida Fish and Wildlife Conservation Commission determines that the construction would constitute a “take” of sea turtles. Yet it is hard to imagine that the continued construction of sea walls on beaches that continue to migrate towards those seawalls will leave sufficient beach habitat for sea turtle nesting.

As further evidence of the bias towards protection of property in the CCCL, it should be noted that sea turtles are not included as an integral part of “the beach-dune system” and that the statute allows BBS to modify the timing or nature of a project to protect sea turtles, but not the siting of the project.¹⁷⁷

V. Suggestions for Reform

Suggestions for reform included in this article are founded on the basic realizations that shoreline migration, whether natural or caused by human activity, will continue; that SLR is already occurring and will become more rapid; that nourishment will not be able to protect all sand beaches in Florida from all the effects of SLR; and that Florida wants to maintain at least some natural beaches. Another basic premise of the suggestions included here is that the risk for constructing in the coastal zone, especially for new construction, should rest with the property owners and not with the public who is forced to choose between protecting/purchasing threatened property or loss of the beach. Many suggestions for reform have already been touched upon when discussing specific weaknesses or problems in the CCCL permitting program. What follows is a summary of these and additional suggestions for reform of the CCCL program.

- Account for a significant amount and period of SLR in determination of the CCCL determination.
- Improve the transparency of the permitting process by creating detailed templates and matrices for analysis of impacts of proposed projects. The methods and evidence included in such analyses should be clearly represented in the permit file.
- Either eliminate the statute granting local governments authority to issue temporary armoring permits or reform it by specifying in the statute that issuance of a local permit does not assure issuance of a permanent state permit, that all risk of failure to receive a permanent state permit resides with the property owner, and that prior to construction a property owner must post a bond for removal costs should the state permit be denied.
- All permits for new, non-armoring construction should require a deed restriction noting that the property will never be allowed to armor.

¹⁷⁵ DIVISION OF BEACHES AND COASTAL SYSTEMS, FLORIDA DEPT. OF ENVIRONMENTAL PROTECTION, THE HOMEOWNER’S GUIDE TO THE COASTAL CONSTRUCTION CONTROL LINE PROGRAM (February 2006).

¹⁷⁶ See, e.g. FLA. STAT. §§ 161.053(2)(b)1.a; 161.053(5)(c); 161.053(18); 161.053(19); 161.053(22); 161.0531; 161.085; 161.085(9); 161.161(1)(i); 161.163.

¹⁷⁷ *Id.* § 161.053(5)(b).

- All new permits for non-armoring should require an easement whereby the property owner must remove any structure interfering with the natural dynamics of the beach-dune system.
- The “line-of-construction” provisions should be eliminated or should at least be modified to set minimum requirements to assure that it is only applied in situations of existing, high-density construction; the provisions should also set criteria defining a “reasonably continuous and uniform line of construction” that qualifies as the basis for exception.
- Eliminate the provision allowing for siting and design exceptions for structures behind existing armoring.
- The term “unduly affected by erosion” should be statutorily defined to include any property which has armoring, which has applied for armoring, which is on a nourished beach, or which lies seaward of the 30-year erosion projection line (as modified per suggestions below) in area classified as “critically eroding.”
- The current “eligibility” requirement for armoring should be modified to add that structures built without a CCCL permit are not eligible unless they are within a densely-developed area served by central water and sewer.
- Eliminate the 30-year erosion projection in favor of a strict state setbacks for construction; the setback could be tailored to regions or areas. If this option is not used, the 30-year erosion projection should be extended to consider a longer time frame that may account for SLR; the time frame for single family homes might be significantly shorter than that for major infrastructure, commercial, or multifamily dwellings.
- Use a far longer time horizon and incorporate SLR in calculation of the 30-year erosion projection line and set the line at the landward toe of the primary dune, when present, rather than at the seasonal high water line.
- Do not give credit for nourishment projects when calculating the modified 30-year erosion projection.
- Limitations on new development should be developed for areas that currently have primarily low-density residential development. Several possible options could serve this end:
 - New structures might be allowed in low-density or undeveloped areas seaward of the CCCL only if the building is designed to be disassembled and/or moved and if the property owner can demonstrate fee-simple ownership of an undeveloped lot (with deed restrictions limiting its use to relocation of the proposed structure) outside of the CCCL and within a reasonable distance of the proposed structure’s site.
 - Alternatively, a new structure might be allowed if the structure is built to fail in an extreme storm event and rebuilding would be dependent upon sufficient space remaining on the affected property. Any such permit should also require a bond or insurance policy to pay for clean up of a destroyed structure.
 - Alternatively, a new structure might be allowed if the proposed property has sufficient depth to allow relocation behind the projected location of the landward toe of the primary dune as determined by the modified 30-year erosion projection.

- Rebuilding of damaged structures should be limited and conditioned to discourage substantial new investment in existing properties, thus promoting possibility of eventual relocation out of highly hazardous areas.
 - A structure should be allowed to be rebuilt only once with the permit conditioned on recordation of a deed restriction noting that future rebuilding in the same location is prohibited.
- The “close-the-gap” provision should be modified to only apply in densely developed areas. The impact of excluding property in non-densely developed areas could be mitigated by a state law creating a right of action for property owners against neighboring property owners for damages due to the erosive effects of neighboring armoring. This reflects the same logic exhibited by the Florida Legislature when it passed CS/HB 1427 in 2008.
- The CCCL program should incorporate a significant program promoting accommodation of the dynamic beach-dune system by offering incentives for relocation of existing structures prior to the structure’s succumbing to forces of the beach or coastal storms.

VI. Conclusion

Avoiding the hazard is the best way to deal with coastal hazards. Construction sited sufficiently landward of the active beach to allow for natural shoreline migration effectively minimizes coastal hazards to development, protects natural ecosystems, and reduces the multi-million-dollar yearly cost of beach nourishment and armoring. In many instances, past developers built too close to the beach, resulting in high losses from storms and exorbitant costs for rebuilding, armoring, and nourishing of beaches. While Florida’s current CCCL permitting program has increased the safety of new structures built in the coastal zone, it fails to adequately protect the ability of the beach to migrate, fails to account for SLR, and encourages increased development due to beach nourishment. These failings have resulted in increased development subject to both immediate coastal hazards and the long-term problems of SLR.

Increasing beach erosion and SLR bring into question the feasibility of Florida’s current focus on beach nourishment as a means to avoid the conflict between development and beach migration. The CCCL program’s granting of erosion credits for nourishment projects and failure to account for SLR in current permitting decisions foster development that will require protection from beach migration and SLR or will be lost to the sea. In areas which are already densely developed, the incremental cost of such new development may be minimal as the area would likely already have been prioritized for shore protection from SLR anyway. However, new development in previously undeveloped areas and increasing density in sparsely developed areas is adding rapidly to the amount of land on Florida’s coast that will receive priority for protection from erosion and SLR.

Protection from SLR in the future will exact far higher costs than we have yet seen from shore protection efforts in Florida. As the speed and magnitude of SLR increase, nourishment alone will likely not be able to keep up due to cost and lack of sand as well as the increasing energy required for nourishment. Once nourishment is no longer feasible in a developed area, two choices will remain: either armor and lose the beach or move human development back from the beach and allow the shoreline to migrate. Such choices will be very difficult as the losses from either option will be tremendous.

Multiple federal, state, and local policies encourage or permit development that is or soon will be subject to severe fluctuations of the beach-dune system. While reforms are necessary in federal, state, and local

insurance; planning, disaster management and relief; and permitting policies, reforms to Florida's CCCL permitting program for coastal construction are also urgently needed to discourage new coastal construction or redevelopment in areas vulnerable to likely SLR and to ensure that redevelopment or new development that is permitted be conditioned to prevent its inclusion as justification for future armoring and loss of our beaches. Anything less amounts to the State of Florida abdicating its public trust duty to manage and preserve Florida's beaches for the good of all its citizens.



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